

CITY OF WEST JORDAN

Water, Wastewater, and Stormwater Rate Study

Final Report / November 29, 2018



November 29, 2018

Mr. David Zobell
Treasurer
City of West Jordan
8000 South Redwood Road
West Jordan, UT

Subject: Water, Wastewater, and Stormwater Rate Study

Dear Mr. Zobell,

Raftelis is pleased to provide this Water, Wastewater, and Stormwater Rate Study Report (Report) for the City of West Jordan (City).

The major objectives of the study include the following:

-) Develop financial plans for the water, wastewater, and stormwater funds for the 6-year study period, Fiscal Year (FY) 2019 – 2024.
-) Develop water, wastewater, and stormwater cost-of-service analyses to ensure equitable recovery of costs from customer classes
-) Cost-of-service water, wastewater, and stormwater rates, along with rate alternatives

The Report summarizes the key findings and recommendations related to the study.

It has been a pleasure working with you, and we thank you and the City staff for the support provided throughout the course of this study.

Sincerely,

A handwritten signature in black ink that reads 'Todd Cristiano'.

Todd Cristiano
Manager

Table of Contents

TABLE OF CONTENTS	4
LIST OF TABLES	6
LIST OF FIGURES.....	6
LIST OF APPENDICES	6
DEFINITIONS	7
EXECUTIVE SUMMARY	8
INTRODUCTION.....	8
STUDY GOALS AND OBJECTIVES	8
STUDY FINDINGS	9
Water.....	9
Wastewater.....	11
Stormwater.....	12
RELIANCE ON CITY-PROVIDED DATA.....	12
SECTION 2: ASSUMPTIONS	14
SECTION 3: WATER RATES	15
INTRODUCTION.....	15
FINANCIAL PLAN	15
Impact Fee and Bond Cash Flow.....	15
Operating Cash Flow.....	16
COST OF SERVICE.....	17
Cost of Service Process.....	17
FY19 Revenue at Current Rates	17
Test Year Revenue Requirement.....	18
Revenue Requirement Allocation.....	18
Rate Design.....	22

SECTION 4: WASTEWATER RATES 26

INTRODUCTION..... 26

FINANCIAL PLAN 26

Impact Fee and Bond Cash Flow.....26

Operating Cash Flow.....27

COST OF SERVICE..... 28

Cost of Service Process.....28

FY19 Revenue At Current Rates.....28

Test Year Revenue Requirement.....29

Revenue Requirement Allocation.....29

Rate Design.....31

SECTION 5: STORMWATER..... 34

INTRODUCTION..... 34

FINANCIAL PLAN 34

Impact Fee and Bond Cash Flow.....34

Operating Cash Flow.....35

TEST YEAR REVENUE REQUIREMENT 36

RATE DESIGN..... 36

List of Tables

Table 1: Comparison of Current and Proposed Monthly Service Charge, \$ per Bill	9
Table 2: Comparison of Existing and Proposed Volume Rates, \$ per 1,000 Gallons.....	10
Table 3: Water - Block Threshold Variants for Commercial and Irrigation Classes	11
Table 4: Comparison of FY19 Current Rates and Proposed Wastewater Rate Alternatives	12
Table 5: Comparison of FY19 Current Rates and Proposed Stormwater Rates	12
Table 6: Study Assumptions	14
Table 7: Water Utility Financial Plan Projections.....	17
Table 8: Water - FY19 Revenue at Current Rates.....	17
Table 9: Water - FY19 Water Revenue Requirement	18
Table 10: Water - FY19 Allocated Revenue Requirement	20
Table 11: Water - FY19 Customer Class Units of Service	20
Table 12: Water - FY19 Unit Cost of Service	21
Table 13: Water – FY19 Customer Class Cost of Service	21
Table 14: Water - Comparison of FY19 Cost of Service to Revenue Under Current Rates	21
Table 15: Water FY19 Current Water Rate Structure	22
Table 16: Water – FY19 Comparison of Current and Proposed Monthly Service Charge \$ per bill.....	23
Table 17: Water - Block Threshold Variants for Commercial and Irrigation Classes	23
Table 18: Water – FY19 Comparison of Existing and Proposed Volume Block Thresholds Commercial and Irrigation.....	24
Table 19: Wastewater Utility Financial Plan Projections	27
Table 20: Wastewater – FY19 Revenue Under Current Rates	28
Table 21: Wastewater - FY19 Revenue Requirement (\$ million)	29
Table 22: Wastewater - FY19 Allocated Revenue Requirement (\$ million)	30
Table 23: Wastewater - FY19 Units of Service	30
Table 24: Wastewater - FY19 Unit Cost of Service	30
Table 25: Wastewater - FY19 Customer Class Cost of Service (\$ million)	31
Table 26: Wastewater – FY19 Comparison of Cost of Service to Revenue at Current Rates	31
Table 27: Wastewater – FY19 Current Wastewater Rate Structure.....	32
Table 28: Wastewater – FY19 Comparison of Current Rates and Proposed Wastewater Rate Alternatives	33
Table 29: Stormwater Utility Financial Plan Projections.....	35
Table 30: FY19 Stormwater Revenue Requirement \$ millions	36
Table 31: Stormwater - Comparison of Existing and Proposed Rates.....	36

List of Figures

Figure 1: Typical Monthly Residential Bill Comparison 15,000 Gallons Monthly Billable Volume	25
Figure 2: Typical Monthly Residential Bill Comparison 5,000 Gallons Billable Monthly Volume	33

List of Appendices

APPENDIX A: WATER UTILITY FINANCIAL PLAN, COST OF SERVICE AND RATE DESIGN	
APPENDIX B: WASTEWATER UTILITY FINANCIAL PLAN, COST OF SERVICE AND RATE DESIGN	
APPENDIX C: STORMWATER UTILITY FINANCIAL PLAN AND RATE DESIGN	

Definitions

Test year: The year in which proposed rates will be effective

Study period: Financial planning period for the FY19 through FY24.

FY19: The budget year period July 1, 2018 through June 30, 2019

Kgals: 1,000 gallons

Res/Comm/Ind: Residential/Commercial/Industrial

Executive Summary

Introduction

The City of West Jordan (City) provides service to approximately 23,000 customers who receive water, wastewater, and stormwater service. The City is financially self-sufficient with funding for capital and operating requirements derived primarily from rates. The City authorized this study to assure that an adequate level of revenue from water, wastewater, and stormwater rates is maintained to finance the City's daily operations as well as future capital improvements and expansions. The study includes the following:

-) Development of water, wastewater, and stormwater financial plans for the 6-year study period, Fiscal Year 2019-2024.
-) Analysis of customer class cost of service.
-) Design of water, wastewater, and stormwater rates.

Raftelis used industry standard methodologies supported by the American Water Works Association (AWWA) *Principles of Water Rates, Fees, and Charges* M1 manual for this rate study.

Study Goals and Objectives

The City's overarching goal for this study was to develop long-term financial plans for the water, wastewater, and stormwater utilities while ensuring:

-) Rate revenues are sufficient to meet annual operating expenses, debt service, and capital expenditures
-) Capital projects are funded with the optimal mix of rate revenue and debt to minimize impacts to customers
-) Reserve levels are maintained in accordance with industry best practices, and that debt service coverage as required by bond covenants is met
-) Rates are based on a cost-of-service analysis which equitably recovers the cost to provide service to customer classes

In addition, the City identified specific pricing objectives to develop the rate alternatives presented in this study, in addition to cost-of-service rate design. These objectives were guided by two primary goals: revenue sufficiency and defensibility.

-) Revenue stability. Produce rates that maintain a steady stream of revenue during periods of water usage variability.
-) Conservation. Through the rate structure, continue to promote wise use of water.
-) Demand management. To the extent possible, encourage customers to shift water use during peak periods of the year.
-) Interclass equity. Maintain equity between the customer classes (i.e. prevent one class subsidizing another)
-) Intraclass equity. Maintain equity between low and high volume customers within a class.

These objectives often compete with one another. For example, revenue stability would suggest a higher fixed charge while a conservation-oriented structure would favor a lower fixed charge (giving the customer more control

over their monthly bill). Raftelis worked with staff to balance these objectives when developing the alternative rate structures.

Study Findings

Principal findings of this study are as follows:

WATER

-) Projected water sales revenue under existing rates is insufficient to meet annual revenue requirements through the study period. A primary adjustment of 33.0% at a minimum is required to meet current expenditures and provide adequate reserves in the fiscal year ending June 30, 2019. After this initial adjustment, equal annual adjustments of 8.5% are sufficient for FY2020 and FY2021, and from FY2022 onwards, equal annual adjustments of 8.0% are sufficient to meet all future expenditures as detailed in the study period. Revenue adjustments are effective January 1 of each year.
-) It is recommended that the water financial plan be updated annually to reflect current estimates of revenue, operating expenses, capital improvement needs, and maintenance of reserve targets.
-) Raftelis developed three rate structure alternatives for consideration, which are described below. These rate alternatives are designed to meet the City's objectives of revenue stability and customer class equitability.
 1. **Financial Plan Increase (FPI).** An overall revenue adjustment is applied to the current rates. This alternative is not cost-of-service based but recovers the overall revenue requirement.
 2. **Cost of Service (COS).** Proposed rates are based on the cost of service analysis and recover each class's cost of service.
 3. **Fixed Charge Recovery (FCR).** This structure uses cost of service rates with a portion of capital costs recovered in the monthly fixed charge. FCR recovers the cost of service for each class.
-) The proposed rate alternatives retain the current residential structure – a monthly service charge and tiered volumetric rates. The commercial and irrigation rate structures are based on an inclining block structure to be consistent with Utah State Statutes. The monthly service charge recovers the cost of billing, administration, meter replacement costs, and under FCR, a portion of capital costs. The volume rates recover the cost to treat and deliver water based on demands placed on the system by customers. Table 1 shows the monthly service charge at current rates and the proposed alternatives.

Table 1: Comparison of Current and Proposed Monthly Service Charge, \$ per Bill

Item	Current	Alternative 1 FPI	Alternative 2 COS	Alternative 3 FCR
Residential	\$26.58	\$35.35	\$10.72	\$25.38
	Commercial Meters	Commercial Meters	Irrigation and Commercial Meters	Irrigation and Commercial Meters
Meter Size (inches)				
¾"	\$16.09	\$21.40	\$10.72	\$25.38
1"	\$40.24	\$53.52	\$13.17	\$49.83
1 ½"	\$53.09	\$70.61	\$47.91	\$96.31
2"	\$80.45	\$107.00	\$47.91	\$121.24
3"	\$241.35	\$321.00	\$59.85	\$279.84
4"	\$514.87	\$684.78	\$74.93	\$544.25
6"	\$933.22	\$1,241.18	\$113.51	\$964.16
8"	\$1,399.83	\$1,861.77	\$139.48	\$1,415.45
10"	\$2,043.42	\$2,717.75	\$242.31	\$2,104.94

Effective May 10, 2016, the State of Utah approved Statute 73-10-32.5 regarding culinary water pricing structure. Under this statute, municipal water providers are required to establish a culinary rate structure that a) incorporates increasing block units of water used and b) provides for an increase in the rate charges for additional block units of water used as usage increases from one block unit to the next. The City's current residential and low income rate structure complies with the Statute. Raftelis designed an inclining block structure for the commercial and irrigation classes.

**Table 2: Comparison of Existing and Proposed Volume Rates,
\$ per 1,000 Gallons**

Class	Threshold 1,000 gal	Current	Alternative 1 FPI	Alternative 2 COS	Alternative 3 FCR
Residential[a]					
Block 1	0 – 7	\$1.65	\$2.19	\$3.30	\$2.41
Block 2	7 – 20	\$1.90	\$2.53	\$3.80	\$2.78
Block 3	> 20	\$2.18	\$2.90	\$4.36	\$3.19
Commercial					
Block 1	Varies by Meter Size	\$1.65	\$1.91	\$3.22	\$2.48
Block 2		\$1.65	\$2.20	\$3.70	\$2.86
Block 3		\$1.65	\$2.52	\$4.25	\$3.28
Irrigation					
Block 1	Varies by Meter Size	\$1.96	\$2.27	\$3.45	\$3.02
Block 2		\$1.96	\$2.62	\$3.97	\$3.47
Block 3		\$1.96	\$3.00	\$4.55	\$3.99
[a] Low income customers do not pay a volume rate for the first 7,000 gallons.					

To accomplish the inclining block structures in the commercial and irrigation classes, a variety of approaches have been undertaken and are presented in Table 3. The approaches undertaken are: setting block thresholds for each meter size, setting block thresholds for groups of meter sizes (5/8-inch through 2-inch meters, and 3-inch and greater), and lastly, setting block thresholds for the classes in their entirety.

Table 3: Water - Block Threshold Variants for Commercial and Irrigation Classes

Item	Individual Meter Sizes		Grouped Meter Sizes		Class-Based	
	Block 1 (kgal)	Block 2 (kgal)	Block 1 (kgal)	Block 2 (kgal)	Block 1 (kgal)	Block 2 (kgal)
Commercial						
¾"	15	95	50	700	200	5,000
1"	25	140	50	700	200	5,000
1 ½"	40	335	50	700	200	5,000
2"	270	1,405	50	700	200	5,000
3"	505	7,045	500	7,045	200	5,000
4"	280	1,390	500	7,045	200	5,000
6"	375	2,655	500	7,045	200	5,000
8"	1,500	7,045	500	7,045	200	5,000
10"	1,500	7,045	500	7,045	200	5,000
Irrigation						
¾"	30	190	100	600	110	750
1"	55	320	100	600	110	750
1 ½"	100	525	100	600	110	750
2"	180	805	100	600	110	750
3"	460	2,080	210	1,050	110	750
4"	840	2,800	210	1,050	110	750
6"	650	2,450	210	1,050	110	750
8"	650	2,450	210	1,050	110	750
10"	650	2,450	210	1,050	110	750

WASTEWATER

- Projected wastewater service revenue is insufficient to meet annual revenue requirements through the study period. A primary adjustment of 18.0% is required in FY19 followed by equal annual revenue adjustments of 4.0% in FY20 – FY22 (with no adjustments needed in FY23 or FY24). Revenue increases are effective January 1 of each year.
- It is recommended that the wastewater financial plan be updated annually to reflect current estimates of revenue, operating expenses, capital improvement needs and maintenance of reserve targets.
- Raftelis developed three rate structure alternatives for consideration which are described below. These rate alternatives are designed to meet the City's objectives of revenue stability and customer class equitability.
 1. **Financial Plan Increase (FPI).** Overall revenue adjustment is applied to the current rates. The alternative is not cost-of-service based but recovers the overall revenue requirement.
 2. **Cost of Service (COS).** Proposed rates are based on the cost of service analysis and recover each classes' cost of service.
 3. **Fixed Charge Recovery (FCR).** Cost of service rates with a portion of capital costs recovered in the monthly fixed charge. FCR recovers the cost of service for each class.

