DRAFT REPORT

REVENUE REQUIREMENTS AND COST OF SERVICE RATES

B&V PROJECT NO. 182762

PREPARED FOR

CITY OF ST. JOSEPH, MISSOURI
WATER PROTECTION DIVISION

MAY 2014

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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) is projected to experience an average annual decrease in customers of 0.16 percent for the study period fiscal year (FY) 2015 through 2019. Billable volume from current City customers is projected to increase slightly for the residential class, decrease slightly for retail commercial and industrial customers, and remain constant for wholesale customers (Tables 2 and 3).

The projection of billed revenues from sales decreases from a base of $22,307,900 in 2014 to $22,071,000 in 2019 (Table 4). Miscellaneous operating revenues, which are primarily from penalties for late payment and tax credit revenue, are projected to be approximately $953,600 in 2014 and remain fairly steady through the study period, decreasing slightly to about $890,600 in 2019 (Table 5).

Operating expenses, which include operation and maintenance expense, routine capital expense, and transfers to other City funds, are expected to be $13,374,800 in 2014 and are projected to increase to $15,786,600 in 2019 (Table 6).

The City's current Capital Improvement Program (CIP) for fiscal years 2014 through 2019 totals $172 million (Table 7). About one quarter of the CIP is for environmental and regulatory projects mandated by the Missouri Department of Natural Resources (MDNR). This is primarily for the project related to ammonia removal ($38.2 million). The current CIP includes a total of $63 million in CSO related projects, with the majority going towards the Blacksnake Creek Stormwater Separation project. The other large project in the CIP is for the Eastside Wastewater Improvements ($26.6 million). The CIP is anticipated to be financed with annual operating revenues, a $56 million State Revolving Fund (SRF) bond issue in FY 2014, a $24.7 million SRF bond issue in FY 2015, a $52 million SRF bond issue in FY 2016, a $5.5 million conventional bond issue in FY 2015, a $7.3 million conventional bond issue in FY 2018, and one Short Term bond for $5.3 million in FY 2015. Annual debt service on existing and proposed debt is projected to increase from approximately $5 million in 2014 to $15.3 million in 2019 (Table 9).

The following revenue increases are projected to be required to meet the Sewer Utility's revenue requirements through the fiscal year ended June 30, 2019. Revenue requirements include both the cash obligations and the debt service coverage obligation of the Sewer Utility.

Effective Date	Percentage Overall Increase in Revenues	Residential Indicator[1]
July 1, 2014	9.0%	1.2%
July 1, 2015	12.0%	1.3%
July 1, 2016	12.0%	1.5%
July 1, 2017	10.0%	1.6%
July 1, 2018	8.0%	1.7%

[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.

Total cost of service for 2015 to be met from wastewater service charges is $24,365,600 (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 has been updated in this study and will be the basis for cost allocation for the next five years with the exception of certain allocations that will be updated annually. The cost allocations follow standard wastewater utility cost allocation procedures that are shown in Tables 13 through 20. The proposed cost of service based rates scheduled to become effective July 1, 2014 are shown in Tables 22 and ES-1. This study introduces some new rate components such as limit fees, fixed charges for wholesale customers, and specific flow charges for each wholesale customer. 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 percent for the retail class and 100.1 percent for the wholesale customer class.

Table ES-1 Schedule of Proposed Rates for Fiscal Year Ending June 30, 2015

RETAIL

Service Charge	Monthly Charge $				
Inside City	29.06				
Outside City	68.20				
Volume Charge	**Monthly $/Ccf**			**Limit Fees**	
Inside City	3.77			1.595	$/Ccf
Outside City	8.62			3.646	$/Ccf
Extra Strength Surcharge	**Inside City**	**Outside City**			
BOD in excess of 300 mg/l	0.232	0.345	$/lb	0.348	$/lb.
Suspended solids in excess of 350 mg/l	0.212	0.503	$/lb	0.318	$/lb.
Fats, Oils, & Grease in Excess of 100 mg/l	0.248	0.569	$/lb		
Septage	56.00	56.00	$/Kgal		

WHOLESALE (a)

Ammonia Project Fixed Charge				
South St. Joseph Industrial Sewer District	7.630	$/Month		
National Beef Leathers	2,520	$/Month		
Triumph Foods	5,020	$/Month		
Flow charge				
South St. Joseph Industrial Sewer District	0.315	$/Ccf	0.473	$/Ccf
National Beef Leathers	0.235	$/Ccf	0.352	$/Ccf
Triumph Foods	0.237	$/Ccf	0.355	$/Ccf
Pump Station (b)	0.336	$/Ccf		
BOD	0.258	$/lb.	0.387	$/lb.
Suspended Solids	0.160	$/lb.	0.240	$/lb.
Fats, Oils, & Grease	0.248	$/lb.		

(a) Applicable to the South St. Joseph Industrial Sewer District (SSJISD), National Beef Leathers, and Triumph Foods 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, 2015

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	14,430,808	14,181,300	98.3	18.9
2	Commercial/Industrial	5,851,284	6,101,900	104.3	0.1
3	Surcharge	1,245,102	1,243,500	99.9	(27.0)
4	Septage	140,435	141,100	100.5	12.0
5	Total Retail	21,667,629	21,667,800	100.0	9.1
	Secondary Wholesale Treatment				
6	South St. Joseph Industrial Sewer District	1,529,580	1,530,200	100.0	7.1
7	National Beef Leathers	389,592	390,000	100.1	5.1
8	Triumph Foods	778,801	779,500	100.1	11.7
9	Total Secondary Wholesale Treatment	2,697,973	2,699,700	100.1	8.1
10	Total	24,365,602	24,367,500	100.0	9.0

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, 2019; (2) projection of revenue adjustments through fiscal year (FY) 2019; and (3) development of cost of service based rates for retail and wholesale customers for FY 2015. 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 allocations, and proposed rate increases 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 2015 through FY 2019.

Revenue requirements are developed on a cash basis and the allocation of costs to 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, 2015

This report also introduces 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. For FY 2015, the rate will recover only the interest portion of the SRF loan during construction. 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 1 and a charge per pound of removal from customers' flows. In addition to adding an ammonia fixed charge, the following new concepts were also performed in this study:

- Cost of service rates were determined for Fats, Oils and Grease (FOG) and Septage
- Functional cost components were added for FOG, Septage, and Capacity (which recognizes Peak Flows as compared to the average annual flows reflected in the Volume cost component)
- Phase out of the Secondary Service Minimum (SSM)
- Limit Fees for wholesale customers and retail SIU's were established for exceeding permitted daily limits

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 this year.

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.

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. Fiscal year 2014 customer and volume estimates are based on projecting the average of the first eight months of the fiscal year (July 2013 through February 2014).

3.1 CUSTOMER GROWTH

Table 2 summarizes the historical average number of Sewer Utility customers by customer class during the years 2009 through 2013 and the projected number of customers for the years 2014 through 2019. 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 1.2 percent. There was a significant drop in customer numbers from 2012 to 2013, which approximately coincides a switch to a new billing system. There is no projected growth for fiscal years 2015 through 2019 for the residential customer class. Customer growth is projected to decrease by about 0.2 percent annually for commercial and industrial customers in the study period. Overall, the average number of customers is projected to decrease from 25,186 customers in 2014 to 25,161 customers in 2019.

3.2 BILLED WASTEWATER VOLUME

Historical and projected billed wastewater volumes are shown in Table 3. Total billed wastewater volume (retail and wholesale) during the period 2009 through 2014 has decreased from 5,726,231 hundred cubic feet (Ccf) to 5,366,200 Ccf.

The billed wastewater volume for retail customers has decreased approximately 241,000 Ccf, between 2009 and 2014. Going forward, residential volume is projected to remain flat and commercial is projected to decrease at approximately 0.2 percent annually. 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 5,366,300 Ccf in 2014 to 5,470,700 Ccf in 2019, an increase of about 1.9 percent.

3.2.1 Wholesale Customer Growth

Contributed volume from the South St. Joseph Industrial Sewer District (SSJISD) had been gradually decreasing until 2011. In 2012 through 2014 contributed volume increased about 4 to 5 percent each year and by 2014 they are projected to have their highest volume in the past 5 years. Going forward, SSJISD's contributed volume is expected to remain at current levels.

In March 2009, Prime Tanning ceased operation and the business was sold to National Beef Leathers (NBL), who resumed operation of the facility in the same month. NBL was projecting to eventually contribute wastewater at a comparable level to Prime Tanning's historical trend. However, after reaching an annual total of 301,298 Ccf in 2010, its 2011 volume was 29%. In more recent years, their flows have started moving toward that of Prime Tanning, increasing 35% from 2011 to 2013. Their flow is estimated to increase from 2013 to 2014 by about 3 percent to 369,600 Ccf. It is projected that in 2015 that NBL will increase their volume to 488,000 Ccf;

however, due to a change in their treatment process, its contributed pounds of BOD and TSS are projected to decrease by 90% and 62%, respectively. NBL's contributed volume is projected to be 488,000 Ccf from 2016 through 2019.

Triumph Foods' 2013 flow increased 3 percent over the previous year to an estimated 1.04 million Ccf. The pounds of BOD in Triumph's contributed wastewater increased significantly in 2013 by 29 percent, with contributed pounds of suspended solids decreasing by 3 percent. Triumph Foods' contributed volume is projected to be 1.04 million Ccf from 2015 through 2019.

Table 1 Schedule of Existing Rates

RETAIL[a]

Service Charge

	Monthly Service Charge Inside City ($)	Outside City ($)
	20.27	47.57

Volume Charge

	Inside City ($/Ccf)	Outside City ($/Ccf)
	3.92	8.96

Overage Charges - $/lb.