The proposed rate alternatives retain the current rate structure. The residential and commercial class consist of a monthly service charge and a volume rate applied to each customers' average winter consumption. The current industrial structure consists of a monthly service charge and a volume rate based on actual usage. The multifamily class is assessed a monthly service charge on a per unit basis with no volume rate. The monthly service charge recovers the cost of billing and administration under the COS alternative. Under the FCR alternative, the monthly service charge recovers billing and administration costs and a portion of repair and replacement costs. Table 4 shows the monthly service charge at current rates and the proposed alternatives.

Table 4: Comparison of FY19 Current Rates and Proposed Wastewater Rate Alternatives

Description	Current	Alternative 1 FPI	Alternative 2 COS	Alternative 3 FCR
Residential/Commercial				
Service Charge, \$ per bill				
Residential	\$16.19	\$19.10	\$2.80	\$12.29
Commercial	\$20.94	\$24.71	\$2.80	\$12.29
Volume Rate, \$ per kgal [a]	\$1.50	\$1.77	\$4.30	\$3.05
Multifamily				
Service Charge, \$ per unit	\$19.93	\$23.52	\$2.80 [b]	\$16.43
Volume Rate, \$ per kgal	None	None	\$4.30 [a]	None
Industrial				
Service Charge, \$ per bill	\$2,373.77	\$2,801.05	\$2.80	\$2,813.34
Volume Rate, \$ per kgal [c]	\$1.50	\$1.77	\$4.30	\$3.05

[a] Residential and commercial based on average winter consumption

[b] Assessed on a per water meter basis

[c] Industrial based on actual water consumption

STORMWATER

- Projected stormwater service revenue is insufficient to meet annual revenue requirements through the study period. Equal annual adjustments of 24.0% are required in FY19 – FY21 to meet future expenditures and provide adequate reserves through the study period. No other increases are required for the rest of the study period.
- It is recommended that the stormwater financial plan be updated annually to reflect current estimates of revenue, operating expenses, capital improvement needs and maintenance of reserve targets.
- Table 5 shows the proposed rate adjustments. Rates are assessed on a per Equivalent Residential Unit (ERU) basis.

Table 5: Comparison of FY19 Current Rates and Proposed Stormwater Rates

Description	Current	Proposed Rate
Stormwater Fee per ERU	\$4.50	\$5.58

Reliance on City-Provided Data

During this project, the City (and/or its representatives) provided Raftelis with a variety of technical information, including cost and revenue data. Raftelis did not independently assess or test for the accuracy of such data – historic or projected. Raftelis has relied on this data in the formulation of our findings and subsequent recommendations, as well as in the preparation of this report.

There are often differences between actual and projected data. Some of the assumptions used in this report will not be realized, and unanticipated events and circumstances may occur. Therefore, there are likely to be differences between the data or results projected in this report and actual results achieved, and those differences may be material. As a result, Raftelis takes no responsibility for the accuracy of data or projections provided by or prepared on behalf of the City, nor do we have any responsibility for updating this report for events occurring after the date of this report.

Section 2: Assumptions

This section presents the major assumptions used in this study. Changes in these assumptions could materially impact the results of the findings and conclusions.

Table 6: Study Assumptions

Escalation Factors	
General O&M Expenses [a]	2.2%
Capital Expenditures [b]	4.0%
Health Benefits	3.0%
Salaries and Wages	3.0%
Utah Retirement Systems, ICMA-RC	3.0%
Operating Cash Flow, Unrestricted Cash	
Beginning Balance	
Water	\$2.3 million
Wastewater	\$8.0 million
Stormwater	\$6.8 million
Impact Fee and Bond Cash Flow, Restricted	
Cash Beginning Balance	
Water	\$11.2 million
Wastewater	\$ 0 million
Stormwater	\$ 0 million
Annual Account Growth	
Average annual new accounts by class	
Single Family	449
Multifamily	193
Commercial	20
Water Fund Reserves	
Operating	90 days of O&M and 1-year's depreciation expense
Impact Fee & Bond	1-year's average impact fee revenue
Wastewater Fund Reserves	
Operating	60 days of O&M and 1-year's depreciation expense
Impact Fee & Bond	1-year's average impact fee revenue
Stormwater Fund Reserves	
Operating	60 days of O&M and 1-year's depreciation expense
Impact Fee & Bond	1-year's average impact fee revenue
Future Debt Issuances [c]	
Term	10 years
Interest Rate	4.0%
Issuance Expense	1.5%
Debt Service Reserve Requirement	0.0%

[a] U.S. Federal Reserve Bank - Survey of Professional Forecasters

[b] Vermeulens – Market Outlook Q2 2018

[c] The City indicated 10 years is their typical term, with no Debt Service Reserve requirement

Section 3: Water Rates

Introduction

The City's water utility is a self-supporting enterprise fund. The City has one combined fund for the water utility, but must track activities associated with impact fee revenues and growth-related projects separate from activities associated with the daily operations and maintenance of the utility. For the purposes of this study, Raftelis developed two separate cash flows for the rate analysis.

-) Impact fee and bond cash flow (restricted cash)
-) Operating cash flow (unrestricted cash)

The operating cash flow is used for the basis of rate-setting. Tables for the water utility financial plan, cost of service, and rate analysis can be found in Appendix A.

Financial Plan

IMPACT FEE AND BOND CASH FLOW

Because of the restrictions on the uses of certain bond proceeds and impact fee revenues, this cash flow and the growth-related projects it funds are tracked separately.

Beginning balance

The cash flow balance includes carryover impact fee revenues and bond proceeds from previous years. The fund balance was \$10.9 million at the beginning of FY19.

Sources of funds

Sources include impact fee revenue, transfers from the operating cash flow, bond proceeds, and investment income. Impact fee revenue averages \$1.5 million annually beginning in FY19. Impact fee revenue projections are based on data from the 2017 TischlerBise impact fee study. A proposed bond issuance of \$10.25 million in FY21 is anticipated for funding the Zone 5 and Zone 1 4.0 mgd reservoirs. Investment income is calculated using a 1.0 percent annual interest rate applied to each year's average fund balance.

Uses of funds

The City's growth-related projects for the study period total \$33.6 million, inflated. The impact fee projects primarily consist of new wells and storage tank additions. Annual debt service costs on the existing and proposed bond issues increase from \$1.92 million in FY21 to \$3.18 million in FY22, which is timed with the initiation of the third and fourth storage tank projects. An annual inflation factor of 4 percent is applied to the projected capital costs. Debt issuance costs are 1.5 percent of the total debt issue and debt reserve costs are equal to 0 percent, per advice from City staff based on past debt issuance experiences. Table A-2 summarizes the water capital improvement program.

Impact Fee Reserves

Impact fee reserves are set to provide a utility with sufficient funds to meet the cyclical nature of impact fee revenues. Although there is no industry standard, a reserve balance equal to the greater of one-year's average impact fee revenue or payments on growth-related debt service is recommended. Raftelis has calculated target reserves equal to the average annual impact fee revenue.

OPERATING CASH FLOW

Financial activities associated with funding annual operating revenues and revenue requirements are tracked separately from the activities associated with impact fee project funding. Revenue requirements include operation and maintenance expense, payments on existing and proposed debt, repair and replacement projects, transfers to the impact fee fund, maintaining reserves, and debt service coverage.

Beginning balance

The operating cash balance includes unrestricted net revenues carried over from previous years. The fund balance is projected to be \$553,257 at the beginning of FY19.

Revenues

Operating revenue is derived from water rates, investment income, and other miscellaneous sources. Water sales revenue under existing rates is based on the projected number of water accounts and water usage amounts for each customer class. Revenue from existing rates averaged \$19.2 million, annually, during the study period.

Miscellaneous revenues include flat rate water sales, hydrant revenue, reconnection fees, and interfund payments for water services used by City facilities.

Revenue Requirements

Revenue requirements imposed on these operating revenues include operation and maintenance expense (O&M), repair and replacement capital, debt service payments for existing and proposed debt issuances, and transfers for impact fee projects. O&M consists of personnel, materials, supplies, and water purchases from the City. O&M averaged \$20.6 million annually during the study period. A significant portion of the O&M expenses are for water purchases from the Jordan Valley Water Conservancy District, which total \$11.6 million in FY19. An annual inflation allowance of 3% is included for future water purchases. Repair and replacement projects average \$5.1 million annually during the study period. Transfers for impact fee projects occur when impact fee revenues or reserves are insufficient to meet the capital requirements. These transfers should be tracked and repaid to the unrestricted balance once impact fee revenue is sufficient to meet obligations. These transfers average \$3.5 million per year over the study period.

Indicated Water Sales Revenue Adjustments

Water rate revenue should be sufficient to meet revenue requirements, finance the capital improvement program, maintain adequate reserves, and comply with bond covenants. A minimum operating reserve equal to 90 days of operating expenses is recommended, which is typical in the industry and for a utility of this size. This reserve is phased in over the study period, in addition to a repair and replacement reserve equal to one-year's annual depreciation expense. The City is required by bond covenants to maintain a debt service coverage of 1.25 times net revenue. Raftelis set a target of 1.5 times net revenue to ensure that the City had sufficient coverage capacity to issue debt in the future. An initial revenue adjustment of 33.0% is required in FY19 followed by equal annual revenue adjustments of 8.0% in FY20-FY24 to meet the requirements and maintain the financial health of the utility. It is recommended that the financial plan be updated annually to determine whether the projected increases are appropriate.

Table 7: Water Utility Financial Plan Projections

Description	FY19	FY20	FY21	FY22	FY23	FY24
Revenue Adjustment	33.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Ending Balance (\$ millions)	\$2.55	\$4.87	\$8.93	\$8.70	\$7.64	\$10.05
Target Reserves (\$ millions)	\$1.59	\$2.94	\$4.34	\$5.80	\$7.30	\$7.95
Over/(Under Target) (\$ millions)	\$0.96	\$1.93	\$4.50	\$2.90	\$0.34	\$2.10
Debt Service Coverage	1.39	3.63	2.88	3.63	4.45	7.11
Repair and Replacement Capital Funded (\$ millions)	\$0.58	\$2.00	\$5.00	\$7.73	\$7.73	\$7.73

Cost of Service

Equitable water rates fairly recover the cost to service each respective customer class. Determination of cost of service takes into account the volume of water used by the class, class peak rates of demand, number of customers within the class, fire protection requirements, and other relevant factors.

The cost of service analysis is conducted for a test year considered representative of the period in which resultant rates are expected to be in effect. The year FY19 was selected as the test year for this study.

COST OF SERVICE PROCESS

The cost-of-service process is a method to assign costs based on each customer class's proportionate share of water demands and number of customers. The cost-of-service analysis consists of the following nine steps:

1. Determine the FY19 rate revenue at current rates
2. Determine the test year revenue requirement
3. Functionalize the revenue requirement
4. Allocate functionalized costs to cost components
5. Determine the total system units of service
6. Determine the unit costs of service
7. Determine customer class units of service
8. Distribute costs to customer classes
9. Design rates to recover class cost-of-service and the total revenue requirement

FY19 REVENUE AT CURRENT RATES

Raftelis developed FY19 rate revenue at current rates using detailed billing records provided by the City. Revenue projections are based on the current number of customers by meter size and class, projected use per account and growth in the number of accounts by class. The FY19 revenue at current rates is shown in Table 8. This projection serves as the basis for determining the FY19 revenue requirement. This billing data analysis is also used in the units of service analysis.

Table 8: Water - FY19 Revenue at Current Rates

Customer Class	Accounts	Volume (millions of kgals)	Revenue (\$ millions)
Residential	21,868	3.76	\$14.16
Commercial	1,129	1.31	\$3.34
Irrigation	331	0.40	\$0.75
Total	23,328	5.47	\$18.25
*Values rounded to foot.			

TEST YEAR REVENUE REQUIREMENT

The revenue requirement shown in Table 9 below shows the level of rate revenue required from rates with the FY19 proposed revenue adjustments.

Table 9: Water - FY19 Water Revenue Requirement

Item	FY19
Operation and Maintenance Expense	\$19.14
Debt Service	\$1.91
Capital Improvements	\$0.58
Total Expenditures	\$21.63
Other Revenue Adjustments	
Miscellaneous Revenue	(\$0.94)
Investment Income	(\$0.02)
Change in Fund Balance	\$3.61
Total Other Revenue Adjustments	\$2.65
Net FY19 Revenue Requirement	\$24.28
*Values rounded to foot.	

REVENUE REQUIREMENT ALLOCATION

The underlying principle in cost allocation is to convert the test year revenue requirement into costs that best reflect the cost associated with customer water demands placed on the system. Those costs are proportionally allocated to customer classes based on their respective customer class units of service to determine class cost of service. Customer class units of service include average day, peak day, and peak hour demands, the number of equivalent meters, and the number of bills.

Functional Cost Components

Water systems are comprised of several facilities (unit processes or functions) that are designed and operated to collect, treat, and distribute water to customers. The separation of costs into functional components provides a means for distributing costs to customer classes based on their respective responsibility in the system. Typical functional categories for water systems include source of supply, transmission and distribution, treatment, pumping, storage, and customer-related costs.