	Inside City ($/lb.)	Outside City ($/lb.)
BOD in excess of 300 mg/l	0.321	0.477
Suspended solids in excess of 350 mg/l	0.239	0.567
Fats, Oils, & Grease in excess of 100 mg/l	0.108	0.248
Sulphides in excess of 15 mg/l	0.335	0.840

	($/Kgal.)
Septage	50.00

WHOLESALE[b]

Flow charge	0.144	$/Ccf
Pump Station[c]	0.370	$/Ccf
BOD	0.292	$/lb.
Suspended Solids	0.197	$/lb.
Fats, Oils, & Grease	0.108	$/lb.
Sulphides	0.375	$/lb.

(a) Retail rates were fully effective on July 1, 2013.
(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 FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Estimated (a) FY 2014	Projected FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
RETAIL											
Inside City											
Residential	24,245	24,184	24,232	24,294	23,286	23,150	23,150	23,150	23,150	23,150	23,150
Commercial/Industrial	2,724	2,707	2,623	2,511	2,118	2,033	2,028	2,023	2,018	2,013	2,008
Surcharge					9	9	10	10	10	10	10
Outside City											
Residential					624	183	183	183	183	183	183
Commercial/Industrial					23	11	11	11	11	11	11
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	26,973	26,894	26,858	26,808	25,407	25,186	25,181	25,176	25,171	25,166	25,161

(a) FY 2014 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 FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Estimated (a) FY 2014	Projected FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf	Ccf
RETAIL											
Inside City											
Residential	1,686,409	1,633,790	1,620,694	1,581,966	1,528,749	1,623,700	1,552,200	1,552,200	1,552,200	1,552,200	1,552,200
Commercial/Industrial	1,616,977	1,568,646	1,569,708	1,560,489	972,068	1,070,200	1,067,600	1,064,900	1,062,300	1,059,700	1,057,000
Surcharge					334,437	352,500	352,500	352,500	352,500	352,500	352,500
Outside City											
Residential					38,532	12,400	12,400	12,400	12,400	12,400	12,400
Commercial/Industrial					5,205	3,300	3,300	3,300	3,300	3,300	3,300
Subtotal Retail	3,303,386	3,202,436	3,190,402	3,142,455	2,878,991	3,062,100	2,988,000	2,985,300	2,982,700	2,980,100	2,977,400
WHOLESALE											
SSJISD	951,120	871,461	824,759	861,009	902,767	963,500	963,500	963,500	963,500	963,500	963,500
National Beef Leathers	278,934	301,298	215,225	225,690	290,546	298,800	369,600	488,000	488,000	488,000	488,000
Triumph Foods	1,192,790	1,210,216	1,159,206	1,088,637	1,013,746	1,041,800	1,041,800	1,041,800	1,041,800	1,041,800	1,041,800
Subtotal Wholesale	2,422,844	2,382,975	2,199,190	2,175,336	2,207,059	2,304,100	2,374,900	2,493,300	2,493,300	2,493,300	2,493,300
Total System	5,726,231	5,585,412	5,389,592	5,317,791	5,086,050	5,366,200	5,362,900	5,478,600	5,476,000	5,473,400	5,470,700

(a) FY 2014 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 2013 increased 177 percent to an estimated $1,281,068. Some of the increase was from higher suspended solids FOG strengths from 2012 to 2013. With the addition of a new surcharge customer at the end of 2013, surcharge revenue in fiscal years 2014 is projected to be $1,674,800 and 2015 through 2019 are forecast to be $1,702,600 (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 $22,307,900 in 2014, and decrease to $22,071,000 in 2019.

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 $953,600 in 2014, and remain fairly steady through the study period, with projected 2017 miscellaneous revenue of approximately $890,600.

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

	Historical					Estimated	Projected				
Customer Class	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
	$	$	$	$	$	$	$	$	$	$	$
RETAIL											
Residential	6,411,641	7,763,927	8,970,439	9,941,598	10,926,734	12,211,500	11,931,200	11,931,200	11,931,200	11,931,200	11,931,200
Commercial/Industrial	3,337,986	4,253,229	4,888,730	5,454,130	5,044,030	5,986,300	6,096,100	6,084,300	6,072,900	6,061,500	6,049,700
Extra Strength Surcharges	872,731	427,891	508,077	723,851	1,281,068	1,674,800	1,702,600	1,702,700	1,702,700	1,702,700	1,702,700
Septage						126,000	126,000	126,000	126,000	126,000	126,000
Subtotal Retail	10,622,358	12,445,047	14,367,246	16,119,579	17,251,832	19,998,600	19,855,900	19,844,200	19,832,800	19,821,400	19,809,600
WHOLESALE											
SSJISD	1,508,621	951,210	995,505	1,036,998	1,178,478	1,424,400	1,428,800	1,428,800	1,428,800	1,428,800	1,428,800
National Beef Leathers	46,377	181,384	56,384	52,200	116,600	187,000	371,200	134,700	134,700	134,700	134,700
Triumph Foods	264,126	481,928	449,690	464,374	567,774	697,900	697,900	697,900	697,900	697,900	697,900
Subtotal Wholesale	1,819,124	1,614,522	1,501,580	1,553,572	1,862,852	2,309,300	2,497,900	2,261,400	2,261,400	2,261,400	2,261,400
Total System	12,441,482	14,059,569	15,868,826	17,673,151	19,114,684	22,307,900	22,353,800	22,105,600	22,094,200	22,082,800	22,071,000

Table 5 Historical and Projected Miscellaneous Revenues

Fiscal Years Ending June 30

	Historical					Estimated	Projected				
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	$	$	$	$	$	$	$	$	$	$	$
Miscellaneous Revenues											
Sewer Service Penalties	157,818	184,752	255,595	303,000	370,974	433,600	433,600	433,600	433,600	433,600	433,600
Sewer System Development Fees	36,000	30,000	27,687	30,000	41,316	33,000	33,000	37,000	41,000	45,000	49,000
Refund Prior Year Expenditures	0	231	0	0	-3,823	200	0	0	0	0	0
BUILD Credit Revenue	385,900	384,800	383,100	387,700	381,400	387,700	387,700	386,700	385,500	384,400	384,400
Other Revenue	11,200	2,200	89,400	36,400	74,200	99,100	84,600	24,200	24,000	23,800	23,600
Total Miscellaneous Revenue	590,918	601,983	755,782	757,100	864,068	953,600	938,900	881,500	884,100	886,800	890,600

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, 2013, and are projected for the five-year period ending June 30, 2019.

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 2014 is estimated to be $13,374,800. This is about a 22 percent increase from 2013 actual direct expenses of $11,006,400. This increase is not primarily attributed to one specific increase, but to numerous small increases over several areas. Direct operating expense for 2015 is budgeted to be $13,874,600. This is a 4 percent increase over the 2014 total. The three primary drivers for increases in O&M in for 2015 are increases in electric costs ($246,200), bad debt costs ($245,700), and general fund transfer ($298,400). These costs are largely offset by a reduction in routine capital expenses. Direct operating expenses are projected to increase an average of 3 percent per year beginning in 2015 to $15,786,600 in 2019.

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 2015 budget include $845,700 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 2015, the basis for transfers to the General Fund is based on a payment in lieu of tax (PILOT). The proposed budget estimates PILOT transfers of $1.9 million and is based on 7 percent of total revenues excluding interest income. Computer Network Fund may vary from year to year based on need; $30,500 is budgeted in 2015 with projected growth of about 3 percent annually. The Sewer Utility also transfers monies to the City's Aviation Department to pay for cost related to sludge disposal at the City airport. The Aviation Department transfers are budgeted for $48,300 in 2015 with projected no growth annually.

Table 6 Projected Operating Expense

Fiscal Years Ending June 30

Line No.	Description	Historical 2013	Estimated 2014	Budgeted 2015	Projected 2016	2017	2018	2019
		$	$	$	$	$	$	$
	Operation & Maintenance Expense							
1	Wastewater Plant Administration	1,565,000	1,990,000	2,275,400	1,575,900	1,620,200	1,665,800	1,712,800
2	Wastewater Treatment	5,083,400	5,673,300	6,116,700	6,359,300	6,628,500	6,907,400	7,200,000
3	Laboratory	545,100	566,300	629,100	656,500	685,400	715,800	747,900
4	Sewer Maintenance	1,538,500	1,853,800	2,070,800	2,153,500	2,240,200	2,328,800	2,421,800
5	Subtotal Direct O & M Expense	8,732,000	10,083,400	11,092,000	10,745,200	11,174,300	11,617,800	12,082,500
	Transfers							
6	General Fund	1,423,700	1,559,700	1,858,100	2,040,200	2,268,600	2,481,800	2,669,600
7	Computer Network	22,900	22,900	30,500	31,400	32,400	33,400	34,400
8	Aviation	48,300	48,300	48,300	48,300	48,300	48,300	48,300
10	Total Direct O&M and Transfers	10,226,900	11,714,300	13,028,900	12,865,100	13,523,600	14,181,300	14,834,800
11	Routine Capital Expense	779,500	1,660,500	845,700	871,100	897,200	924,100	951,800
12	Total Operating Expense	11,006,400	13,374,800	13,874,600	13,736,200	14,420,800	15,105,400	15,786,600

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 $35.7 million in 2015 (Line 82). The major project scheduled for 2015 is the Eastside Wastewater Improvements ($26.6 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 final bid for the Ammonia removal project was $38.2 million and will be under construction during FY 2015. The other project in this section is the KCPL/WPF Power Upgrades ($1.5 million).

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 20 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. New additions to the CSO Program this year are additional right of way costs for the Blacksnake project ($2 million) on Line 25. The total amount forecast for these projects from 2014 through 2019 is $63 million and will be financed with operating revenue, conventional bonds, and 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 31 through 80 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. Major projects in 2015 include Rosecrans Lagoon Liner Replacement and Eastside Wastewater Improvements.

The Eastside collection system is in need of major upgrades in the new future. Because a new Eastside treatment plant or a new Eastside interceptor is not currently feasible from a rate impact perspective, as both projects would be in excess of $100 million, an interim solution of upgrades has been designed ($26.6 million). The project will be financed with conventional and SRF bonds.

Table 7 Proposed Capital Improvement Program

Fiscal Years Ending June 30

Line No.	Description	Estimated 2014	Projected 2015	2016	2017	2018	2019	Total
		$	$	$	$	$	$	$
	ENVIRONMENTAL AND REGULATORY PROJECTS							
1	Ammonia Project	38,198,694	-	-	-	-	-	38,198,694
2	KCP&L and WPF Power Upgrades - Phase 2	-	-	1,474,000	-	-	-	1,474,000
3	**Subtotal**	**38,198,694**	**-**	**1,474,000**	**-**	**-**	**-**	**39,672,694**
	CMOM Projects							
4	TV Van		100,700	-	-	-	-	100,700
5	Other Rolling Stock - Sewer Maint.	337	24,300	75,700	-	-	621,000	721,337
6	Portable TV Unit	85	-	-	-	-	98,000	98,085
7	Easement Jet Machine	6,000	-	-	-	295,000	-	301,000
8	Purchase 50% of Street Sweeper A	180,000	-	188,000	-	-	196,000	564,000
9	Purchase 50% of Street Sweeper B	180,000	-	-	188,000		-	368,000
10	CMOM Cast-in-place Pipe Lining	344,200	354,500	365,100	376,100	380,000	391,000	2,210,900
11	CMOM Increased Root Control & Line Cleaning	115,900	119,400	123,000	126,700	127,000	130,000	742,000
12	CMOM Emergency Collection System Repairs	522,300	538,000	554,100	570,700	570,000	587,000	3,342,100
13	Major Mainline Sewer Repairs	51,400	52,900	54,500	56,100	53,000	55,000	322,900
14	CMOM Spray on Liner, Manhole, & Sewer Line Repair	172,600	177,800	183,100	188,600	185,000	190,000	1,097,100
15	CMOM Cave in Repairs	92,900	95,700	98,600	101,600	101,000	104,000	593,800
16	Large Diameter Sewer Rehab (for Sinking Fund - spend every five years)		500,000	500,000	500,000	500,000	500,000	2,500,000
17	I/I reduction	511,000	536,000	562,800	579,700	591,000	621,000	3,401,500
18	Manhole Inspection program	28,150	54,000	57,000	59,000	59,000	62,000	319,150
19	GPS Equipment	7,500	63,000	42,000	43,000	44,000	47,000	246,500
20	Update Aerial Photography	40,000	-	44,000	-	44,000	-	128,000
21	**Subtotal**	**2,252,372**	**2,616,300**	**2,847,900**	**2,789,500**	**2,949,000**	**3,602,000**	**17,057,072**
	CSO LONG TERM CONTROL PLAN PROJECTS							
22	Green Solutions	139,668	200,000	200,000	200,000	207,000	217,000	1,163,668
23	Grit Project	7,348,803	-	-	-	-	-	7,348,803
24	Water Quality Education Program	174,592	75,000	75,000	75,000	81,000	85,000	565,592
25	Blacksnake Stormwater Separation Conduit (ROW)	-	2,000,000	-	-	-	-	2,000,000
26	Blacksnake Stormwater Separation Conduit (ROW)	216,000	-	-	-	-	-	216,000
27	Blacksnake Stormwater Separation Conduit	5,225,335	100,000	46,422,000	-	-	-	51,747,335
28	**Subtotal**	**13,104,398**	**2,375,000**	**46,697,000**	**275,000**	**288,000**	**302,000**	**63,041,398**
	SYSTEM EXPANSION PROJECTS							
29	System Expansion Projects	-	-	1,500,000	-	593,500	1,551,000	3,644,500
30	**Subtotal**	**-**	**-**	**1,500,000**	**-**	**593,500**	**1,551,000**	**3,644,500**
	CAPITAL PROJECTS - COLLECTION SYSTEM							
31	Eastside Wastewater Improvements (Interim Solution)	-	24,570,000	-	-	-		24,570,000
32	Eastside Wastewater Improvements (ROW)	-	2,000,000					2,000,000
33	Brown's Branch PS - Pump Replacement	-	-	-	-	148,000	-	148,000
34	Brown's Branch PS - MCC replacement	-	61,000	-	-	-	-	61,000
35	Brown's Branch PS - Pump Replacement	-	-	-	-	52,000	-	52,000
36	Roof - Brown's Branch PS	-	-	-	-	7,000	-	7,000
37	Faraon Street PS Odor Control	304,000	-	-	-		-	304,000
38	Package Lift Stations - Generators	-	-	80,000	-	-	-	80,000
39	SSJISD PS - Replace VS Drives w/ EM Mag Drives	-	-	-	-	1,551,000	-	1,551,000
40	Rosecrans Lagoon Liner Replacement	-	1,000,000	-	-	-	-	1,000,000
41		**304,000**	**27,631,000**	**80,000**	**-**	**1,758,000**	**-**	**29,773,000**

Table 7 Proposed Capital Improvement Program (Continued)

Fiscal Years Ending June 30

Line No.	Description	Estimated 2014	Projected 2015	2016	2017	2018	2019	Total
		$	$	$	$	$	$	$
	CAPITAL PROJECTS - WWTP							
42	ICP/Mass Spectr. Equipment	-	-	-	-	295,000	-	295,000
43	Bio Solids Project	7,744,416	-	-	-	-	-	7,744,416
44	Admin Building Addition (Lab & Office)	541,739	-	-				541,739
45	Radio Communications Equipment	137,095	-	-	-	-	-	137,095
46	Roof - Admin Bldg	-	100,000	-	-	96,000	-	196,000
47	Plant Paving & Drainage	-	128,000	-	-	-	-	128,000
48	Digester Heat Exchangers (X - 6)	-	-	-	-	665,000	-	665,000
49	Replace Gas Burnoff	-	-	67,000	-	-	-	67,000
50	Belt Filter Press (2 Meter)	-	1,068,000		-	-	-	1,068,000
51	Primary Sludge PS - Roofs		13,000	-	-	-	-	13,000
52	HVAC - Digester Complex	-	-	-	-	148,000	-	148,000
53	Motor Control Room (Belt Press Room	-	-	-	-	111,000	-	111,000
54	Replace Variable Speed Motor Drives (X - 6) (X - 2)	-	490,000	-	-	-	-	490,000
55	Rehab existing Secondary Clarifiers	-	611,000	-	-	-	-	611,000
56	42" Plant Influent Magnetric Flowmeter	-	-	-	-	62,000	-	62,000
57	Maint Garage - Rolling Stock and Spare Parts Storage	1,974,548	-		-	-	-	1,974,548
58	Primary Clarifier Complex - Piping Replacement	-	-	-	-	22,000	-	22,000
59	Primary Clarifier Complex - Replace Progressive Cavity Pumps	-	-	-	-	22,000	-	22,000
60	Plant PS - Replace Centrifugal Raw Wastewater Pumps (X - 3)	-	-	-	-	177,000	-	177,000
61	Plant PS - Roof	-	-	-	-	10,000	-	10,000
62	DAF - Rehab Flotation Equipment	-	-	-	-	148,000	-	148,000
63	Roof - Flotation Building	-	-	-	-	70,000	-	70,000
64	Replacement Diffusers	-	-	-	425,000	372,000	-	797,000
65	Chemical Precipitation - Roof	-	-	-	-	7,000	-	7,000
66	Rehab Aeration Arms	-	-	-	-	-	586,000	586,000
67	Replace Butterfly Valves	-	-	-	-	16,000	-	16,000
68	Additional Centrifugal Blowers	-	-	-	-	1,773,000	-	1,773,000
69	Blower Building - Roof	-	-	-	-	70,000	-	70,000
70	Roof Repairs - Intermediate Pumping Station	-	-	-	-	25,000	-	25,000
71	Return Sludge PS #1 - Motor Control Center	-	-	-	-	74,000	-	74,000
72	Return Sludge PS #2 - Motor Control Center	-	-	-	-	74,000	-	74,000
73	Aeration Basins - Replace Sheaths	-	-	-	-	168,000	-	168,000
74	Furnace - Maintenance Garage	-	-	-	-	15,000	-	15,000
75	CSO Sluice Gate Repairs	-	500,000	-	-		-	500,000
76	Pump Station 4,000.00 x 5	-	20,000	-	-	-	-	20,000
77	Barscreen PumpStation	-	105,000	-	-	-	-	105,000
78	Admin and Training room Office Equipment	-	25,000	-	-	-	-	25,000
79	Administration Building Maintenance	-	10,000	-	-	-	-	10,000
80	HVAC Admin Bld Controler Upgrade	-	30,000	-	-	-	-	30,000
81	**Subtotal**	**10,397,798**	**3,100,000**	**67,000**	**425,000**	**4,420,000**	**586,000**	**18,995,798**
82	**Total**	**64,257,262**	**35,722,300**	**52,665,900**	**3,489,500**	**10,008,500**	**6,041,000**	**172,184,462**
83	Recap							
84	**Financed with Series 2007 proceeds**	304,000	-	-	-	-	-	**304,000**
85	**Financed with Series 2011 proceeds**	-	-	-	-	-	-	-
86	**Total financed through SRF Bonds**							
87	Environmental/Regulatory Projects	38,198,694	-	-	-	-	-	38,198,694
88	CSO LTCP Projects	7,348,803	-	46,422,000	-	-	-	53,770,803
89	Collection System Capital Projects	-	24,570,000	-	-	-	-	24,570,000
90	WWTP Capital Projects	7,744,416	-	-	-	-	-	7,744,416
91								**124,283,913**
92	**Total financed through Conventional Bonds**							
93	Environmental/Regulatory Projects	-	-	-	-	-	-	-
94	CMOM Projects	-	-	-	-	295,000	-	295,000
95	CSO LTCP Projects	-	2,000,000	-	-	-	-	2,000,000
96	System Expansion Projects	-	-	-	-	-	-	-
97	Collection System Capital Projects	-	3,000,000	-	-	1,751,000	-	4,751,000
98	WWTP Capital Projects	-	-	-	-	3,945,000	586,000	4,531,000
99								**11,577,000**
100	**Total financed through Operating Funds**	10,661,349	6,152,300	6,243,900	3,489,500	4,017,500	5,455,000	36,019,549
101	Total Annual Expenditures	64,257,262	35,722,300	52,665,900	3,489,500	10,008,500	6,041,000	**172,184,462**