Allocation Factors

Water systems are designed and operated to meet the average and peak demands of their customers. Therefore, data on annual consumption and peak demand contributions are needed to allocate costs equitably among customer classes. Since customers do not exert their maximum demand for water at the same time, water facilities are designed to meet the coincidental demands on the system. Using system peak demand to average demand ratios provides a means for distributing costs equitably to customer classes.

For every facility on the system, there is an underlying average demand, or uniform rate of usage, exerted coincidentally by customers for which the average day cost component applies. Certain facilities are operated and designed to meet the demand above the average day demand or maximum day extra-capacity demand. Costs associated with those facilities are allocated to both the average day and maximum day cost components. Similarly, other facilities are designed to meet demands in excess of maximum day requirements or maximum

hour extra-capacity. Costs associated with these facilities are allocated to the average day, maximum day, and maximum hour cost components.

The ratio of maximum day and average day demand is used to allocate costs between average day and maximum day cost components. A maximum day to average day ratio of 2.02 is used based on the 2015 Water Master Plan provided by the City. This indicates approximately 49% of the capacity of facilities designed and operated for maximum day demand is needed for average day demands use. Accordingly, the remaining 51% is for maximum day extra-capacity requirements.

A ratio of maximum hour to average day water use of 3.08 is detailed in the Master Plan. This ratio indicates 32% of the capacity of facilities designed and operated for maximum hour demand is needed for average day demands, 33% is required to meet maximum day extra-capacity demand, and the remaining 35% is for maximum hour extra-capacity demand. These ratios are used to allocate the line item functionalized costs to cost components. Other cost allocations are based on the allocation of all other categories.

Other revenue requirements can be directly assigned to specific cost components. Billing and administrative costs such as meter reading are allocated directly to the billing cost component. Indirect expenditures not specifically assigned are allocated in proportion to all other operations and maintenance cost components.

Allocation of Functionalized Costs

Once costs have been separated by function, they can be further allocated to cost components using the demand factors identified above. Allocating costs to cost components provides a means of assigning functionalized costs based on the design and functional parameters that facility serves in the system. Cost components include the annual water usage (i.e. average day demand, peak rates of demand, meters and services and customer). Below is a definition of the customer service characteristics.

- » **Average day** costs vary directly with the quantity of water sold under average day load conditions.
- » **Extra-capacity** costs represent those costs incurred to meet water demands that exceed average levels of water usage by customers. These costs are incurred to the water usage variations and peak demands imposed on a water system. Extra capacity costs are incurred to meet the capacity above the maximum day and maximum hour demands.
- » **Meter and services** costs vary based on the size of meter and include meter repair and maintenance and a portion of capital costs associated with meeting the demands of the customer. The count of meters is typically stated on a per $\frac{3}{4}$ " equivalent basis.
- » **Billing and collection** costs include the cost of billing, customer service, and customer accounting.

Functional O&M costs are generally allocated to the cost components that best reflect the design or functional parameter associated with that facility's expense. For example, water supply canal costs are allocated to the base or average day costs as source of supply facilities are designed to meet average day demands. Booster pumps and irrigation pumps are designed to meet maximum hour demands. These costs are allocated to the average day, maximum day and maximum hour cost components. Similarly, transmission and distribution mains are designed to meet maximum hour demand. These costs are allocated to the average day, maximum day, and maximum hour cost components. Meter repair is associated with repair and replacement of customer meters. These costs are allocated directly to the meters and services cost component.

Water system assets provide a reasonable basis for allocating annual capital costs. The treatment plants are designed to meet the peak demands on the system. These costs are allocated to the average day and maximum day cost component. Pumping facilities are designed to meet maximum hour demands. These costs are allocated to the

average day, maximum day, and maximum hour demands. Other costs not specifically allocated are allocated in proportion to all other assets.

Allocated Revenue Requirement

Table 10 summarizes the allocated revenue requirement from the analysis discussed above. The allocated revenue requirement is distributed to customer classes based on their proportionate share of total customer service characteristics.

Table 10: Water - FY19 Allocated Revenue Requirement

Description	Base	Maximum Day Extra Capacity	Maximum Hour Extra Capacity	Equivalent Meters	Billing
Operation and Maintenance Expense	\$13.37	\$1.21	\$0.31	\$2.39	\$0.89
Capital Costs	\$2.37	\$2.42	\$1.32	\$0	\$0
Total Allocated Revenue Requirement	\$15.74	\$3.63	\$1.63	\$2.39	\$0.89

*Values rounded to foot.

Customer Class Units of Service

Customers of a water utility are often identified according to customer class. Each customer class has unique water demands and usage characteristics. Because cost-of-service is based on the concept of proportionality, customer service characteristics for each customer class must be analyzed to distribute the functionalized and allocated system revenue requirements based on their respective demand profiles. Table 11 details the units of service.

Table 11: Water - FY19 Customer Class Units of Service

Customer Class	Average Day Demand <i>1,000 gallons</i>	Maximum Day Extra Capacity <i>1,000 gpd</i>	Max Hour Extra Capacity <i>1,000 gpd</i>	Equivalent Meters	Billing <i>bills</i>
Residential	3,831,372	38,345	64,027	267,662	267,662
Commercial	1,332,239	10,631	18,141	35,766	13,814
Irrigation	391,760	4,120	6,851	11,237	3,684
Total	5,555,371	53,096	89,019	314,665	285,160

*Values rounded to foot.

Unit Cost of Service

The unit cost of service is the quotient of the allocated revenue requirement by cost component divided by the units of service for each. Table 12 shows the calculation of the unit cost of service.

Table 12: Water - FY19 Unit Cost of Service

Customer Class	Average Day Demand	Maximum Day Extra Capacity	Max Hour Extra Capacity	Meters	Billing
Revenue Requirement (\$ mil)	\$15.74	\$3.64	\$1.63	\$2.38	\$0.89
Units of Service	1,000 gallons	1,000 gpd	1,000 gpd	Eq. Meters	Bills
Units	5,555,371	53,096	89,019	314,665	285,160
Unit Cost of Service	\$2.83	\$68.51	\$18.32	\$7.58	\$3.13
*Values rounded to foot.					

Distribution of Costs to Customer Classes

Table 13 shows the distributed cost-of-service to customer classes. The customer class units of service in Table 11 are multiplied by the unit cost of service in Table 12 to determine the customer class cost of service.

Table 13: Water – FY19 Customer Class Cost of Service

Class	Avg Day	Max Day Extra Capacity	Max Hour Extra Capacity	Equivalent Meters	Billing
Residential	\$10.85	\$2.62	\$1.17	\$2.04	\$0.84
Commercial	\$3.78	\$0.73	\$0.33	\$0.27	\$0.04
Irrigation	\$1.11	\$0.28	\$0.13	\$0.08	\$0.01
Total	\$15.74	\$3.63	\$1.63	\$2.39	\$0.89
*Values rounded to foot.					

Comparison of FY19 Cost of Service to Revenue at Existing Rates

Table 14 shows the comparison of FY19 cost of service to revenue under current rates for each customer class. The change in each customer class' cost is a product of the two components 1) the functionalization and allocation of the revenue requirement and 2) the distribution of these costs to customer classes based on their units of service.

Table 14: Water - Comparison of FY19 Cost of Service to Revenue Under Current Rates

Class	FY19 Cost of Service	FY19 Revenue Under Existing Rates	Change - \$	Change - %
Residential	\$17.52	\$14.16	\$3.36	23.7%
Commercial	\$5.15	\$3.34	\$1.81	54.0%
Irrigation	\$1.61	\$0.75	\$0.86	114.4%
Total	\$24.28	\$18.25	\$6.03	33.0%
*Values rounded to foot.				

RATE DESIGN

In the development of schedules of water rates, a basic consideration is to establish equitable charges to customers commensurate with the cost of providing service. The only method of assessing entirely equitable water rates would be the determination of each customer's bill based upon their unique service requirements. Since this is impractical, schedules of rates are normally designed to meet average conditions for groups (classes) of customers having similar service requirements. Rates should be reasonably simple in application and subject to as few misinterpretations as possible.

Existing Rate Structure

The City's current rate structure consists of a monthly service charge that varies by meter size and volumetric rate for all usage. The volume rate and structure vary by customer class. Table 15 shows the current rates and structures.

Table 15: Water FY19 Current Water Rate Structure

Description	\$ per Bill
Monthly Service Charge, \$ per Bill	
Residential	\$26.58
Commercial Meter Size (inches)	
¾"	\$16.09
1"	\$40.24
1 ½"	\$53.09
2"	\$80.45
3"	\$241.35
4"	\$514.87
6"	\$933.22
8"	\$1,399.83
10"	\$2,043.42
Volume Rates, \$ per 1,000 gallons	
Residential [a]	
Block 1	\$1.65
Block 2	\$1.90
Block 3	\$2.18
Commercial	\$1.65
Irrigation [b]	\$1.96
[a] Low income customer are not assessed volume charges for the first 7,000 gallons.	
[b] Irrigation is not assessed service charge	

Rate Alternatives

Raftelis developed three rate structure alternatives for consideration which are described below. These rate alternatives are designed to meet the City's objectives of revenue stability and customer class equity.

4. **Financial Plan Increase (FPI).** Overall revenue adjustment is applied to the current rates. The alternative is not cost-of-service based but recovers the overall revenue requirement.
5. **Cost of service (COS).** Proposed rates are based on the cost of service analysis and recover each class's cost of service.
6. **Fixed charge recovery (FCR).** Cost of service rates with a portion of capital costs recovered in the monthly fixed charge. FCR recovers the cost of service for each customer class.

The proposed rate alternatives retain the current residential structure – a monthly service charge and a tiered volume rates. The commercial and irrigation rate structures are based on an inclining block structure to be consistent with Utah State Statutes. The monthly service charge recovers the cost of billing, administration, meter replacement costs, and under FCR, a portion of capital costs. The volume rate recovers the cost to treat and deliver the water based on demands placed on the system by customers. Table 16 shows the monthly service charge at current rates and the proposed alternatives.

Table 16: Water – FY19 Comparison of Current and Proposed Monthly Service Charge \$ per bill

Item	Current	Alternative 1 FPI	Alternative 2 COS	Alternative 3 FCR
Residential	\$26.58	\$35.35	\$10.72	\$25.38
	Commercial	Commercial	Irrigation and	Irrigation and
Meter Size (inches)	Meters	Meters	Commercial	Commercial
¾"	\$16.09	\$21.40	\$10.72	\$25.38
1"	\$40.24	\$53.52	\$13.17	\$49.83
1 ½"	\$53.09	\$70.61	\$47.91	\$96.31
2"	\$80.45	\$107.00	\$47.91	\$121.24
3"	\$241.35	\$321.00	\$59.85	\$279.84
4"	\$514.87	\$684.78	\$74.93	\$544.25
6"	\$933.22	\$1,241.18	\$113.51	\$964.16
8"	\$1,399.83	\$1,861.77	\$139.48	\$1,415.45
10"	\$2,043.42	\$2,717.75	\$242.31	\$2,104.94

Effective May 10, 2016, the State of Utah approved Statute 73-10-32.5 regarding culinary water pricing structure. Under this statute, municipal water providers are required to establish a culinary rate structure that a) incorporates increasing block units of water used and b) provides for an increase in the rate charges for additional block units of water used as usage increases from one block unit to the next. The City's current residential and low income rate structure complies with the statute. Raftelis designed an inclining block structure for the commercial and irrigation class which varies based on meter size.

Table 17: Water - Block Threshold Variants for Commercial and Irrigation Classes

Class	Threshold 1,000 gal	Current	Alternative 1 FPI	Alternative 2 COS	Alternative 3 FCR
Residential[a]					
Block 1	0 – 7	\$1.65	\$2.19	\$3.30	\$2.41
Block 2	7 – 20	\$1.90	\$2.53	\$3.80	\$2.78
Block 3	> 20	\$2.18	\$2.90	\$4.36	\$3.19
Commercial					
Block 1	Varies by Meter Size	\$1.65	\$1.91	\$3.22	\$2.48
Block 2		\$1.65	\$2.20	\$3.70	\$2.86
Block 3		\$1.65	\$2.52	\$4.25	\$3.28
Irrigation					
Block 1	Varies by Meter Size	\$1.96	\$2.27	\$3.45	\$3.02
Block 2		\$1.96	\$2.62	\$3.97	\$3.47
Block 3		\$1.96	\$3.00	\$4.55	\$3.99
[a] Low income customers do not pay a volume rate for the first 7,000 gallons.					

To accomplish the inclining block structures in the commercial and irrigation classes, a variety of approaches have been undertaken and are presented in Table 18. The three approaches undertaken for each are: setting Block thresholds based on each meter size, setting Block thresholds for groups of meter sizes (5/8-inch through 2-inch meters, and 3-inch and greater), and lastly, setting Block thresholds for the classes in their entirety.

Table 18: Water – FY19 Comparison of Existing and Proposed Volume Block Thresholds Commercial and Irrigation

Item	Individual Meter Sizes		Grouped Meter Sizes		Class-Based	
	Block 1 (kgal)	Block 2 (kgal)	Block 1 (kgal)	Block 2 (kgal)	Block 1 (kgal)	Block 2 (kgal)
Commercial						
3/4"	15	95	50	700	200	5,000
1"	25	140	50	700	200	5,000
1-1/2"	40	335	50	700	200	5,000
2"	270	1,405	50	700	200	5,000
3"	505	7,045	500	7,045	200	5,000
4"	280	1,390	500	7,045	200	5,000
6"	375	2,655	500	7,045	200	5,000
8"	1,500	7,045	500	7,045	200	5,000
10"	1,500	7,045	500	7,045	200	5,000
Irrigation						
3/4"	30	190	100	600	110	750
1"	55	320	100	600	110	750
1-1/2"	100	525	100	600	110	750
2"	180	805	100	600	110	750
3"	460	2,080	210	1,050	110	750
4"	840	2,800	210	1,050	110	750
6"	650	2,450	210	1,050	110	750
8"	650	2,450	210	1,050	110	750
10"	650	2,450	210	1,050	110	750

The figure below compares a typical residential monthly bill under existing rates and each alternative. Typical monthly usage is 15,000 gallons.