4.3 FINANCING PLAN

Total planned investment from 2014 through 2019 is $172.2 million, as shown on Table 7. The capital improvement program 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. As of June 30, 2013, the Capital Fund had a balance of $ 304,000. As shown in Table 7 Line 84, the beginning balance was from the remaining 2007 bond issue proceeds for 2014.

In April 2011, 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 State Revolving Fund (SRF) program. The SRF program provides low interest loans that have lower interest rates than conventional bond issues. The projected rate and term for SRF bonds are 2.5%-3.0% for 20 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 financial advisors.

The SRF bonds are projected to be used for all of the major capital projects in the study period, as shown in Table 7 Lines 86-90. 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.

Another characteristic of SRF bonds that is different from conventional bonds is the funds are not made available until the start of the construction phase of the projects. Therefore, the City must fund the costs of all engineering design and related pre-construction work before the SRF funds are received. Eligible design and related costs may be reimbursed with the proceeds of the SRF bonds. The City has cash financed the cost of design work for multiple projects; however, alternative means of financing these costs are required in the future to prevent increasing rates further to carry these costs.

This study assumes the City will fund the pre-construction costs with short term bonds. These bonds will be structured with a 3 year term, with interest only due prior to the maturity of the bond. Therefore, when SRF funds are received, the proceeds will be used to pay off the short term bonds. These 3-year bonds are projected to have interest rates ranging from 1.5 to 2.50 percent. The bonds will also be structured so that they will be callable if SRF funds are received before the final maturity of the bonds. It is at the discretion of the City to determine whether to use available cash funds or short term bonds to fund pre-construction costs of SRF projects.

The CIP presented in Table 7 is anticipated to be funded with the remaining proceeds from the Series 2007 Industrial Development Authority (IDA) bond issue ($304,000), which is included in the beginning of year fund balance, and bond issues in 2014 ($56 million), 2015 ($24.7 million), and 2016 ($52 million).

The Operating Fund will be used to fund projects not included in the bond issue, 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 2014	Projected 2015	2016	2017	2018	2019	Total
		$	$	$	$	$	$	$
	SOURCE OF FUNDS							
1	Funds on Hand at Beginning of Year	304,000	0	0	5,228,000	5,228,000	586,000	304,000
2	Transfer from Operating Fund	11,806,600	6,177,600	6,243,900	3,489,500	3,989,500	5,455,000	37,162,100
3	Conventional Bond at Par	0	5,500,000	0	0	7,310,000	0	12,810,000
4	Net Short Term Bond	0	5,200,000	0	0	0	0	5,200,000
5	SRF Loan	56,000,000	24,720,000	51,970,000	0	0	0	132,690,000
6	Total Funds Available	68,110,600	41,597,600	58,213,900	8,717,500	16,527,500	6,041,000	188,166,100
	USE OF FUNDS							
7	Major Capital Improvement Program	64,257,300	35,722,300	52,665,900	3,489,500	10,008,500	6,041,000	172,184,500
8	Bond Issuance Costs	350,000	263,000	320,000	0	146,400	0	1,079,400
9	Bond Reserve Fund	0	387,000	0	0	586,600	0	973,600
10	Net Payoff on Short Term Bonds	0	0	0	0	5,200,000	0	5,200,000
11	Reimbursement to Operating Fund	3,503,300	5,225,300	0	0	0	0	8,728,600
12	Total Use of Funds	68,110,600	41,597,600	52,985,900	3,489,500	15,941,500	6,041,000	188,166,100
13	Funds on Hand at End of Year	0	0	5,228,000	5,228,000	586,000	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 short term borrowing to temporarily fund design work on projects that will ultimately be funded with SRF bonds. At the time of the SRF issuance, the costs of the design work may be refunded, but the bond cannot be issued until construction is ready to begin. The City may choose to use available cash to temporarily fund design work that will later be funded with SRF loans. The forecast projects a FY 2015 SRF bond issue of $24.7 million for the Eastside Improvements conventional bonds of $5.5 million mainly for right of way costs, and short term bonds for design work related to future SRF projects, for the Blacksnake Stormwater Separation Conduit. The one short term bond in this study period is projected to have a term of three years and a 1.55 percent interest rate.

One additional SRF bond is projected in 2016. SRF bonds are projected to have a 20-year term and an average interest rate of 3.0 percent. The 2016 bond SRF bond will fund the Blacksnake Stormwater Separation Conduit. It should be noted that the three SRF bonds in the study period exceed the voter approved authorization of $105 million. This study assumes that voter authority will again be received for continued use of SRF funding.

One additional issuance of conventional bonds is projected in the study period in 2018. Projects included in this bond issuance include various major replacement or rehabilitation projects at the WPF that were unlikely to receive SRF funding. This bond is projected at $7.3 million for these 24 projects and assumes 5.0 percent interest for 20 years.

Table 9 Existing and Proposed Debt Service

Fiscal Years Ending June 30

	2014	2015	2016	2017	2018	2019
EXISTING DEBT	$	$	$	$	$	$
State Environmental Improvement & Energy Resources Authority, Series 1993	844,200	843,200	0	0	0	0
State Environmental Improvement & Energy Resources Authority, Series 1997	542,300	541,900	540,700	538,800	0	0
Sewer System Revenue Bonds Series 2003	57,800	61,200	59,400	62,500	60,300	58,100
Sewer System Revenue Bonds Series 2004	834,700	829,800	826,600	827,800	828,500	828,500
Industrial Development Authority Bonds Series 2007	988,600	988,600	988,600	1,658,600	2,220,100	2,220,000
Sewer System Revenue Bonds Series 2011	1,591,200	1,589,300	1,591,900	1,593,900	1,594,100	1,593,300
State Revolving Fund Loan Series 2013	193,500	794,500	800,500	807,300	812,900	820,400
State Revolving Fund Loan Series 2014	0	637,400	879,200	3,657,900	3,660,200	3,660,900
Subtotal Existing Annual Debt Service	5,052,300	6,285,900	5,686,900	9,146,800	9,176,100	9,181,200
PROPOSED BONDS						
Proposed SRF Bonds FY 2015 Issue ($24.7 million)	0	741,600	1,661,600	1,661,600	1,661,600	1,661,600
Proposed SRF Bonds FY 2016 Issue ($52.0 million)	0	0	1,559,100	3,493,200	3,493,200	3,493,200
Proposed Conventional Bonds FY 2015 Issue ($5.5 million)	0	192,500	387,000	387,000	387,000	387,000
Proposed Conventional Bonds FY 2018 Issue ($7.3 million)	0	0	0	0	365,500	586,600
SHORT TERM						
Proposed Short Term Bonds FY 2015 Issue ($5.3 million)	0	54,900	82,300	82,300	5,392,300	0
Subtotal Proposed Annual Debt Service	0	989,000	3,690,000	5,624,100	11,299,600	6,128,400
Total Annual Debt Service	5,052,300	7,274,900	9,376,900	14,770,900	20,475,700	15,309,600

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 2015 through 2019. 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 operation and maintenance expenses and system rehabilitation 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 $23,333,400 in 2014 to $36,826,200 in 2019 (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 27. These annual operating requirements are projected to increase from $26,655,900 in 2014 to $36,551,200 in 2019, as shown on Line 28 of Table 10.