**Figure 1: Typical Monthly Residential Bill Comparison
15,000 Gallons Monthly Billable Volume**



Section 4: Wastewater Rates

Introduction

The City's wastewater utility is a self-supporting enterprise fund. The City has one combined fund for the wastewater utility but must track activities associated with impact fee revenues and growth-related projects separate from activities associated with the daily operations and maintenance of the utility. For the purposes of this study, Raftelis developed two separate cash flows for the rate analysis.

-) Impact fee and bond cash flow (restricted cash)
-) Operating cash flow (unrestricted cash)

The operating cash flow is used for the basis of rate-setting. Tables for the wastewater utility financial plan, cost of service, and rate analysis can be found in Appendix B.

Financial Plan

IMPACT FEE AND BOND CASH FLOW

Because of the restrictions on the uses of impact fee revenues, this cash and the growth-related projects it funds are tracked separately. Table B-1 summarizes the impact fee cash flow.

Beginning balance

The cash balance includes unrestricted carryover monies from previous years. The fund balance will be \$0 at the beginning of FY19.

Sources of funds

Sources include impact fee revenue, investment income, and transfers from the operating cash flow. Impact fee revenue averages \$1.1 million annually beginning in FY19. Impact fee revenue projections is based on data from the 2017 TischlerBise impact fee study. This study projected the number of housing units added to the system each year; for non-residential customers, impact fee revenue is based on connections by meter size. Transfers from the operating cash balance average \$1.8 million per year. Investment income is calculated using a 1.0 percent annual interest rate applied to the average fund balance.

Uses of funds

The City's growth-related projects for the study period totals \$5.3 million, inflated. Table B-2 summarizes the wastewater capital improvement program. This program includes pipe upsizing, repair and replacements, and system maintenance. An annual inflation allowance of 4.0 percent is applied to the projected capital costs. Table B-2 summarizes the wastewater capital improvement program. Debt issuance costs are 1.5 percent of the total debt issue and debt reserve costs are equal to 0 percent of the proposed annual debt service payment. While the City has not issued debt for the wastewater utility, it pays a portion of the bonds issued to the South Valley Water Reclamation Facility (SVWRF), to whom it conveys all wastewater for treatment.

Impact Fee Reserves

Impact fee reserves are set to provide a utility with sufficient funds to meet the cyclical nature of impact fee revenues. Although there is no industry standard, a reserve balance equal to the greater of one-years' average

impact fee revenue or payments on growth-related debt service is recommended. Raftelis has calculated target reserves equal to the average annual impact fee revenue.

OPERATING CASH FLOW

Financial activities associated with funding annual operating revenues and revenue requirements are tracked separately from the activities associated with impact fee project funding. Table B-3 summarizes the unrestricted cash flow.

Beginning balance

The cash fund balance includes unrestricted carryover monies from previous years. The fund balance is projected to be \$7.9 million at the beginning of FY19.

Revenues

Operating revenue is derived from wastewater rate revenue, investment income, and interfund payments for wastewater services used by City facilities. Wastewater sales revenue under existing rates is based on the projected number of wastewater accounts and usage amount for each customer class. Revenue from existing rates averages \$9.9 million annually during the study period.

Revenue Requirements

Revenue requirements include operation and maintenance expense (O&M) and transfers to the wastewater impact fee and bond cash flow. O&M consists of personnel, materials and supplies associated with sewage treatment, and building rent. O&M averages \$8.1 million annually during the study period. Transfers for impact fee projects are for the ongoing capital improvement program projects. Transfers average \$1.8 million per year. The level of annual transfers should consider the annual capital expenditures as well as the use of capital reserves to fund projects.

Indicated Wastewater Service Revenue Adjustments

Wastewater rate revenue should be sufficient to meet revenue requirements, finance the capital improvement program, and maintain adequate reserves. A minimum operating reserve equal to 60 days of operating expenses is recommended. This amount provides a reasonable operating allowance for sound wastewater utility operations. A primary adjustment of 18.0% is required in FY19 followed by equal annual revenue adjustments of 4.0% in FY20 – FY22. Revenue increases are effective January of each year. It is also recommended that the financial plan be updated annually to determine if the projected increases are appropriate.

Table 19: Wastewater Utility Financial Plan Projections

Description	FY19	FY20	FY21	FY22	FY23	FY24
Revenue Adjustment	18.0%	4.0%	4.0%	4.0%	0.0%	0.0%
Ending Balance (\$ millions)	\$3.90	\$2.93	\$3.17	\$2.05	\$3.90	\$6.55
Target Reserves (\$ millions)	\$1.26	\$1.51	\$1.77	\$2.02	\$2.28	\$2.53
Over/(Under Target) (\$ millions)	\$2.03	\$1.42	\$1.40	\$0.03	\$1.63	\$4.02
Debt Service Coverage	1.01	3.92	4.38	4.92	5.23	5.26
Repair and Replacement Capital Funded (\$ millions)	\$2.98	\$2.04	\$1.99	\$1.33	\$1.07	\$0.76

Cost of Service

Equitable wastewater rates fairly recover cost of service from each customer class. Determination of cost of service takes into account volume of contributed flow, strength, and number of customers.

The cost of service analysis is conducted for a test year considered representative of the period in which resultant rates are expected to be in effect. The year FY19 was selected as the test year for this study.

COST OF SERVICE PROCESS

The cost-of-service process is a method to assign costs based on each customer class' proportionate share of wastewater flow characteristics and number of customers. The cost-of-service analysis consists of the following eight steps:

1. Determine the FY19 rate revenue at current rates
2. Determine test year revenue requirement
3. Functionalize revenue requirement
4. Allocate functionalized costs to cost components
5. Determine units of service
6. Distribute costs to customer classes
7. Design rates to recover class cost-of-service and total revenue requirement

FY19 REVENUE AT CURRENT RATES

Raftelis developed FY19 rate revenue at current rates using detailed billing records provided by the City. Revenue projections are based on the current number of customers by meter size and class, projected use per account and growth in the number of accounts by class. The FY19 revenue at current rates is shown below. This projection serves as the basis for determining the FY19 revenue requirement. This billing data analysis is also used in the units of service analysis.

Table 20: Wastewater – FY19 Revenue Under Current Rates

Customer Class	Bills	Volume (gallons)	Revenue (\$ million)
Res/Comm/Ind	21,979	2,007,854	\$7.35
Multifamily [a]	264	390,551	\$2.05
Total	22,243	2,398,405	\$9.40

[a] Multifamily fixed charge is billed based on units. All other classes fixed charge are on a per account basis.

*Values rounded to foot.

TEST YEAR REVENUE REQUIREMENT

The revenue requirement shown in Table 21 below shows the level of revenue required from rates with the FY19 proposed revenue adjustments.

Table 21: Wastewater - FY19 Revenue Requirement (\$ million)

Item	FY19
Operation and Maintenance Expense	\$7.55
Debt Service	\$0.89
Capital projects	\$6.43
Total Expenditures	\$14.87
Other Revenue Adjustments	
Investment Income	(\$0.06)
Change in Fund Balance	(\$3.71)
Total Other Revenue Adjustments	(\$3.77)
Net FY19 Revenue Requirement	\$11.10
*Values rounded to foot.	

REVENUE REQUIREMENT ALLOCATION

The underlying principle in cost allocation is to convert the test year revenue requirement into costs that best reflect the cost associated with customer wastewater demands placed on the system. Those costs are proportionately allocated to customer classes based on their respective units of service to determine class cost of service. Customer class units of service typically include billable flow, strength, and number of bills.

Functional Cost Components

Wastewater systems are comprised of several facilities (unit processes or functions) that are designed and operated to collect, treat, and dispose of effluent to natural bodies of water. The separation of costs into functional components provides a means for distributing costs to customer classes based on their respective responsibility in the system. The City does not provide treatment services but rather conveys all wastewater to the South Valley Water Reclamation Facility (SVWRF) for treatment. Surcharges for high strength discharge are assessed directly by SVWRF to those customers who exceed the domestic concentration levels. Because the City does not provide treatment services, costs for treatment were distributed equally to all customer classes.

Allocation of Functionalized Costs

SVWRF assesses a monthly treatment charge to the City based on contributed flows from all City customers. Because this charge is not customer class specific, it is not possible to delineate a different cost basis for each customer class based on strength. As a result, allocating the functionalized costs to strength components such as biochemical oxygen demand¹ (BOD) and total suspended solids (TSS) is not necessary for determining the wastewater cost of service. Functionalized costs are allocated to flow and billing only.

¹ BOD means the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures for five (5) days at twenty degrees centigrade (20°C). Total suspended solids means the total suspended matter that floats on the surface of or is suspended in water, wastewater or other liquids, and which is removable by laboratory filtering. Both BOD and TSS are usually expressed as a concentration in milligrams per liter (mg/l).

Allocated Revenue Requirement

Table 22 summarizes the allocated revenue requirement. The allocated revenue requirement is distributed to customer classes based on their proportionate share of total units of service.

Table 22: Wastewater - FY19 Allocated Revenue Requirement (\$ million)

Description	Flow	Bills
Expenditures	\$14.09	\$0.78
Adjustments	(\$3.77)	(\$0.00)
Total Allocated Revenue Requirement	\$10.32	\$0.78

*Values rounded to foot.

Customer Class Units of Service

Customers of a wastewater utility are often identified according to customer class. Because cost-of-service is based on the concept of proportionality, the units of service for each customer class must be analyzed to distribute the functionalized and allocated system revenue requirements based on their respective flow and billing profiles. Table 23 details the proposed units of service.

Table 23: Wastewater - FY19 Units of Service

Customer Class	Flow	Bills	Specific to Industrial Bills
Res/Comm/Ind	2,007,854	263,739	12
Multifamily	390,551	3,170	0
Total	2,398,405	266,909	12

*Values rounded to foot.

Unit Cost of Service

The unit cost of service is the quotient of the allocated revenue requirement by cost component divided by the units of service for each. The unit costs for each cost component are used to determine the customer class cost of service.

Table 24: Wastewater - FY19 Unit Cost of Service

Description	Flow	Bills	Specific to Industrial	Total
Revenue Requirement (\$ mil)	\$10.32	\$0.75	\$0.03	\$11.10
Units of Service	1,000 gallons	Bills	Bills	
Units	2,398,405	266,909	12	
Unit Cost of Service	\$4.30	\$2.80	\$2,801	

Because cost-of-service is based on the concept of proportionality, customer class units of service must be analyzed to distribute the functionalized and allocated system revenue requirements.

Distribution of Costs to Customer Classes

Table 25 shows the distributed cost-of-service to customer classes. The customer class units of service in Table 23 are multiplied by the unit cost of service in Table 24 to determine the customer class cost of service.

Table 25: Wastewater - FY19 Customer Class Cost of Service (\$ million)

Customer Class	Flow	Bills	Total
Res/Comm/Ind	\$8.64	\$0.77	\$9.41
Multifamily	\$1.68	\$0.01	\$1.69
Total	\$10.32	\$0.78	\$11.10

*Values rounded to foot

Comparison of FY19 Cost of Service to Revenue at Current Rates

Table 26 shows the comparison of FY19 cost of service to revenue at current rates for each customer class. The change in each customer class' cost is a product of two components 1) the functionalization and allocation of the revenue requirement and 2) the distribution of these costs to customer classes based on their units of service.

Table 26: Wastewater – FY19 Comparison of Cost of Service to Revenue at Current Rates

\$ millions

Class	FY19 Cost of Service	FY19 Revenue Under Existing Rates	Change - \$	Change - %
Res/Comm/Ind	\$9.41	\$7.35	\$2.05	27.9%
Multifamily	\$1.69	\$2.05	(\$0.36)	-17.6%
Total	\$11.10	\$9.40	\$1.70	18.0%

*Values rounded to foot.

RATE DESIGN

In the development of schedules of wastewater rates, a basic consideration is to establish equitable charges to customers commensurate with the cost of providing service. The only method of assessing entirely equitable wastewater rates would be the determination of each customer's bill based upon their unique service requirements. Since this is impractical, schedules of rates are normally designed to meet average conditions for groups (classes) of customers having similar service requirements. Rates should be reasonably simple in application and subject to as few misinterpretations as possible.

Existing Rate Structure

The City's current rate structure consists of a monthly service charge that varies by class and volumetric rate for all usage. Table 27 lists the current rates and structures.

Table 27: Wastewater – FY19 Current Wastewater Rate Structure

Description	Current Rates
Residential	
Service Charge, \$ per bill	\$16.19
Volume Rate, \$ per 1,000 gallons [a]	\$1.50
Multifamily	
Service Charge, \$ per unit	\$19.93
Volume Rate, \$ per 1,000 gallons	None
Commercial	
Service Charge, \$ per bill	\$20.94
Volume Rate, \$ per 1,000 gallons [a]	\$1.50
Industrial	
Service Charge, \$ per bill	\$2,373.77
Volume Rate, \$ per 1,000 gallons [b]	\$1.50
[a] Based on average winter consumption.	
[b] Based on actual consumption	

Proposed Rate Alternatives

Raftelis developed three rate structure alternatives for consideration which are described below. These rate alternatives are designed to meet the City's objectives of revenue stability and customer class equitability.

1. **Financial Plan Increase (FPI).** Overall revenue adjustment is applied to the current rates. The alternative is not cost-of-service based but recovers the overall revenue requirement.
2. **Cost of service (COS).** Proposed rates are based on the cost of service analysis and recover each classes' cost of service.
3. **Fixed charge recovery (FCR).** Cost of service rates with a portion of capital costs recovered in the monthly fixed charge. FCR recovers the cost of service for each class.

The proposed rate alternatives retain the current structure – a monthly service charge that varies by class and a uniform volume rate applied to all usage for all classes. The monthly service charge recovers the cost of billing, administration, and under FCR, a portion of capital costs. The volume rate recovers the cost to convey and treat wastewater to the SVWRF. Table 28 compares current rates and structure to the proposed alternatives.

Table 28: Wastewater – FY19 Comparison of Current Rates and Proposed Wastewater Rate Alternatives

Description	Current	Alternative 1 FPI	Alternative 2 COS	Alternative 3 FCR
Residential/Commercial				
Service Charge, \$ per bill				
Residential	\$16.19	\$19.10	\$2.80	\$12.29
Commercial	\$20.94	\$24.71	\$2.80	\$12.29
Volume Rate, \$ per kgal [a]	\$1.50	\$1.77	\$4.30	\$3.05
Multifamily				
Service Charge, \$ per unit	\$19.93	\$23.52	\$2.80 [c]	\$16.43
Volume Rate, \$ per kgal	None	None	\$4.30 [a]	None
Industrial				
Service Charge, \$ per bill	\$2,373.77	\$2,801.05	\$2.80	\$2,813.34
Volume Rate, \$ per kgal [b]	\$1.50	\$1.77	\$4.30	\$3.05

[a] Residential and commercial based on average winter consumption

[b] Industrial based on actual water consumption

[c] Assessed on a per water meter basis

The figure below compares a typical residential monthly bill under existing rates and each alternative. Typical billable volume is 5,000 gallons.

**Figure 2: Typical Monthly Residential Bill Comparison
5,000 Gallons Billable Monthly Volume**



Section 5: Stormwater

Introduction

The City's stormwater utility is a self-supporting enterprise fund. The City has one combined fund for the stormwater utility, but must track activities associated with impact fee revenues and growth-related projects separate from activities associated with the daily operations and maintenance of the utility. For the purposes of this study, Raftelis developed two separate cash flows for the rate analysis. The operations cash flow is used for the basis of rate-setting.

-) Impact fee and bond cash flow (restricted cash)
-) Operating cash flow (unrestricted cash)

Tables for the stormwater utility financial plan can be found in Appendix C.

Financial Plan

IMPACT FEE AND BOND CASH FLOW

Because of the restrictions on the uses of impact fee revenues, this cash and the growth-related projects it funds are tracked separately. Table C-1 summarizes the financial activities associated with funding growth related projects.

Beginning balance

The cash balance includes unrestricted carryover impact fee revenues and bond proceeds from previous years. The fund balance was \$0 at the beginning of FY19.

Sources of funds

Sources include impact fee revenue, transfers from the operating cash flow, and investment income. Impact fee revenue averages \$1.2 million annually beginning in FY19. Impact fee revenue growth and revenue projections are based on data from the 2017 TischlerBise impact fee study. Investment income is calculated using a 1.0 percent annual interest rate applied to the average fund balance.

Uses of funds

The City's growth-related projects for the study period total \$11.7 million (inflated). This program includes the design and construction of waterways, trunklines, and retention ponds. Annual debt service costs on the existing bond issues average \$480,000 over the study period. An annual inflation allowance of 4 percent is included in the projected capital costs. Debt issuance costs are 1.5 percent of the total debt. Table C-2 summarizes the stormwater capital improvement program.

Impact Fee Reserves

Impact fee reserves are set to provide a utility with sufficient funds to meet the cyclical nature of impact fee revenues. Although there is no industry standard, a reserve balance equal to the greater of the average annual impact fee revenue or payments on growth-related debt service is recommended. Raftelis has calculated target reserves equal to the average annual impact fee revenue.

OPERATING CASH FLOW

Financial activities associated with funding annual operating revenues and revenue requirements are tracked separately from the activities associated with impact fee project funding. Revenue requirements include operation and maintenance expense, payments on existing and proposed debt service, repair and replacement projects, transfers for impact fee project funding, and maintaining reserves. Table C-3 summarizes the operating cash flow.

Beginning balance

The cash balance includes unrestricted carryover net revenues from previous years. The balance is projected to be \$6.8 million at the beginning of FY19.

Revenues

Unrestricted revenue is derived from stormwater fees, investment income, and interfund payments for stormwater services used by City facilities. Stormwater rate revenue at existing rates is based on the projected number of ERUs. Revenue from existing rates averages \$3.3 million annually during the study period.

Revenue Requirements

Revenue requirements include operation and maintenance expense (O&M), debt service repayments, and transfers to impact fee and bond cash flow. O&M consists of personnel, materials and supplies, and building rent. O&M averages \$2.3 million annually during the study period. Annual debt service is for the repayment of bonds issued for storm drain repair and replacement. Transfers to the impact fee and bond cash flow provide funds when impact fee revenues or reserves are insufficient to meet the capital requirements. These transfers should be tracked and repaid to the unrestricted balance once impact fee revenue is sufficient to meet the obligations. Transfers total approximately \$8.7 million over the study period. The City's repair and replacement capital program totals \$11.8 million over the study period.

Indicated Stormwater Sales Revenue Adjustments

Stormwater rate revenue should be sufficient to meet revenue requirements, finance the capital improvement program, maintain adequate reserves, and comply with bond covenants. A minimum operating reserve equal to 60 days of operating expenses is recommended which is typical in the industry and for a utility this size. This amount provides a reasonable operating allowance for sound water utility operations. The City is required by bond covenants to maintain a debt service coverage of 1.25 times net revenue. Raftelis set a target of 1.5 times to ensure that the City had sufficient coverage capacity to issue debt in the future. Equal annual adjustments of 24.0% are required in FY19 – FY21. Revenue increases are effective January of each year. It is also recommended that the financial plan be updated annually to determine if the projected increases are appropriate.

Table 29: Stormwater Utility Financial Plan Projections

Description	FY19	FY20	FY21	FY22	FY23	FY24
Revenue Adjustment	24.0%	24.0%	24.0%	0.0%	0.0%	0.0%
Ending Balance (\$ millions)	\$2.0	\$1.6	\$1.4	\$2.9	\$3.3	\$4.1
Target Reserves (\$ millions)	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4
Over/(Under Target) (\$ millions)	\$0.6	\$0.2	\$0.0	\$1.5	\$1.9	\$2.7
Debt Service Coverage	1.90	3.04	4.56	5.60	5.71	5.79
Capital Funded (\$ millions)	\$1.8	\$1.8	\$1.8	\$2.1	\$1.1	\$3.1

Test Year Revenue Requirement

The revenue requirement shown in Table 30 below shows the level of rate revenue required from rates with the FY19 proposed revenue adjustments.

Table 30: FY19 Stormwater Revenue Requirement
\$ millions

Item	FY19
Operation and Maintenance Expense	\$2.13
Debt Service	\$0.73
Repair and Replacement Capital	\$1.80
Impact fee projects	\$4.24
Total Expenditures	\$8.90
Other Revenue Adjustments	
Miscellaneous Revenue	(\$0.02)
Investment Income	(\$0.04)
Change in Fund Balance	(\$5.50)
Total Other Revenue Adjustments	(\$5.56)
Net FY19 Revenue Requirement	\$3.34

*Values rounded to foot.

Rate Design

The current rate structure is based on the number of equivalent residential units for each account. The proposed rate structure retains the same structure. The table below shows the current rates and the proposed rates for FY19.

Table 31: Stormwater - Comparison of Existing and Proposed Rates

Description	Current Rate	Proposed Rate
Stormwater Fee per ERU	\$4.50	\$5.58

APPENDIX A:

**WATER UTILITY
FINANCIAL PLAN
COST OF SERVICE AND
RATE DESIGN**

Table A-1
City of West Jordan
Water Utility
Impact Fee and Bond Cash Flow Analysis (Restricted)

Line No.	Description	Fiscal Period Ending June 30				
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
		\$	\$	\$	\$	\$
Sources of Funds						
1	Transfer From Unrestricted Balances	0	2,613,167	82,458	4,041,588	7,436,837
2	Impact Fees	1,500,000	1,250,510	1,471,809	1,471,809	1,470,989
3	Impact Fee Revenue Bond Proceeds	0	0	10,250,000	0	0
4	Investment Income	70,300	18,000	6,400	8,800	11,400
5	Total Sources	1,570,300	3,881,677	11,810,667	5,522,197	8,919,226
Uses of Funds						
6	Impact Fee Projects	7,542,127	4,530,121	8,241,305	2,090,065	5,490,216
7	Debt Issuance Expense	0	0	153,800	0	0
Debt Service						
8	Existing Debt Service	1,919,356	1,915,080	1,913,430	1,916,000	1,912,678
9	Proposed Debt Service	0	0	1,263,732	1,263,732	1,263,732
10	Total Debt Service	1,919,356	1,915,080	3,177,162	3,179,732	3,176,410
11	Total Uses	9,461,483	6,445,201	11,572,267	5,269,797	8,666,626
Annual Surplus (Deficiency)						
12	Beginning Balance	(7,891,183)	(2,563,524)	238,400	252,400	252,600
13	Ending Balance	10,972,707	3,081,524	518,000	756,400	1,008,800
14	Target Reserve (1-year impact fee revenue)	3,081,524	518,000	756,400	1,008,800	1,261,400
15	Over (Under) Target	250,000	500,000	750,000	1,000,000	1,250,000
16		2,831,524	18,000	6,400	8,800	11,400
						13,900

Table A-2
City of West Jordan
Water Utility
Water Capital Improvement Plan (CIP)

Line No.	Title	Service Intention %		Projected						6-Year Total
		Growth	Non-Growth	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	
				\$	\$	\$	\$	\$	\$	\$
1	S-A, S-B, MP - TBA - Debt Service	100%	0%							0
2	na - 4257010 - Direct service fee	45%	55%							0
3	MP - 4740040 - Developer reimbursements	100%	0%							0
4	OPS - 5730081 - SCADA upgrades	40%	60%							0
5	OPS, D-5, D-27 - 510038 - 7000 South Waterline adjustments/rebuilds	0%	100%							0
6	- TBA - Bangerter Bridges replacements	10%	90%							0
7	W-18 - 510023 - Well 5 - Generator, Rehab & Upgrades	0%	100%	249,000						249,000
8	W-7 - 510032 - New U-111 well & pump house	100%	0%							0
9	W-8 - TBA - New Ron Wood Well & pump house	100%	0%							0
10	W-19 - 510022 - Well 4 - Generator, Rehab & Upgrades	0%	100%							0
11	W-20 - 510015 - Drill Exploratory Wells (2)	50%	50%							0
12	F-1 - 510034 - Install new 10 inch PVC - 690 LF	0%	100%	0						0
13	D-23, D-21 - 510016 - PRV1 - Relocate (MVC & OBH), Install 16 inch W	20%	80%	0						0
14	S-5 - 510028 - Reservoir Sites - CD / property (Terminal)	100%	0%	0						0
15	D-24 - TBA - Ranch Rd. (Swiftwater Way) 10 inch PVC, HOLD and move	0%	100%	180,000						180,000
16	D-26 - 510017 - PRV3 - Zone 4 (MVC @ OBH)	100%	0%	0						0
17	D-3 - TBA - Install a VFD on the smallest Zone 2 booster pump	0%	100%	150,000						150,000
18	S-14, BD-1 - TBA - 3.0 MG Z3 North Reservoir & Transmission, Zone 3 -	57%	43%							0
19	S-5 - TBA - Zone 4 - 4.0 MG Terminal Reservoir	97%	3%							0
20	S-A, S-B, MP - TBA - Debt Service	100%	0%		0					0
21	na - 4257010 - Direct service fee	70%	30%	150,000	0					150,000
22	MP - 4740040 - Developer reimbursements	100%	0%	100,000	0					100,000
23	OPS - 5730081 - SCADA upgrades	0%	100%							2,738,080
24	OPS, D-5, D-27 - 510038 - 7000 South Waterline adjustments/rebuilds	0%	100%	2,738,080						1,000,000
25	OPS - TBA - Arc Flash analysis, pump and motor maintenance contract	0%	100%	1,000,000						200,000
26	OPS - TBA - 8600 South - Canal WL replacement	0%	100%		200,000					75,000
27	W-19 - 510022 - Well 4 - Generator, Rehab & Upgrades	0%	100%	600,000						600,000
28	D-18 - TBA - Install replacement 12 inch PVC - 7,900 LF (2700 West)	0%	100%		0	1,845,000				1,845,000
29	BD-10 - TBA - NBH Transmission Project	100%	0%	905,000	0					905,000
30	D-3 - TBA - Install a VFD on the smallest Zone 2 booster pump	0%	100%	68,000	82,000					150,000
31	D-10 - TBA - PRV-8 7000 S 6000 W (Sienna Vista)	50%	50%	100,000	0					100,000
32	AC-2 - 510008 - 1300 W 6 inch WL abandonment	0%	100%			812,000				812,000
33	AC-3, 4 - TBA - Reconstruct AC lines w new PVC - 8,140 LF	0%	100%			1,088,000				1,088,000
34	AC-5, 6 - TBA - Reconstruct AC lines w new PVC - 4,810 LF	0%	100%			690,000				690,000
35	AC-7 - TBA - Reconstruct AC lines w new PVC - 2,670 LF	0%	100%			357,000				357,000
36	AC-11 - TBA - Reconstruct AC lines w new PVC - 4,600 LF	0%	100%			615,000				615,000
37	F-2, F-3, F-5 - 510033 - Install new 8 inch PVC - 2,000 LF	0%	100%			273,000				273,000
38	F-6 - TBA - Install new 12 inch PVC - 750 LF	0%	100%			122,000				122,000
39	S-4, D-21 - TBA - Zone 3 - 4.0 MG OBH Reservoir, OBH Transmission pr	50%	50%	1,000,000						1,000,000
40	W-7 - 510032 - New U-111 well & pump house (Well #7)	100%	0%	0	1,240,000					1,240,000
41	W-8 - TBA - New Ron Wood well & pump house (Well #8)	100%	0%	1,620,000						1,620,000
42	W-9 - TBA - Replace SL Community College Well	0%	100%	450,000	0					450,000
43	S-5 - TBA - Zone 4 - 4.0 MG Terminal Reservoir	97%	3%	4,393,713						4,393,713

Table A-2
City of West Jordan
Water Utility
Water Capital Improvement Plan (CIP)