The projected net annual operating balance is shown on Line 29 and ranges from a low of negative $3.32 million in 2014 to a high of $3.36 million in 2015. 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 30 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 $4 million. 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; 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	Revenue Increase Effective Date	Annualized Revenue Increase (a)	Estimated 2014 $	Projected 2015 $	2016 $	2017 $	2018 $	2019 $
	Revenue								
1	Retail Revenue Under Existing Rates (Table 4)			19,998,600	19,855,900	19,844,200	19,832,800	19,821,400	19,809,600
2	SSJISD Under Existing Rates (Table 4)			1,424,400	1,428,800	1,428,800	1,428,800	1,428,800	1,428,800
3	National Beef Leathers Under Existing Rates (Table 4)			187,000	371,200	134,700	134,700	134,700	134,700
4	Triumph Foods Under Existing Rates (Table 4)			697,900	697,900	697,900	697,900	697,900	697,900
	Additional Sewer Revenue Required:								
5		July 1, 2014	9.0%		2,011,800	1,990,000	1,988,500	1,987,500	1,986,400
6		July 1, 2015	12.0%			2,891,500	2,889,900	2,888,400	2,886,900
7		July 1, 2016	12.0%				3,236,700	3,235,000	3,233,300
8		July 1, 2017	10.0%					3,019,400	3,017,800
9		July 1, 2018	8.0%						2,655,600
10	Total Additional Sewer Revenue			0	2,011,800	4,881,500	8,115,100	11,130,300	13,780,000
11	Total Sewer Revenue			22,307,900	24,365,600	26,987,100	30,209,300	33,213,100	35,851,000
12	Miscellaneous Revenue (Table 5)			953,600	938,900	881,500	884,100	886,800	890,600
13	Interest Income - Operating & Capital Fund (b)			18,000	55,000	52,000	64,000	43,000	21,000
14	Interest Income - Bond Reserve Fund			53,900	55,800	57,800	57,800	60,700	63,600
15	Total Operating Fund Revenues Available			23,333,400	25,415,300	27,978,400	31,215,200	34,203,600	36,826,200
	Revenue Requirements								
16	Operation and Maintenance Expense (Table 6) (c)			11,714,300	13,028,900	12,865,100	13,523,600	14,181,300	14,834,800
17	Routine Capital Outlay (Table 6)			1,660,500	845,700	871,100	897,200	924,100	951,800
18	Subtotal Operating Requirements			13,374,800	13,874,600	13,736,200	14,420,800	15,105,400	15,786,600
19	Net Revenues			9,958,600	11,540,700	14,242,200	16,794,400	19,098,200	21,039,600
	Debt Service								
20	Existing Debt Service (Table 9)			5,052,300	6,285,900	5,686,900	9,146,800	9,176,100	9,181,200
21	Proposed Bond Debt Service (Table 9)			0	989,000	3,690,000	5,624,100	11,299,600	6,128,400
22	Less: Repayment of Principal on Short Term Bonds			-	-	-	-	(5,200,000)	-
23	Total Debt Service			5,052,300	7,274,900	9,376,900	14,770,900	15,275,700	15,309,600
24	Less: Interest on EIERA Reserve Fund			(99,500)	(65,200)	(29,100)	(14,900)	-	-
25	EIERA Administrative Fee			25,000	16,000	7,000	4,000	0	0
26	Net Effective Debt Service			4,977,800	7,225,700	9,354,800	14,760,000	15,275,700	15,309,600
27	Transfer to (from) Capital Fund			8,303,300	952,300	6,243,900	3,489,500	3,989,500	5,455,000
28	Total Operating Requirements			26,655,900	22,052,600	29,334,900	32,670,300	34,370,600	36,551,200
29	Net Annual Balance			(3,322,500)	3,362,700	(1,356,500)	(1,455,100)	(167,000)	275,000
30	Beginning of Year Balance			7,652,000	4,329,500	7,692,200	6,335,700	4,880,600	4,713,600
31	End of Year Balance			4,329,500	7,692,200	6,335,700	4,880,600	4,713,600	4,988,600
32	Desired Working Capital Allowance (d)			3,904,800	4,343,000	4,288,400	4,507,900	4,727,100	4,944,900

(a) Average annual revenue adjustment percentage. Revenues reflect twelve 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.

In April, 1992 the citizens of St. Joseph authorized the City to issue up to $17,600,000 in Environmental Improvement & Energy Resource Authority (EIERA) bonds for the purpose of "repairing, constructing, improving, and extending the sanitary wastewater collection system of the City…" In September, 1993 the City issued $10,308,000 in EIERA bonds through Missouri's state revolving loan fund as parity with the Series 1992 revenue bonds. In June 1997, the City issued $6,515,000 of additional EIERA bonds on parity debt with the Series 1992 and Series 1993 bonds. The bond covenants associated with the EIERA bonds stipulate similar coverage requirements as the Series 1992 bonds, with the exception that both annual and additional bonds tests must meet or exceed 110 percent debt service coverage.

The financial plan demonstrated herein assumes issuance of bonds in 2014, 2015, 2016, and 2018. For purposes of this report, 110 percent coverage is assumed for all future bond issues. A summary of the EIERA and IDA 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. Beginning in 2015 annual coverage must meet or exceed 110 percent and ranges from a high of 160 percent in 2015 to low of 114 percent in 2017. The future additional bonds test minimum coverage of 110 percent is met every year, ranging from 119 percent to 131 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	2015	2016	2017	2018	2019
		$	$	$	$	$
	ANNUAL COVERAGE					
1	Total Operating Fund Revenues (a)	25,415,300	27,978,400	31,215,200	34,203,600	36,826,200
2	O&M Expense and Transfers	(13,028,900)	(12,865,100)	(13,523,600)	(14,181,300)	(14,834,800)
3	Routine Capital	(845,700)	(871,100)	(897,200)	(924,100)	(951,800)
4	Net Operating Revenue	11,540,700	14,242,200	16,794,400	19,098,200	21,039,600
	Debt Service (b)					
5	Existing Bonds	4,854,000	4,007,200	4,681,600	4,703,000	4,699,900
6	Existing SRF	1,431,900	1,679,700	4,465,200	4,473,100	4,481,300
7	Proposed Bonds	989,000	3,690,000	5,624,100	6,099,600	6,128,400
8	EIERA Subsidy (c)	(49,200)	(22,100)	(10,900)	-	-
9	Net Debt Service	7,225,700	9,354,800	14,760,000	15,275,700	15,309,600
10	Annual Coverage = Line 4 / Line 7 (d)	160%	152%	114%	125%	137%
	ADDITIONAL BONDS TEST - FUTURE					
11	Average Net Revenues Available for Debt Service (e)	15,518,300	17,946,300	20,068,900	n/a	n/a
12	Average Annual Debt Service (e)	12,057,400	15,017,850	15,292,650		
13	Future Coverage = Line 9 / Line 10 (f)	129%	119%	131%		

(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) Calculated as average of two years following test year.
(f) 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 2015 totals $22,052,600 (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. The projected increase in the City's Operating Fund is $3,362,700 as shown on Line 11. The resulting total cost of service for FY 2015 totals $24,365,600.

Table 12 Development of Total Cost of Service

For the Fiscal Year 2013

Line No.	Description	O&M Costs	Capital Costs	Total
	Revenue Requirements			
1	Operation and Maintenance Expense	13,028,900		13,028,900
2	Existing Debt Service		6,236,700	6,236,700
3	Proposed Debt Service		989,000	989,000
4	Routine Capital Outlay	845,700		845,700
5	Transfer to (from) Capital Fund	-	952,300	952,300
6	Total Revenue Requirements	$13,874,600	$8,178,000	$22,052,600
	Adjustments to Revenue Requirements			
7	Miscellaneous Revenues	905,900	33,000	938,900
8	Interest Income - Operating and Capital Funds		55,000	55,000
9	Interest Income - Bond Reserve Fund	-	55,800	55,800
10	Subtotal	$12,968,700	$8,034,200	$21,002,900
11	Increase (Decrease) in Fund Balances	-	3,362,700	3,362,700
12	Total FY 2015 Cost of Service	$12,968,700	$11,396,900	$24,365,600

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[2], 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 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

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.

[2] In prior studies, Common to Retail and Common to All were labeled as Primary and Secondary.

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 have been updated in this report. 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 15 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	2,607,500	34.20%	33.37%	10.19%	18.65%	3.59%										100%
2	Chemicals	323,600								100.00%							100%
3	Motor Fuel & Lubricants	100,000								100.00%							100%
4	Other Materials and Supplies	534,300										100.00%					100%
5	Gas Service	65,000						100.00%									100%
6	Electric Service	1,542,200							100.00%								100%
7	Transfer to Aviation	48,300			100.00%												100%
8	Routine Repair and Replacement	1,789,900											100.00%				100%
9	Laboratory	629,100									100.00%						100%
10	Admin. & General	2,275,400										20.42%				79.58%	100%
11	Sewer Maintenance	2,070,800												100.00%			100%
12	Transfer to General Fund	1,861,500													100.00%		100%
13	Total Wastewater O&M	13,847,600	891,757	870,205	313,901	486,252	93,685	65,000	1,542,200	423,600	629,100	999,044	1,789,900	2,070,800	1,861,500	1,810,656	

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 I-5 (Primary Only)
2	Secondary Treatment	100.00%							19.1%	0.0%	62.7%	18.2%	0.0%					Appendix I-7.2
3	Sludge	100.00%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix I-5
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 I-7.3
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 I-9.1
8	Chemicals	100.00%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix I-5
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 I-8
10	General Treatment	96.91%	24.0%	12.2%	4.5%	6.6%	0.0%	3.1%	8.3%	0.1%	24.9%	10.4%	0.0%	0.0%	2.7%			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%	16.6%	46.2%	2.8%	4.0%	0.0%	1.9%	5.1%	0.1%	15.3%	6.4%	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