Line No.	Title	Service Intention %		Projected					6-Year Total
		Growth	Non-Growth	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	
				\$	\$	\$	\$	\$	\$
44	S-14, BD-1 - TBA - 3.0 MG Z3 North Reservoir & Transmission, Zone 3 -	57%	43%						
45	S-8, BD-4, W-11 - TBA - Zone 5 - 4.0 MG North Reservoir, 16 inch Trans	100%	0%		5,189,764				5,189,764
46	S-A, S-B, MP - TBA - Debt Service	100%	0%			7,440,000			7,440,000
47	na - 4257010 - Direct service fee	38%	62%		150,000				150,000
48	MP - 4740040 - Developer reimbursements	100%	0%		100,000				100,000
49	AC-1, 8, 9, AC-10 - TBA - Reconstruct AC lines w new PVC - 1,510 LF, 1,	0%	100%		641,000				641,000
50	S-1 - TBA - Zone 1 - 4.0 MG Airport Reservoir Replacement of 2.0 MG	0%	100%			5,454,000			5,454,000
51	F-4 - TBA - Install new 8 inch PVC - 1.535 LF (Executive Dr.)	0%	100%		225,000				225,000
52	F-1 - TBA - Install new 10 inch PVC - 690 LF	0%	100%		105,000				105,000
53	S-A, S-B, MP - TBA - Debt Service	100%	0%						0
54	na - 4257010 - Direct service fee	20%	80%			150,000			150,000
55	MP - 4740040 - Developer reimbursements	100%	0%			100,000			100,000
56	W-22 - TBA - Update Master Plan (5 year update)	50%	50%			100,000			100,000
57	AC-8, 9 - TBA - Reconstruct AC lines w new PVC - 2,520 LF	0%	100%			245,000			245,000
58	AC-10, 11 - TBA - Reconstruct AC lines w new PVC - 2,290 LF	0%	100%			809,000			809,000
59	S-A, S-B, MP - TBA - Debt Service	100%	0%				150,000		0
60	na - 4257010 - Direct service fee	92%	8%				100,000		150,000
61	MP - 4740040 - Developer reimbursements	100%	0%				1,348,000		1,348,000
62	D-17,18 - TBA - Install 7,900 feet of 12-inch pipeline (zone 1/2)	0%	100%				54,000		54,000
63	D-20 - TBA - Maples Z6 distribution change	0%	100%				4,500,000		4,500,000
64	S-2 - TBA - Zone 1 - 3.0 MG Cemetery Reservoir Addition	0%	100%				1,620,000		1,620,000
65	W-10 - TBA - Barney's Creek Well	100%	0%						0
66	S-A, S-B, MP - TBA - Debt Service	100%	0%					150,000	150,000
67	na - 4257010 - Direct service fee	92%	8%					100,000	100,000
68	MP - 4740040 - Developer reimbursements	100%	0%					143,000	143,000
69	D-6,7,8 - TBA - Install new PRV's	0%	100%						0
70	W-9 - TBA - Ron Wood Park Well	100%	0%						
71	S-12, BD-6, W-16 - TBA - Zone 7 North - 2.0 MG Reservoir Addition, 5,(	100%	0%					4,455,000	4,455,000
72	S-A, S-B, MP - TBA - Debt Service	100%	0%						0
73	na - 4257010 - Direct service fee	92%	8%					150,000	150,000
74	MP - 4740040 - Developer reimbursements	100%	0%					100,000	100,000
75	D-6,7,8 - TBA - Install new PRV's	0%	100%					143,000	143,000
76	W-9 - TBA - Ron Wood Park Well	100%	0%						0
77	D-24 - TBA - Ranch Rd. (Swiftwater Way) 10 inch PVC	0%	100%					230,000	230,000
78	S-12, BD-6, W-16 - TBA - Zone 7 North - 2.0 MG Reservoir Addition, 5,(	100%	0%					4,455,000	4,455,000
79	Total CIP Program			13,703,793	8,007,764	20,100,000	7,772,000	4,848,000	59,509,557

Table A-2
City of West Jordan
Water Utility
Water Capital Improvement Plan (CIP)

Line No.	Title	Service Intention %		Projected					6-Year Total
		Growth	Non-Growth	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	
				\$	\$	\$	\$	\$	\$
Capital Project Summary - No Inflation									
80	Growth Related Projects			7,542,127	4,355,885	7,619,550	1,858,060	4,693,060	30,761,742
81	Non-Growth Related Projects			6,161,666	3,651,879	12,480,450	5,913,940	154,940	28,747,815
82	Total			13,703,793	8,007,764	20,100,000	7,772,000	4,848,000	59,509,557
Capital Project Summary with 4.0% Annual Inflation									
83	Growth Related Projects			7,542,127	4,530,121	8,241,305	2,090,065	5,490,216	33,603,659
84	Non-Growth Related Projects			6,161,666	3,797,954	13,498,855	6,652,378	181,258	30,760,449
85	Total			13,703,793	8,328,075	21,740,160	8,742,443	5,671,474	64,364,108

Table A-3

City of West Jordan

Water Utility

Operating Cash Flow Analysis (Unrestricted)

Line No.	Description	Fiscal Period Ending June 30				
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
		\$	\$	\$	\$	\$
Sources of Funds						
1	Total Revenue from Existing Water Rates	18,258,128	18,623,290	18,995,756	19,375,671	19,763,185
2	Additional Water Sales Revenue from Rate Increases	2,510,493	7,022,920	9,386,905	11,972,219	14,769,651
3	Total Water Rate Revenue	20,768,620	25,646,211	28,382,661	31,347,890	34,532,836
4	Other Miscellaneous Revenue	944,972	965,847	987,332	1,009,227	1,031,331
5	Investment Income	15,400	37,100	69,000	88,100	81,700
6	Repair & Replacement Revenue Bond Proceeds	0	0	0	0	0
7	Total Sources	21,728,992	26,649,158	29,438,994	32,445,217	35,645,867
Uses of Funds						
8	Total Operations and Maintenance Expense	19,135,100	19,709,500	20,300,700	20,909,500	21,536,400
9	Debt Issuance Expense	0	0	0	0	0
Debt Service						
10	Existing Debt Service - Repair & Replacement	0	0	0	0	0
11	Proposed Debt Service - Repair & Replacement	0	0	0	0	0
12	Total Debt Service - Repair & Replacement	0	0	0	0	0
13	Transfer To Restricted for Impact Fee Cash Flow	0	2,613,167	82,458	4,041,588	7,436,837
14	Repair & Replacement Capital	579,000	2,000,000	5,000,000	7,727,150	7,727,150
15	Total Uses	19,714,100	24,322,667	25,383,158	32,678,237	36,700,386
16	Annual Surplus (Deficiency)	2,014,892	2,326,492	4,055,835	(233,021)	(1,054,519)
17	Beginning Balance	533,257	2,548,149	4,874,641	8,930,476	8,697,456
18	Ending Balance	2,548,149	4,874,641	8,930,476	8,697,456	7,642,936
Target Operating Reserves						
19	Total Target Operating Reserve	1,590,000	2,940,000	4,340,000	5,800,000	7,300,000
20	Combined Reserve Excess/(Deficiency)	958,149	1,934,641	4,590,476	2,897,456	342,936
21	Annual Water Service Revenue Increase	33.0%	8.5%	8.5%	8.0%	8.0%
22	Cumulative Revenue Increase	33.0%	44.3%	56.6%	69.1%	82.6%
23	Months Effective	5	5	5	5	5
24	Debt Service Coverage	1.39	3.63	2.88	3.63	4.45
						7.11

Table A-4
City of West Jordan
Water Utility
Historical & Projected Operation and Maintenance Expense

Line No.	Account Description	Budget		Projected			
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
		\$	\$	\$	\$	\$	\$
1	Salaries Full-Time	1,020,300	1,050,900	1,082,400	1,114,900	1,148,300	1,182,700
2	Overtime	3,000	3,100	3,200	3,300	3,400	3,500
3	Sick Leave Buyout	2,800	2,900	3,000	3,100	3,200	3,300
4	On Call Salaries	3,400	3,500	3,600	3,700	3,800	3,900
5	Retirement	203,400	209,500	215,800	222,300	229,000	235,900
6	Medical & Dental Insurance	303,700	312,800	322,200	331,900	341,900	352,200
7	Workers Compensation	13,200	13,600	14,000	14,400	14,800	15,200
8	Long-Term Disability	12,900	13,300	13,700	14,100	14,500	14,900
9	Unemployment	1,000	1,000	1,000	1,000	1,000	1,000
10	Books & Subscriptions	500	500	500	500	500	500
11	Memberships	1,800	1,900	2,000	2,100	2,200	2,300
12	Office Supplies	4,000	4,100	4,200	4,300	4,400	4,500
13	Equipment Supplies & Maint.	126,400	130,200	134,100	138,100	142,200	146,500
14	Uniforms	7,000	7,200	7,400	7,600	7,800	8,000
15	Fleet O&M Charge	102,100	105,200	108,400	111,700	115,100	118,600
16	Fleet Replacement Charge	150,200	154,700	159,300	164,100	169,000	174,100
17	Building & Grounds	75,000	77,300	79,600	82,000	84,500	87,000
18	Utilities	625,000	643,800	663,100	683,000	703,500	724,600
19	Telephone	0	0	0	0	0	0
20	Professional & Technical	163,500	168,400	173,500	178,700	184,100	189,600
21	Pt - Samples	22,000	22,700	23,400	24,100	24,800	25,500
22	Training	7,200	7,400	7,600	7,800	8,000	8,200
23	Travel	3,600	3,700	3,800	3,900	4,000	4,100
24	Dept Supplies	510,000	525,300	541,100	557,300	574,000	591,200
25	Dept Supplies - Ub Meters	1,765,200	1,818,200	1,872,700	1,928,900	1,986,800	2,046,400
26	Conservation Programs	80,000	82,400	84,900	87,400	90,000	92,700

Table A-4

City of West Jordan

Water Utility

Historical & Projected Operation and Maintenance Expense

Line No.	Account Description	Budget				Projected			
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24		
		\$	\$	\$	\$	\$	\$		\$
27	Miscellaneous Services	10,000	10,300	10,600	10,900	11,200	11,500		11,500
28	Equipment	5,000	5,200	5,400	5,600	5,800	6,000		6,000
29	Professional & Technical	49,500	51,000	52,500	54,100	55,700	57,400		57,400
30	Contract Services	10,000	10,300	10,600	10,900	11,200	11,500		11,500
31	Debt Supplies	5,000	5,200	5,400	5,600	5,800	6,000		6,000
32	Clean Up Contingency	3,000	3,100	3,200	3,300	3,400	3,500		3,500
33	Equipment	0	0	0	0	0	0		0
34	Principal	0	0	0	0	0	0		0
35	Interest Agents Fee	0	0	0	0	0	0		0
36	Salaries Full-Time	0	0	0	0	0	0		0
37	Building Rent	249,400	256,900	264,600	272,500	280,700	289,100		289,100
38	Interfund Service Fee	1,188,900	1,224,600	1,261,300	1,299,100	1,338,100	1,378,200		1,378,200
39	Direct Services Fee	781,800	805,300	829,500	854,400	880,000	906,400		906,400
40	Professional & Technical	0	0	0	0	0	0		0
41	Source Of Supply	11,565,500	11,912,500	12,269,900	12,638,000	13,017,100	13,407,600		13,407,600
42	Canal Shares	24,800	25,400	26,000	26,600	27,200	27,800		27,800
43	Water Rights	10,000	10,300	10,600	10,900	11,200	11,500		11,500
44	Trans to Risk Management	25,000	25,800	26,600	27,400	28,200	29,000		29,000
45	Office Supplies	0	0	0	0	0	0		0
46	Uniforms	0	0	0	0	0	0		0
47	Telephone	0	0	0	0	0	0		0
48	Professional & Technical	0	0	0	0	0	0		0
49	Equipment Supplies & Maint.	0	0	0	0	0	0		0
50	Building & Grounds	0	0	0	0	0	0		0
51	Dept Supplies	0	0	0	0	0	0		0
52	Telephone	0	0	0	0	0	0		0

Table A-4

City of West Jordan
Water Utility

Historical & Projected Operation and Maintenance Expense

Line No.	Account Description	Budget		Projected			
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
		\$	\$	\$	\$	\$	\$
53	Professional & Technical	0	0	0	0	0	0
54	Total	19,135,100	19,709,500	20,300,700	20,909,500	21,536,400	22,181,900

Table A-5
City of West Jordan
Water Utility
Test Year Revenue Requirement

Line No.	Description	Operating Expense	Capital Expense	Total
Revenue Requirements				
1	Operating & Maintenance Expense	\$19,135,100		\$19,135,100
2	Debt Service		1,919,356	1,919,356
3	Capital Improvements		579,000	579,000
4	Total Revenue Requirements	19,135,100	2,498,356	21,633,456
Revenue Requirement Adjustments				
5	Miscellaneous Revenue	(\$944,972)	\$0	(\$944,972)
6	Transfer From Capital Fund	0	0	0
7	Interest Income	(15,400)	0	(15,400)
8	Operating Reserve Increase (Decrease)	0	3,610,226	3,610,226
10	Total Adjustments	(\$960,372)	\$3,610,226	\$2,649,854
11	Subtotal	\$18,174,728	\$6,108,582	\$24,283,310
12	Net Annualized Revenue Requirement			\$24,283,310

Operation and Maintenance Expense Functional Category Allocations

Line

Table A-6
City of West Jordan
Water Utility
Operation and Maintenance Expense Functional Category Allocations

Line No.		Test Year FY 2018-19	Purchased Water	Wells	Pump Station	Treated Storage	Trans Dist	Customer / Billing	Meters & Services	Public Fire	Indirect	Benefit Indirect	Total
		\$											
51	Salaries and Benefits	1,563,700											0%
52	Operating Expenses	249,400											100%
53	Operating Expenses	1,188,900						70%					100%
54	Operating Expenses	781,800	15%	20%	15%	20%							100%
55	Operating Expenses	0											100%
56	Operating Expenses	11,565,500	100%										100%
57	Operating Expenses	24,800	100%										100%
58	Capital Outlays	10,000	100%										100%
59	Transfers Out	25,000											100%
60	Operating Expenses	0											100%
61	Operating Expenses	0											100%
62	Operating Expenses	0											100%
63	Operating Expenses	0											100%
64	Operating Expenses	0											100%
65	Operating Expenses	0											100%
66	Operating Expenses	0											100%
67	Operating Expenses	0											100%
68	Operating Expenses	0											100%
69	Total Allocation		\$11,819,570	\$483,329	\$859,388	\$429,720	\$818,700	\$865,076	\$2,311,078	\$10,200	\$1,509,410	\$28,628	\$19,135,100
70	Allocated Salaries and Wages												
71	Allocation of Salary and Benefit Indirect		0	237,919	243,068	214,410	566,950	32,846	239,878	0	0	28,628	1,563,700
72	Total Reallocated O&M Expense		\$11,819,570	\$487,766	\$863,921	\$433,719	\$829,273	\$865,689	\$2,315,552	\$10,200	\$1,509,410		\$19,135,100

Table A-7
City of West Jordan
Water Utility
Capital Improvement Cost Allocation

Line No.	Description	Test Year		Purchased Water	Wells	Pump Station	Treated Storage	Trans Dist	Customer / Billing	Meters & Services	Public Fire	Indirect	Total
		\$	FY 2018-19	%	%	%	%	%	%	%	%	%	%
1	S-A, S-B, MP - TBA - Debt Service	0					100%						100%
2	na - 4257010 - Direct service fee	0										100%	100%
3	MP - 4740040 - Developer reimbursements	0										100%	100%
4	OPS - 5730081 - SCADA upgrades	0										100%	100%
5	OPS, D-5, D-27 - 510038 - 7000 South Waterline adjus	0										100%	100%
6	- TBA - Bangerter Bridges replacements	0							100%				100%
7	W-18 - 510023 - Well 5 - Generator, Rehab & Upgrade	249,000			100%								100%
8	W-7 - 510032 - New U-111 well & pump house	0			100%								100%
9	W-8 - TBA - New Ron Wood Well & pump house	0			100%								100%
10	W-19 - 510022 - Well 4 - Generator, Rehab & Upgrade	0			100%								100%
11	W-20 - 510015 - Drill Exploratory Wells (2)	0			100%								100%
12	F-1 - 510034 - Install new 10 inch PVC - 690 LF	0									100%		100%
13	D-23, D-21 - 510016 - PRV1 - Relocate (MVC & OBH), I	0					100%						100%
14	S-5 - 510028 - Reservoir Sites - CD / property (Termine	0					100%						100%
15	D-24 - TBA - Ranch Rd. (Swiftwater Way) 10 inch PVC,	180,000						100%					100%
16	D-26 - 510017 - PRV3 - Zone 4 (MVC @ OBH)	0						100%					100%
17	D-3 - TBA - Install a VFD on the smallest Zone 2 booste	150,000						100%					100%
18	S-14, BD-1 - TBA - 3.0 MG Z3 North Reservoir & Transr	0					50%						100%
19	S-5 - TBA - Zone 4 - 4.0 MG Terminal Reservoir	0					100%						100%
20	S-A, S-B, MP - TBA - Debt Service	0					100%						100%
21	na - 4257010 - Direct service fee	150,000										100%	100%
22	MP - 4740040 - Developer reimbursements	100,000										100%	100%
23	OPS - 5730081 - SCADA upgrades	2,738,080										100%	100%
24	OPS, D-5, D-27 - 510038 - 7000 South Waterline adjus	1,000,000										100%	100%
25	OPS - TBA - Arc Flash analysis, pump and motor maint	0										100%	100%
26	OPS - TBA - 8600 South - Canal WL replacement	0										100%	100%
27	W-19 - 510022 - Well 4 - Generator, Rehab & Upgrade	600,000			100%								100%
28	D-18 - TBA - Install replacement 12 inch PVC - 7,900 Lf	0						100%					100%
29	BD-10 - TBA - NBH Transmission Project	905,000						100%					100%
30	D-3 - TBA - Install a VFD on the smallest Zone 2 booste	68,000						100%					100%
31	D-10 - TBA - PRV-8 7000 S 6000 W (Sienna Vista)	100,000						100%					100%
32	AC-2 - 510008 - 1300 W 6 inch WL abandonment	0						100%					100%
33	AC-3, 4 - TBA - Reconstruct AC lines w new PVC - 8,14f	0						100%					100%
34	AC-5, 6 - TBA - Reconstruct AC lines w new PVC - 4.81f	0						100%					100%
35	AC-7 - TBA - Reconstruct AC lines w new PVC - 2,670 L	0						100%					100%
36	AC-11 - TBA - Reconstruct AC lines w new PVC - 4,600	0						100%					100%
37	F-2, F-3, F-5 - 510033 - Install new 8 inch PVC - 2,000 L	0						100%					100%
38	F-6 - TBA - Install new 12 inch PVC - 750 LF	0									100%		100%
39	S-4, D-21 - TBA - Zone 3 - 4.0 MG OBH Reservoir, OBH	1,000,000					100%						100%
40	W-7 - 510032 - New U-111 well & pump house (Well #	0			100%								100%

Table A-7
City of West Jordan
Water Utility
Capital Improvement Cost Allocation

Line No.	Description	Test Year FY 2018-19	Purchased Water	Wells	Pump Station	Treated Storage	Trans Dist	Customer / Billing	Meters & Services	Public Fire	Indirect	Total
		\$	%	%	%	%	%	%	%	%	%	
69	D -6,7,8 - TBA - Install new PRV's	0					100%					100%
70	W-9 - TBA - Ron Wood Park Well	0		100%								100%
71	S-12, BD-6, W-16 - TBA - Zone 7 North - 2.0 MG Reser	0			33%	33%	33%					100%
72	S-A, S-B, MP - TBA - Debt Service	0									100%	100%
73	na - 4257010 - Direct service fee	0									100%	100%
74	MP - 4740040 - Developer reimbursements	0									100%	100%
75	D -6,7,8 - TBA - Install new PRV's	0					100%					100%
76	W-9 - TBA - Ron Wood Park Well	0		100%								100%
77	D-24 - TBA - Ranch Rd. (Swiftwater Way) 10 inch PVC	0					100%					100%
78	S-12, BD-6, W-16 - TBA - Zone 7 North - 2.0 MG Reser	0			33%	33%	33%					100%
79	Total Capital Improvement Program	\$13,703,793	\$0	\$2,919,000	\$0	\$5,393,713	\$1,403,000	\$0	\$0	\$0	\$3,988,080	\$13,703,793

Table A-8
City of West Jordan
Water Utility
Allocation of Capital Costs

Line No.	Description	Test Year	Volume			Customer Related				Total
		FY 2018-19	Base	Maximum Day Demand	Maximum Hour Demand	Meters & Services	Billing	Distribution Mains		
Capital Costs										
1	Purchased Water	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2	Wells	2,919,000	1,445,050	1,473,950	0	0	0	0	0	2,919,000
3	Pump Station	0	0	0	0	0	0	0	0	0
4	Treated Storage	5,393,713	1,749,974	1,784,974	1,858,765	0	0	0	0	5,393,713
5	Transmission Mains	701,500	347,277	354,223	0	0	0	0	0	701,500
6	Distribution Mains	701,500	227,600	232,152	241,749	0	0	0	0	701,500
7	Customer/Billing	0	0	0	0	0	0	0	0	0
8	Meters & Services	0	0	0	0	0	0	0	0	0
9	Public Fire	0	0	0	0	0	0	0	0	0
10	Indirect	3,988,080	1,547,459	1,578,408	862,213	0	0	0	0	3,988,080
11	Total Capital Costs	\$13,703,793	\$5,317,359	\$5,423,706	\$2,962,727	\$0	\$0	\$0	\$0	\$13,703,793
12	Percent of Total		38.8%	39.6%	21.6%	0.0%	0.0%	0.0%	0.0%	
13	Annual Capital Costs	\$6,108,582	\$2,370,258	\$2,417,663	\$1,320,661	\$0	\$0	\$0	\$0	

Table A-9
City of West Jordan
Water Utility
Allocation of O&M Expenses

Line No.	Description	Volume			Customer Related				
		Total	Base	Maximum Day Demand	Maximum Hour Demand	Meters & Services	Billing	Distribution Mains	Total
Water System Assets									
1	Purchased Water	\$11,819,570	\$11,819,570	\$0	\$0	\$0	\$0	\$0	\$11,819,570
2	Wells	487,766	241,468	246,298	0	0	0	0	487,766
3	Pump Station	863,921	427,684	436,237	0	0	0	0	863,921
4	Treated Storage	433,719	140,719	143,533	149,467	0	0	0	433,719
5	Transmission Mains	414,636	205,266	209,371	0	0	0	0	414,636
6	Distribution Mains	414,636	134,528	137,218	142,891	0	0	0	414,636
7	Customer/Billing	865,689	0	0	0	0	865,689	0	865,689
8	Meters & Services	2,315,552	0	0	0	2,315,552	0	0	2,315,552
9	Public Fire	10,200	0	4,997	5,203	0	0	0	10,200
10	Indirect	1,509,410	1,110,645	100,851	25,482	198,297	74,135	0	1,509,410
11	Total O&M Expense	\$19,135,100	\$14,079,880	\$1,278,505	\$323,043	\$2,513,848	\$939,824	\$0	\$19,135,100
12	Percent of Total		73.6%	6.7%	1.7%	13.1%	4.9%	0.0%	
13	Miscellaneous Revenue Offsets	(960,372)	(706,655)	(64,167)	(16,213)	(126,168)	(47,169)	0	(960,372)
14	Net Annual O&M Expenses	\$18,174,728	\$13,373,224	\$1,214,338	\$306,830	\$2,387,681	\$892,655	\$0	\$18,174,728

Table A-10
City of West Jordan
Water Utility
Allocation of Costs to Cost Components

Line No.	Description	Volume			Customer Related			Total
		Base	Maximum Day Demand	Maximum Hour Demand	Meters & Services	Billing	Distribution Mains	
Functional Categories								
1	Purchased Water	100.0%						100.0%
2	Wells	49.5%	50.5%					100.0%
3	Pump Station	49.5%	50.5%					100.0%
4	Treated Storage	32.4%	33.1%	34.5%				100.0%
5	Transmission Mains	49.5%	50.5%					100.0%
6	Distribution Mains	32.4%	33.1%	34.5%			0.0%	100.0%
7	Customer/Billing					100.0%		100.0%
8	Meters & Services				100.0%			100.0%
9	Public Fire		49.0%	51.0%				100.0%
10	OM Indirect [a]	73.6%	6.7%	1.7%	13.1%	4.9%	0.0%	100.0%
11	Capital Indirect	38.8%	39.6%	21.6%	0.0%	0.0%	0.0%	100.0%

[a] Based on the allocation of all other O&M expenses

[b] Based on the allocation of all other capital expenditures

Table A-11
City of West Jordan
Water Utility
Units of Service

Line No.	Customer Class	Water Use		Maximum Day Demand			Maximum Hour Demand			Bills	Equivalent Meters	
		Annual	Average Day	Demand Factor	Total Demand	Extra Demand	Demand Factor	Total Demand	Extra Demand		Capacity	Cost
		1,000 gal	1,000 gal		1,000 gpd	1,000 gpd		1,000 gpd	1,000 gpd			
1	Residential	3,831,372	10,497	465%	48,841	38,345	710%	74,524	64,027	267,662	267,662	267,662
2	Commercial/Multifamily	1,332,239	3,650	391%	14,281	10,631	597%	21,790	18,141	13,814	75,287	35,765
3	Irrigation	391,760	1,073	484%	5,194	4,121	738%	7,925	6,852	3,684	12,887	11,237
4	Not Used											
5	Total	5,555,371	15,220		68,317	53,096		104,239	89,019	285,160	355,837	314,665

Table A-12
City of West Jordan
Water Utility
Unit Costs of Service

Line No.	Description	Volume				Customer Related		
		Total	Base	Maximum Day Demand	Maximum Hour Demand	Meters & Services	Billing	Distribution Mains
Cost of Service								
1	Operation and Maintenance Expenses	\$18,174,728	\$13,373,224	\$1,214,338	\$306,830	\$2,387,681	\$892,655	\$0
2	Capital Costs	6,108,582	2,370,258	2,417,663	1,320,661	0	0	0
3	Total Cost of Service	\$24,283,310	\$15,743,482	\$3,632,001	\$1,627,491	\$2,387,681	\$892,655	\$0
4	Percent of Total	100%	65%	15%	7%	10%	4%	0%
Units of Service								
Units			<u>1,000 gal</u>	<u>gpd</u>	<u>gpd</u>	Equivalent Meter <u>Cost</u>	<u># Bills</u>	Equivalent Meter <u>Capacity</u>
5	Total Units of Service		5,555,371	53,096	89,019	314,665	285,160	355,837
6	Unit Costs		\$2.83	\$68.40	\$18.28	\$7.59	\$3.13	\$0.00

Table A-13
City of West Jordan
Water Utility
Customer Class Cost of Service

Line No.	Description	Total	Volume			Customer Related		
			Base	Maximum Day Demand	Maximum Hour Demand	Meters & Services	Billing	Distribution Mains
1	Unit Costs of Service - \$/unit		\$2.83	\$68.40	\$18.28	\$7.59	\$3.13	\$0.00
Customer Class								
Residential								
2	Units		3,831,372	38,345	64,027	267,662	267,662	267,662
3	Cost of Service - \$	\$17,520,201	\$10,857,806	\$2,622,920	\$1,170,569	\$2,031,026	\$837,880	\$0
Commercial/Multifamily								
4	Units		1,332,239	10,631	18,141	35,765	13,814	75,287
5	Cost of Service - \$	\$5,148,955	\$3,775,461	\$727,212	\$331,654	\$271,386	\$43,242	\$0
Irrigation								
6	Units		391,760	4,121	6,852	11,237	3,684	12,887
7	Cost of Service - \$	\$1,614,154	\$1,110,216	\$281,869	\$125,268	\$85,269	\$11,533	\$0
8	Total Cost of Service	\$24,283,310	\$15,743,482	\$3,632,001	\$1,627,491	\$2,387,681	\$892,655	\$0

Table A-14
City of West Jordan
Water Utility
Comparison of Cost of Service With Revenues Under Existing Rates