Line No.	Description	[A] Total	[B] Volume	[C] Capacity	[D] BOD	[E] TSS	[F] Ammonia	[G] FOG	[H] Volume	[I] Capacity	[J] BOD	[K] TSS	[L] Ammonia	[M] FOG	[N] SSJISD	[O] Septage	[P] Billing
			Common to Retail						Common to All								
		$	$	$	$	$	$	$	$	$	$	$	$	$	$		$
1	Primary Treatment	891,757	802,581	-	26,753	53,505	-	8,918	-	-	-	-	-	-	-		-
2	Secondary Treatment	870,205	-	-	-	-	-	-	166,209	-	545,619	158,377	-	-	-		-
3	Sludge	313,901	-	-	35,157	69,058	-	11,928	-	-	134,664	63,094	-	-	-		-
4	Pumping	486,252	-	396,781	-	-	-	-	-	-	-	-	-	-	89,470		-
5	Vehicles	93,685	8,806	5,059	7,870	15,552	-	2,717	2,623	2,717	32,790	14,709	-	-	843		-
6	Gas	65,000	28,600	-	-	-	-	-	36,400	-	-	-	-	-	-		-
7	Electric Service	1,542,200	701,701	-	30,844	61,688	-	10,795	81,737	-	558,276	57,061	-	-	40,097		-
8	Chemicals	423,600	-	-	47,443	93,192	-	16,097	-	-	181,724	85,144	-	-	-		-
9	Laboratory	629,100	78,638	-	78,638	78,638	-	78,638	105,060	-	105,060	104,431	-	-	-		-
10	General Treatment	999,044	239,767	122,213	45,138	65,922	-	31,082	83,299	826	248,820	103,591	-	-	27,467		-
11	Treatment Repair & Replacement	1,789,900	42,905	136,550	55,701	137,819	-	18,890	152,442	754,251	372,586	98,518	-	-	-	20,201	-
12	Sewer Maintenance	2,070,800	-	2,070,800	-	-	-	-	-	-	-	-	-	-	-		-
13	Transfer to General Fund	1,861,500	309,349	859,425	51,586	75,338	-	35,522	95,198	944	284,361	118,387	-	-	31,391		-
14	Billing	1,810,656	-	-	-	-	-	-	-	-	-	-	-	-	-		1,810,656
15	Total O&M	13,847,600	2,212,347	3,590,827	379,129	650,711	-	214,587	722,968	758,738	2,463,900	803,312	-	-	189,268	20,201	1,810,656
16	Less: O&M Adjustments	(905,900)															
17	Net O&M From Rates	12,968,700	2,100,900	3,362,900	355,100	609,400	-	201,000	677,100	710,600	2,307,500	752,300	-	-	177,300	18,900	1,695,700

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 9 Line 44 shows the applicable amount of debt service for the Ammonia project. This amount is recovered in the fixed charge shown in Table 18. This amount is separated from the capital allocations and is shown in Column N of Tables 20 and 21. This year the fixed charge only recovers interest costs from the SRF loan applicable to the Ammonia Removal project.

The allocation of Existing and Proposed Debt Service (Table 17 Lines 38-41) now includes Construction Work in Progress (CWIP) (Appendix I-6.7). In recent years, there was a separate allocation factor for proposed debt service based on CWIP and the projects in the 5-year Capital Improvement Program (CIP). The proposed debt service allocator was originally introduced as a way to allocate large CSO projects between the 5-year updates of allocation factors. The fixed asset (plant) allocation factors will now be updated every year as part of the rate study. This eliminates the need for the proposed debt service allocation. Furthermore, one composite debt service allocation will also limit large rate swings up and down as projects move from the CIP to the fixed asset record. One example of this is when a large project is in the 5 year CIP budget, but when the project is actually completed the budget is much different than the original CIP. The disadvantage to this method is the original rates were designed based on the allocation of the original budget.

Table 16 Capital Cost Allocation Factors

Line No.	Description	[A] Total	[B] Volume	[C] Capacity	[D] BOD	[E] Suspended Solids	[F] Ammonia	[G] FOG	[H] Volume	[I] Capacity	[J] BOD	[K] Suspended Solids	[L] Ammonia	[M] FOG	[N] SSJISD	[O] Septage	[P] Billing	[Q] Basis of Allocation
			Common to Retail						Common to All									
	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 I-5 (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 I-5
11	Aeration	100%									100.0%		0.0%					BOD & Ammonia on Appendix I-5
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 I-5
15	Aerobic Digesters	100%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix I-5
16	Dissolved Air Flotation (DAF)	100%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix I-5
17	Sludge Handling	100%			11.2%	22.0%		3.8%			42.9%	20.1%	0.0%					Appendix I-5
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%			Ammonia Project
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%			Ammonia Project

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]
	COLLECTION & CONVEYANCE																	
1	Collection and Conveyance Mains	56,050,576	-	56,050,576	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	Pumping & Lift Stations	2,068,707	-	2,068,707	-	-	-	-	-	-	-	-	-	-	-	-	-	
3	SSJISD Pump Stations	1,816,773	-	-	-	-	-	-	-	-	-	-	-	-	1,816,773	-	-	
4	Subtotal	59,936,056	-	58,119,283	-	-	-	-	-	-	-	-	-	-	1,816,773	-	-	
	TREATMENT																	
5	Grit Basins	590,845	-	-	-	590,845	-	-	-	-	-	-	-	-	-	-	-	
6	Primary Clarifiers	1,227,064	1,104,358	-	36,812	72,397	-	12,271	-	-	-	-	-	-	-	-	-	
7	Other Primary	580,109	-	580,109	-	-	-	-	-	-	-	-	-	-	-	-	-	
8	Pumping	3,234,442	-	3,234,442	-	-	-	-	-	-	-	-	-	-	-	-	-	
9	Septage	320,050	-	-	-	-	-	-	-	-	-	-	-	-	-	320,050	-	
10	Trickling Filters	2,139,880	-	-	-	-	-	-	-	-	2,139,880	-	-	-	-	-	-	
11	Blowers	661,867	-	-	-	-	-	-	-	-	661,867	-	-	-	-	-	-	
12	Aeration	936,256	-	-	-	-	-	-	-	-	936,256	-	-	-	-	-	-	
13	Secondary Clarifiers	4,029,539	-	-	-	-	-	-	3,626,585	-	402,954	-	-	-	-	-	-	
14	Other Secondary	91,344	-	-	-	-	-	-	27,825	9,595	46,209	7,714	-	-	-	-	-	
15	Sludge Pumping	839,828	-	-	94,061	184,762	-	31,913	-	-	360,286	168,805	-	-	-	-	-	
16	Aerobic Digesters	11,894,826	-	-	1,332,220	2,616,862	-	452,003	-	-	5,102,880	2,390,860	-	-	-	-	-	
17	Dissolved Air Flotation (DAF)	35,492	-	-	3,975	7,808	-	1,349	-	-	15,226	7,134	-	-	-	-	-	
18	Sludge Handling	1,840,671	-	-	206,155	404,948	-	69,945	-	-	789,648	369,975	-	-	-	-	-	
19	Outfall	24,509,566	-	-	-	-	-	-	-	24,509,566	-	-	-	-	-	-	-	
20	Meters	43,479	-	-	-	-	-	-	43,479	-	-	-	-	-	-	-	-	
21	Laboratory	223,485	-	-	-	-	-	-	223,485	-	-	-	-	-	-	-	-	
22	General	5,896,956	312,210	693,800	165,818	672,639	-	56,198	1,111,684	383,339	1,846,162	308,205	-	-	-	346,900	-	
23	Subtotal	59,095,698	1,416,568	4,508,350	1,839,042	4,550,261	-	623,680	5,033,058	24,902,500	12,301,369	3,252,693	-	-	-	666,951	-	
	SECONDARY EXPANSION																	
24	Secondary Expansion - Secondary Clarifiers	13,522,514	-	-	-	-	-	-	12,170,263	-	1,352,251	-	-	-	-	-	-	
25	Subtotal	13,522,514	-	-	-	-	-	-	12,170,263	-	1,352,251	-	-	-	-	-	-	
	ADMINISTRATIVE																	
26	Admin. & General	1,002,827	43,440	187,704	23,072	93,589	-	7,819	195,703	53,337	261,429	42,883	-	-	-	48,267	45,585	
27	Billing Software	194,682	-	-	-	-	-	-	-	-	-	-	-	-	-	-	194,682	
28	Subtotal	1,197,509	43,440	187,704	23,072	93,589	-	7,819	195,703	53,337	261,429	42,883	-	-	-	48,267	240,267	
	CONTRIBUTIONS																	
29	Secondary Expansion - Secondary Clarifiers	(13,522,514)	-	-	-	-	-	-	(12,170,263)	-	(1,352,251)	-	-	-	-	-	-	
30	Collection and Conveyance Mains	(3,475,398)	-	(3,475,398)	-	-	-	-	-	-	-	-	-	-	-	-	-	
31	**CWIP**	40,388,561	11,055	22,422,563	333,348	6,724,535	-	4,867	3,370,496	194,334	4,864,295	2,261,613	-	-	196,243	5,205	-	
32	Subtotal Existing Plant	157,142,425	1,471,063	81,762,502	2,195,461	11,368,385	-	636,366	8,599,257	25,150,170	17,427,092	5,557,189	-	-	2,013,015	720,422	240,267	
	AMMONIA PROJECT																	
33	Secondary Expansion - Ammonia Project	2,647,905	-	-	-	-	-	-	422,394	75,318	1,611,803	80,915	457,475	-	-	-	-	
33	Ammonia Phase I	37,733,390	-	-	-	-	-	-	6,019,227	1,073,310	22,968,646	1,153,066	6,519,141	-	-	-	-	
34	Subtotal	40,381,294	-	-	-	-	-	-	6,441,621	1,148,628	24,580,449	1,233,981	6,976,616	-	-	-	-	
35	**TOTAL**	197,523,719	1,471,063	81,762,502	2,195,461	11,368,385	-	636,366	15,040,878	26,298,798	42,007,541	6,791,170	6,976,616	-	2,013,015	720,422	240,267	
36	Existing Plant	100.0%	1.3%	50.8%	1.6%	4.0%	0.0%	0.5%	4.5%	21.4%	10.8%	2.8%	0.0%	0.0%	1.6%	0.6%	0.2%	
37	Plant Including CWIP	100.0%	0.9%	52.0%	1.4%	7.2%	0.0%	0.4%	5.5%	16.0%	11.1%	3.5%	0.0%	0.0%	1.3%	0.5%	0.2%	
																		Basis of Allocation
38	Existing Debt Service	6,236,700	58,433	3,245,007	87,134	451,191	-	25,256	341,289	998,165	691,650	220,555	-	-	79,893	28,592	9,536	Plant Including CWIP
39	Less: Misc Revenues	3,218,900	30,159	1,674,820	44,972	232,870	-	13,035	176,147	515,175	356,976	113,833	-	-	41,235	14,757	4,922	Plant Including CWIP
40	Transfer to Capital Fund	952,300	8,922	495,490	13,305	68,894	-	3,856	52,112	152,413	105,610	33,677	-	-	12,199	4,366	1,456	Plant Including CWIP
41	Proposed Debt	989,000	9,266	514,585	13,817	71,549	-	4,005	54,121	158,286	109,680	34,975	-	-	12,669	4,534	1,512	Plant Including CWIP
42	Net Capital for Rates	11,396,900	106,780	5,929,901	159,228	824,503	-	46,153	623,669	1,824,039	1,263,916	403,040	-	-	145,996	52,249	17,426	
43	Less: Debt Service for Ammonia Project	456,900							69,253	202,545	140,348	44,754						
44	Net Capital for Rates Less: Ammonia Project	10,940,000	106,780	5,929,901	159,228	824,503	-	46,153	554,416	1,621,495	1,123,568	358,286	-	-	145,996	52,249	17,426	

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 2015 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 63 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 185 mg/l for BOD, 212 mg/l for suspended solids, and 39 mg/l for FOG. Infiltration/inflow is estimated to have a BOD strength of 40 mg/l, suspended solids strength of 165 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, the City decided to begin 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 2015 only 80 percent of the units will be available to reduce the impact to the wholesale customer. In FY 2016, 60 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	1,564,600	3,896,400	5,461,000	6,400	42,700	49,100	2,778,700	6,081,500	575,300	1,945,100	2,432,600	23,333	279,996
2	Commercial/Industrial	1,423,400	1,223,600	2,647,000	5,800	13,400	19,200	1,948,600	3,142,800	407,500	1,364,000	1,257,100	2,049	24,588
3	Surcharge							5,094,600	276,000	12,300	3,566,200	110,400		
4	Septic							105,100	210,200	1,600	73,600	84,100		
5	Subtotal	2,988,000	5,120,000	8,108,000	12,200	56,100	68,300	9,927,000	9,710,500	996,700	6,948,900	3,884,200	25,382	304,584
	Wholesale													
6	SSJISD			963,466	6,600	0	6,600				2,552,037	956,405		
7	National Beef Leathers			369,600	1,500	0	1,500				702,000	573,600		
8	Triumph Foods			1,041,800	4,300	0	4,300				1,315,300	831,300		
9	Secondary Service Minimum (a)			0							2,230,663	888,695		
10	Subtotal	0	0	2,374,866	12,400	0	12,400	0	0	0	6,800,000	3,250,000	0	0
11	Total	2,988,000	5,120,000	10,482,866	24,600	56,100	80,700	9,927,000	9,710,500	996,700	13,748,900	7,134,200	25,382	304,584

(a) Per agreements with SSJISD, the total flow, BOD loading, and suspended solids loading for Secondary Service for cost allocation purposed is to be at least 1,725,000 Ccf, 6,800,000 pounds of BOD, and 3,250,000 pounds of Suspended Solids.

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, 2015

Line No.		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]
		Common to Retail					Common to All					SSJISD					Adjusted
		Volume	Capacity	BOD	Suspended Solids	FOG	Volume	Capacity	BOD	Suspended Solids	Ammonia	Pump Station	Septage	Billing	Ammonia Debt Service	Total	Retail Cost of Service
	Units of Service																
	Units	Ccf	Ccf/Day	lbs	lbs	lbs	Ccf	Ccf/Day	lbs	lbs	lbs	Ccf	lbs	Bills			
	Retail																
1	Residential	5,461,000	49,100	2,778,700	6,081,500	575,300	5,461,000	49,100	1,945,100	2,432,600	0			279,996			
2	Commercial/Industrial	2,647,000	19,200	1,948,600	3,142,800	407,500	2,647,000	19,200	1,364,000	1,257,100	0			24,588			
3	Surcharge			5,094,600	276,000	12,300			3,566,200	110,400	0						
4	Septage			105,100	210,200	1,600			73,600	84,100	0		2,520				
5	Wholesale																
6	SSJISD						963,466	6,600	2,552,037	956,405	0	963,466					
7	National Beef Leathers						369,600	1,500	702,000	573,600	0						
8	Triumph Foods						1,041,800	4,300	1,315,300	831,300	0						
9	Secondary Service Minimum (reduced by 20%)						0		1,784,531	710,956							
10	Total	8,108,000	68,300	9,927,000	9,710,500	996,700	10,482,866	80,700	13,302,767	6,956,461	0	963,466	2,520	304,584			
	Functional Cost Allocations																
11	Net Operation, Maint. & Replacement - $	2,100,900	3,362,900	355,100	609,400	201,000	677,100	710,600	2,307,500	752,300	0	177,300	18,900	1,695,700		12,968,700	
12	Net Capital- $	106,780	5,929,901	159,228	824,503	46,153	554,416	1,621,495	1,123,568	358,286	0	145,996	52,249	17,426	456,900	11,396,900	
13	Total Cost of Service - $	2,207,680	9,292,801	514,328	1,433,903	247,153	1,231,516	2,332,095	3,431,068	1,110,586	0	323,296	71,149	1,713,126	456,900	24,365,600	
14	Total Annual Units	8,108,000	68,300	9,927,000	9,710,500	996,700	10,482,866	80,700	13,302,767	6,956,461	0	963,466	2,520	304,584			
15	Op, Maint & Replace. Unit Cost (a) - $/Unit	0.2591	49.2372	0.0358	0.0628	0.2017	0.0646	8.8055	0.1735	0.1081	0.0000	0.1840	7.5000	5.5673			
16	Capital Unit Cost (a) - $/Unit	0.0132	86.8214	0.0160	0.0849	0.0463	0.0529	20.0929	0.0845	0.0515	0.0000	0.1515	20.7338	0.0572			
17	Total Unit Cost (a)- $/Unit	0.2723	136.0586	0.0518	0.1477	0.2480	0.1175	28.8983	0.2579	0.1596	0.0000	0.3356	28.2338	5.6245			

(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, 2015

Line No.		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]
		Common to Retail					Common to All										Adjusted Retail Cost of Service
		Volume	Capacity	BOD	Suspended Solids	FOG	Volume	Capacity	BOD	Suspended Solids	Ammonia	SSJISD Pump Station	Septage	Billing	Ammonia Debt Service	Total	
	Allocated Cost of Service																
	Residential																
18	Operation, Maint. & Replacement - $	1,415,024	2,417,546	99,397	381,656	116,018	352,733	432,348	337,397	263,071	0			1,558,812		7,374,002	
19	Capital - $	71,920	4,262,930	44,570	516,370	26,640	288,820	986,560	164,286	125,289	0			16,019	185,221	6,688,625	
20	Residential Subtotal - $	1,486,944	6,680,476	143,967	898,026	142,658	641,553	1,418,908	501,683	388,360	0			1,574,831	185,221	14,062,627	14,363,070
	Commercial/Industrial																
21	Operation, Maint. & Replacement - $	685,876	945,354	69,704	197,231	82,179	170,974	169,065	236,600	135,948	0			136,888		2,829,819	
22	Capital - $	34,860	1,666,971	31,255	266,850	18,870	139,994	385,783	115,205	64,746	0			1,407	89,779	2,815,720	
23	Commercial Monthly Subtotal - $	720,736	2,612,325	100,959	464,081	101,049	310,968	554,848	351,805	200,694	0			138,295	89,779	5,645,539	5,918,868
	Surcharge																
24	Operation, Maint. & Replacement - $	0	0	182,240	17,321	2,480	0	0	618,594	11,939	0			0		832,574	
25	Capital - $	0	0	81,717	23,435	570	0	0	301,206	5,686	0			0		412,614	
26	Surcharge Subtotal - $	0	0	263,957	40,756	3,050	0	0	919,800	17,625	0			0		1,245,188	1,245,188
	Septage																
27	Operation, Maint. & Replacement - $	0	0	3,760	13,191	323	0	0	12,767	9,095	0		18,900	0		58,036	
28	Capital - $	0	0	1,686	17,848	74	0	0	6,216	4,331	0		52,249	0		82,404	
29	Septage Subtotal - $	0	0	5,446	31,039	397	0	0	18,983	13,426	0		71,149	0		140,440	140,440
	Secondary Service Minimum (a)																
30	Operation, Maint. & Replacement - $	0	0	0	0	0	0	0	309,545	76,886	0		0	0		386,431	
31	Capital - $	0	0	0	0	0	0	0	150,724	36,617	0		0	0		187,341	
	Subtotal Secondary Service Minimum - $	0	0	0	0	0	0		460,269	113,503	0		0	0		573,772	0
32	Subtotal Retail - $	2,207,680	9,292,801	514,329	1,433,902	247,154	952,521	1,973,756	2,252,540	733,608	0		71,149	1,713,126	275,000	21,667,566	21,667,566
	South St. Joseph Industrial Sewer District																
33	Operation, Maint. & Replacement - $						62,231	58,116	442,677	103,430	0	177,300		0		843,754	
34	Capital - $						50,956	132,613	215,548	49,259	0	145,996		0	91,500	685,872	
35	SSJISD Subtotal - $						113,187	190,729	658,225	152,689	0	323,296		0	91,500	1,529,626	1,529,626
	National Beef Leathers																
36	Operation, Maint. & Replacement - $						23,873	13,208	121,769	62,031	0	0		0		220,881	
37	Capital - $						19,547	30,139	59,292	29,543	0	0		0	30,200	168,721	
38	Prime Tanning Subtotal						43,420	43,347	181,061	91,574	0	0		0	30,200	389,602	389,602
	Triumph Foods																
39	Operation, Maint. & Replacement - $						67,291	37,863	228,152	89,900	0	0		0		423,206	
40	Capital - $						55,099	86,399	111,092	42,815	0	0		0	60,200	355,605	
41	Triumph Foods Subtotal						122,390	124,262	339,244	132,715	0	0		0	60,200	778,811	778,811
42	Total	2,207,680	9,292,801	514,329	1,433,902	247,154	1,231,518	2,332,094	3,431,070	1,110,586	0	323,296	71,149	1,713,126	456,900	24,365,605	24,365,605

(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.

Projected revenue under existing rates and allocated cost of service are shown in Table 21. The indicated revenue changes required to meet costs of service are shown for each customer class. The indicated changes in retail rates range from (26.9) percent to 20.4 percent. The average indicated increase for retail customers is 9.1 percent. The indicated rate change for wholesale customers is an increase of 7.1 percent for South St. Joseph Industrial Sewer District, an increase of 5 percent for National Beef Leathers, and an increase of 11.6 percent for Triumph Foods. The overall adjustment indicated for wholesale customers is an increase of 8.0 percent.

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

For Fiscal Year Ending June 30, 2015

Line No.	Customer Class	[A] Revenue Under Existing Rates	[B] Allocated Cost of Service	[C] Adjusted Allocated Cost of Service	[D] Indicated Percent Change
		$	$	$	%
	Retail				
1	Residential	11,931,200	14,062,627	14,363,070	20.4
2	Commercial/Industrial	6,096,100	5,645,539	5,918,868	(2.9)
3	Surcharge	1,702,600	1,245,188	1,245,188	(26.9)
4	Septage	126,000	140,440	140,440	11.5
5	Secondary Service Minimum		573,772		
6	Total Retail	19,855,900	21,667,566	21,667,566	9.1
	Secondary Wholesale Treatment				
7	South St. Joseph Industrial Sewer District	1,428,800	1,529,626	1,529,626	7.1
8	National Beef Leathers	371,200	389,602	389,602	5.0
9	Triumph Foods	697,900	778,811	778,811	11.6
10	Total Secondary Wholesale	2,497,900	2,698,039	2,698,039	8.0
11	Total	22,353,800	24,365,605	24,365,605	9.0

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 July 1, 2014. The proposed rates provide for a 9.0 percent overall revenue increase once the rates are in effect.

7.2 LIMIT FEES

Limit fees are a new rate component beginning 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 1.50. 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 24, if the limit was 600 lbs. per day and the actual discharge was 850 lbs. BOD, would be (600 lbs. x $0.258/lb.) + [(850-600) lbs. x $0.387/lb.].

Table 22 Schedule of Proposed Rates
for Fiscal Year Ending June 30, 2015

RETAIL

Service Charge	Monthly Charge $				
Inside City	29.06				
Outside City	68.20				
Volume Charge	**Monthly $/Ccf**			**Limit Fees**	
Inside City	3.77			1.595	$/Ccf
Outside City	8.62			3.646	$/Ccf
Extra Strength Surcharges	**Inside City**	**Outside City**			
BOD in excess of 300 mg/l	0.232	0.345	$/lb.	0.348	$/lb.
Suspended solids in excess of 350 mg/l	0.212	0.503	$/lb.	0.318	$/lb.
Fats, Oils, & Grease in Excess of 100 mg/l	0.248	0.569	$/lb.		
Septage	56.00	56.00	$/Kgal		

WHOLESALE (a)

Ammonia Project Fixed Charge				
South St. Joseph Industrial Sewer District	7.630	$/Month		
National Beef Leathers	2,520	$/Month		
Triumph Foods	5,020	$/Month		
Flow charge				
South St. Joseph Industrial Sewer District	0.315	$/Ccf	0.473	$/Ccf
National Beef Leathers	0.235	$/Ccf	0.352	$/Ccf
Triumph Foods	0.237	$/Ccf	0.355	$/Ccf
Pump Station (b)	0.336	$/Ccf		
BOD	0.258	$/lb.	0.387	$/lb.
Suspended Solids	0.160	$/lb.	0.240	$/lb.
Fats, Oils, & Grease	0.248	$/lb.		

(a) Applicable to the South St. Joseph Industrial Sewer District (SSJISD), National Beef Leathers, and Triumph Foods 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 6. 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 7-10 form the allocations in Lines 11-14. Then the debt service charge on Line 6 is multiplied by each allocation to form the totals in Line 15-18. These costs are totaled in Column A Line 19. 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.

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		$ 2,647,905	$ 422,394	$ 75,318	$ 1,611,803	$ 80,915	$ 457,475
2	CIP		$ 37,733,390	$ 6,019,227	$ 1,073,310	$ 22,968,646	$ 1,153,066	$ 6,519,141
3	Total		$ 40,381,294	$ 6,441,621	$ 1,148,628	$ 24,580,449	$ 1,233,981	$ 6,976,616
4	Total Net Plant		$197,523,719					
5	Ammonia Project as a % of Net Plant		20.4%					
6	Interest Applicable to Ammonia Project		$ 456,900	$ 72,900	$ 13,000	$ 278,100	$ 14,000	$ 78,900
	Units for Plant Design			Ccf	Ccf/Day	lbs	lbs	lbs
7	Retail			7,612,000	61,600	6,376,700	3,651,200	946,000
8	South St Joseph			975,936	6,700	2,555,000	1,095,000	375,950
9	Triumph			1,219,920	5,000	1,095,000	657,000	693,500
10	National Beef			487,968	2,000	73,000	219,000	876,000
	Allocation to Customer Classes							
11	Retail			73.9%	81.8%	63.1%	64.9%	32.7%
12	South St Joseph			9.5%	8.9%	25.3%	19.5%	13.0%
13	Triumph			11.8%	6.6%	10.8%	11.7%	24.0%
14	National Beef			4.7%	2.7%	0.7%	3.9%	30.3%
	Allocated Ammonia Capital Costs to Customer Classes							
15	Retail	= Line 6 x Line 11	$ 275,000	$ 53,900	$ 10,600	$ 175,500	$ 9,200	$ 25,800
16	South St Joseph	= Line 6 x Line 12	$ 91,500	$ 6,900	$ 1,200	$ 70,400	$ 2,700	$ 10,300
17	Triumph	= Line 6 x Line 13	$ 60,200	$ 8,600	$ 900	$ 30,200	$ 1,600	$ 18,900
18	National Beef	= Line 6 x Line 14	$ 30,200	$ 3,500	$ 300	$ 2,000	$ 500	$ 23,900
19	Total Applicable to Ammonia Project		$ 456,900	$ 72,900	$ 13,000	$ 278,100	$ 14,000	$ 78,900

		Costs	Units		Charge	
20	Retail	$ 275,000	2,988,000	Ccf	$ 0.09	$/Ccf
21	South St Joseph	$ 91,500	12	Bills	$ 7,630	$/Bill
22	Triumph	$ 60,200	12	Bills	$ 5,020	$/Bill
23	National Beef	$ 30,200	12	Bills	$ 2,520	$/Bill
24	Total	$ 456,900				

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 percent of the cost of service and results in an average increase over existing rates of 9.1 percent. The proposed wholesale rates are projected to recover 100 percent of the cost of service and results in an average increase over existing rates of 8.1 percent.

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

for Fiscal Year Ending June 30, 2015

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	14,363,070	14,181,300	98.7	18.9
2	Commercial/Industrial	5,918,868	6,101,900	103.1	0.1
3	Surcharge	1,245,188	1,243,500	99.9	(27.0)
4	Septage	140,440	141,100	100.5	12.0
5	Total Retail	21,667,566	21,667,800	100.0	9.1
	Secondary Wholesale Treatment				
6	South St. Joseph Industrial Sewer District	1,529,626	1,530,200	100.0	7.1
7	National Beef Leathers	389,602	390,000	100.1	5.1
8	Triumph Foods	778,811	779,500	100.1	11.7
9	Total Secondary Wholesale Treatment	2,698,039	2,699,700	100.1	8.1
10	Total	24,365,605	24,367,500	100.0	9.0

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. At this level, a customer's monthly bill would increase by $7.89 to $51.68.

Table 25 Typical Retail Sewer Bills Under Existing and Proposed Rates

Monthly Billed Sewer Volume Ccf	Inside City Existing Rates $	Inside City Estimated Rates $	Inside City Increase %	Outside City Existing Rates $	Outside City Estimated Rates $	Outside City Increase %
0	20.27	29.06	43.4	47.57	68.20	43.4
2	28.11	36.60	30.2	65.49	85.43	30.5
6	43.79	51.68	18.0	101.33	119.90	18.3
10	59.47	66.76	12.3	137.17	154.37	12.5
30	137.87	142.16	3.1	316.37	326.71	3.3
50	216.27	217.56	0.6	495.57	499.06	0.7
75	314.27	311.81	-0.8	719.57	714.48	-0.7
100	412.27	406.06	-1.5	943.57	929.91	-1.4
150	608.27	594.56	-2.3	1,391.57	1,360.77	-2.2
200	804.27	783.06	-2.6	1,839.57	1,791.63	-2.6
500	1,980.27	1,914.06	-3.3	4,527.57	4,376.77	-3.3
1,000	3,940.27	3,799.06	-3.6	9,007.57	8,685.34	-3.6