Line No.	Customer Class	Cost of Service	Revenue Under Existing Rates	Indicated Revenue Adjustment
1	Residential	\$17,520,201	\$14,162,579	23.7%
2	Commercial/Multifamily	5,148,955	3,342,756	54.0%
3	Irrigation	1,614,154	752,793	114.4%
4	Total System	\$24,283,310	\$18,258,128	33.0%

Table A-15
City of West Jordan
Water Utility
Development of COS Service Charge - Alternative 2

Line		Cost of		Units of		Unit Cost	
No.	COS Component	Service	Service	Service	Units	of Service	
1	Meters & Services	\$2,387,681		314,665	Equiv Meter Cost		\$7.59
2	Billing	892,655		285,160	Bills		\$3.13
3	Not Used	0		355,837	Equiv Meter Capacity		\$0.00
4	Total		<u>\$3,280,336</u>				

Table A-16
City of West Jordan
Water Utility
Development of COS Service Charge - Alternative 2

Line No.	Meter Size	Cost Equivalency	Monthly Meter Charge	Monthly Billing Charge	Total Monthly Charge
1	3/4"	1.00	\$7.59	\$3.13	\$10.72
2	1"	1.32	10.04	3.13	13.17
3	1-1/2"	5.90	44.78	3.13	47.91
4	2"	5.90	44.78	3.13	47.91
5	3"	7.47	56.72	3.13	59.85
6	4"	9.46	71.80	3.13	74.93
7	6"	14.55	110.38	3.13	113.51
8	8"	17.97	136.35	3.13	139.48
9	10"	31.52	239.18	3.13	242.31

Table A-19
City of West Jordan
Water Utility
Development of Irrigation Cost of Service Volume Rate - Alternative 2

Irrigation Cost of Service												\$1,614,154
Fixed Charge Revenue												
Meter Size		Bills		COS		Fixed Charge		\$ by Meter Size				
3/4"		613		10.72		6,571						
1"		1,706		13.17		22,469						
1-1/2"		521		47.91		24,971						
2"		771		47.91		36,944						
3"		42		59.85		2,503						
4"		10		74.93		764						
6"		10		113.51		1,158						
8"		10		139.48		1,423						
10"		0		242.31		0						
Total		3,684				\$96,802						
Volume Charge Revenue Required												\$1,517,352
Commercial Meter Size	Billed Volume	Block Thresholds, 1,000 gallons			% Volume Billed by Tier			Price Ratios			Tier 1 Volume Equivalents	1,000 gallons
		Block 1	Block 2	Block 3	Block 1	Block 2	Block 3	Block 1	Block 2	Block 3		
3/4"		13,637	30	190	37.8%	47.3%	14.9%	1.00	1.15	1.32	15,268	
1"		86,943	55	320	34.3%	50.5%	15.1%	1.00	1.15	1.32	97,826	
1-1/2"		69,348	100	525	34.9%	50.0%	15.1%	1.00	1.15	1.32	77,968	
2"		182,393	180	805	35.5%	49.5%	15.0%	1.00	1.15	1.32	204,872	
3"		22,473	460	2,080	34.9%	50.1%	15.1%	1.00	1.15	1.32	25,265	
4"		9,992	840	2,800	35.1%	50.0%	15.0%	1.00	1.15	1.32	11,229	
6"		6,948	650	2,450	34.8%	50.0%	15.2%	1.00	1.15	1.32	7,813	
8"		26	10	2,450	100.0%	0.0%	0.0%	1.00	1.15	1.32	26	
10"		0	10	2,450	0.0%	0.0%	100.0%	1.00	1.15	1.32	0	
Total Equivalent Tier 1 Volume											440,267	
Total Volume Revenue to be Recovered											\$1,517,352	
Block 1 Rate (Volume Revenue / Equivalent Volume)											\$3.45	
Block 2											\$3.97	
Block 3											\$4.55	
Group Meter Size Rate Design												
Commercial Meter Size	Billed Volume	Block Thresholds, 1,000 gallons			% Volume Billed by Tier			Price Ratios			Tier 1 Volume Equivalents	1,000 gallons
		Block 1	Block 2	Block 3	Block 1	Block 2	Block 3	Block 1	Block 2	Block 3		
5/8-2" 3" +		352,321 39,438	100 210	600 1,050	35.4% 35.3%	49.1% 50.1%	15.5% 14.6%	1.00 1.00	1.15 1.15	1.32 1.32	396,043 44,278	
Total Volume Revenue to be Recovered											\$1,517,352	
Block 1 Rate (Volume Revenue / Equivalent Volume)											\$3.45	
Block 2											\$3.97	
Block 3											\$4.55	
One Structure for All Meter Sizes												
Commercial Meter Size	Billed Volume	Block Thresholds, 1,000 gallons			% Volume Billed by Tier			Price Ratios			Tier 1 Volume Equivalents	1,000 gallons
		Block 1	Block 2	Block 3	Block 1	Block 2	Block 3	Block 1	Block 2	Block 3		
All Meters		391,760	110	750	35.0%	50.2%	14.8%	1.00	1.15	1.32	440,649	
Total Volume Revenue to be Recovered											\$1,517,352	
Block 1 Rate (Volume Revenue / Equivalent Volume)											\$3.45	
Block 2											\$3.97	
Block 3											\$4.55	

Table A-20

City of West Jordan

Water Utility

Development of Fixed Charges - Alternative 3

Net Revenue Requirement		\$24,283,310
Fixed Charge Recovery		35%
Fixed Charge Revenue Requirement		\$8,499,158
Less: Billing Component	\$3.13 per bill	\$892,655
Net fixed Charge Revenue Requirement		\$7,606,504
COS Component		\$2,387,681
Equivalent Cost Meters		\$314,665
3/4" Meter for this component		\$7.59
Remainder		\$5,218,823
Equivalent Flow Meters		\$355,837
3/4" Meter Fixed Charge		\$14.67

Table A-21

City of West Jordan

Water Utility

Development of Fixed Charge - Alternative 3 Fixed Charge Revenue (FCR)

Line No.	Meter Size	Cost Equivalency	Capacity Equivalency	Monthly Meter Charge	Monthly Billing Charge	Monthly Meter Charge	Total Monthly Charge
1	3/4 inch	1.00	1.00	\$7.59	\$3.13	\$14.67	\$25.38
2	1 inch	1.32	2.50	\$10.04	\$3.13	\$36.67	\$49.83
3	1.5 inch	5.90	3.30	\$44.78	\$3.13	\$48.40	\$96.31
4	2 inch	5.90	5.00	\$44.78	\$3.13	\$73.33	\$121.24
5	3 inch	7.47	15.00	\$56.72	\$3.13	\$220.00	\$279.84
6	4 inch	9.46	32.00	\$71.80	\$3.13	\$469.32	\$544.25
7	6 inch	14.55	58.00	\$110.38	\$3.13	\$850.65	\$964.16
8	8 inch	17.97	87.00	\$136.35	\$3.13	\$1,275.97	\$1,415.45
9	10 Inch	31.52	127.00	\$239.18	\$3.13	\$1,862.63	\$2,104.94

Table A-22
City of West Jordan
Water Utility
Development of Fixed Charge Revenue - Alternative 3

Residential			Commercial/Multifamily			Irrigation			Total		
Meter Size	Bill		Revenue	Bill Distribution	Bills	Revenue	Bill Distribution	Bills	Revenue	Bills	Revenue
	Distribution										
3/4"	100.0%	267,662	\$6,794,533	48.0%	6,633	\$168,378	16.6%	613	\$15,561	274,908	\$6,978,473
1"	0.0%	0	\$0	32.2%	4,442	\$221,361	46.3%	1,706	\$85,037	6,149	\$306,399
1 1/2"	0.0%	0	\$0	11.3%	1,558	\$150,004	14.1%	521	\$50,198	2,079	\$200,202
2"	0.0%	0	\$0	1.5%	207	\$25,104	20.9%	771	\$93,491	978	\$118,596
3"	0.0%	0	\$0	0.2%	22	\$6,280	1.1%	42	\$11,703	64	\$17,983
4"	0.0%	0	\$0	2.8%	380	\$207,066	0.3%	10	\$5,551	391	\$212,617
6"	0.0%	0	\$0	2.8%	388	\$373,707	0.3%	10	\$9,834	398	\$383,542
8"	0.0%	0	\$0	1.3%	173	\$245,439	0.3%	10	\$14,438	184	\$259,877
10"	0.0%	0	\$0	0.1%	10	\$21,470	0.0%	0	\$0	10	\$21,470
Total		267,662	\$6,794,533		13,814	\$1,418,811		3,684	\$285,814	285,160	\$8,499,158

Table A-23
City of West Jordan
Water Utility
Development of Residential Volume Rate - Alternative 3

Residential Cost of Service		\$17,520,201			
Fixed Charge Revenue		\$6,794,533			
Residential Volume Revenue		\$10,725,667			
Tier	Price Ratios	% Vol by Tier	Volume	Block 1 Volume Equivalents	Volume Rate
			1,000 gallons		
1	1.00	35.0%	3,831,372	4,445,736	\$2.41
2	1.15	28.6%			\$2.78
3	1.32	36.4%			\$3.19

Table A-24
City of West Jordan
Water Utility
Development of Commercial Volume Rate - Alternative 3

Commercial Meter Size	Billed Volume 1,000 gallons	Block Thresholds, 1,000 gallons		% Volume Billed by Tier		Price Ratios			Tier 1 Volume Equivalents 1,000 gallons
		Block 1	Block 2	Block 1	Block 2	Block 3	Block 1	Block 2	
3/4"	186,276	15	95						
1"	340,268	25	140		50%	15%	1.00	1.15	1.32
1-1/2"	320,175	40	335		48%	15%	1.00	1.15	1.32
	52,490	270	1,405		51%	15%	1.00	1.15	1.32
2"	13,992	505	7,045	35%	50%	15%	1.00	1.15	1.32
3"	82,700	280	1,390	35%	31%	34%	1.00	1.15	1.32
4"	125,044	375	2,655	35%	50%	15%	1.00	1.15	1.32
6"	211,192	1,500	7,045	35%	34%	31%	1.00	1.15	1.32
8"	103	1,500	7,045	100%	0%	0%	1.00	1.15	1.32
10"									
Total Commercial COS \$5,148,955									
Less: Fixed Charge Revenue \$1,418,811									
Volume Charge Revenue Recovery									
\$3,730,145									
Block 1 Rate (Volume Revenue / Equivalent Volume)									
\$2.48 Block 2									
\$2.86 Block 3									
\$3.28									

Group Meter Size Rate Design

[illegible]

Group Meter Size Rate Design

Commercial Meter Size	Billed Volume 1,000 gallons	Block Thresholds, 1,000 gallons		% Volume Billed by Tier		Price Ratios		Tier 1 Volume Equivalents 1,000 gallons		
		Block 1	Block 2	Block 1	Block 2	Block 1	Block 2			
All Meters	1,332,239	200	5,000	34.5%	50.4%	15.1%	1.00	1.15	1.32	1,498,494
Total Commercial COS Less: Fixed Charge Revenue Volume Charge Revenue Recovery \$3,730,145 Block 1 Rate (Volume Revenue / Equivalent Volume) Block 2 Block 3										
										\$2.48 \$2.86 \$3.28

Table A-25
City of West Jordan
Water Utility
Development of Irrigation Volume Rate - Alternative 3

Commercial Meter Size	Billed Volume 1,000 gallons	Block Thresholds, 1,000 gallons		% Volume Billed by Tier		Price Ratios		Tier 1 Volume Equivalents 1,000 gallons
		Block 1	Block 2	Block 1	Block 2	Block 1	Block 2	
3/4"	13,637	30	190	38%	47%	1.00	1.15	1.32
1"	86,943	55	320	34%	51%	1.00	1.15	1.32
1-1/2"	69,348	100	525	35%	50%	1.00	1.15	1.32
2"	182,393	180	805	35%	49%	1.00	1.15	1.32
3"	22,473	460	2,080	35%	50%	1.00	1.15	1.32
4"	9,992	840	2,800	35%	50%	1.00	1.15	1.32
6"	6,948	650	2,450	35%	50%	1.00	1.15	1.32
8"	26	10	2,450	100%	0%	1.00	1.15	1.32
10"	0	10	2,450	0%	0%	1.00	1.15	1.32
Total Irrigation COS								440,267
Less: Fixed Charge Revenue								\$1,614,154
Volume Charge Revenue Recovery								\$285,814
								\$1,328,340
Block 1 Rate (Volume Revenue / Equivalent Volume)								\$3.02
Block 2								\$3.47
Block 3								\$3.99
Group Meter Size Rate Design								
Commercial Meter Size	Billed Volume 1,000 gallons	Block Thresholds, 1,000 gallons		% Volume Billed by Tier		Price Ratios		Tier 1 Volume Equivalents 1,000 gallons
		Block 1	Block 2	Block 1	Block 2	Block 1	Block 2	
5/8-2"	352,321	100	600	35.4%	49.1%	1.00	1.15	1.32
3" +	39,438	210	1,050	35.3%	50.1%	1.00	1.15	1.32
Total Volume 1 Equivalents								440,321
Total Irrigation COS								\$1,614,154
Less: Fixed Charge Revenue								\$285,814
Volume Charge Revenue Recovery								\$1,328,340
Block 1 Rate (Volume Revenue / Equivalent Volume)								\$3.02
Block 2								\$3.47
Block 3								\$3.99
Group Meter Size Rate Design								
Commercial Meter Size	Billed Volume 1,000 gallons	Block Thresholds, 1,000 gallons		% Volume Billed by Tier		Price Ratios		Tier 1 Volume Equivalents 1,000 gallons
		Block 1	Block 2	Block 1	Block 2	Block 1	Block 2	
All Meters	391,760	110	750	35.0%	50.2%	1.00	1.15	1.32
Total Irrigation COS								440,649
Less: Fixed Charge Revenue								\$1,614,154
Volume Charge Revenue Recovery								\$285,814
								\$1,328,340
Block 1 Rate (Volume Revenue / Equivalent Volume)								\$3.02
Block 2								\$3.47
Block 3								\$3.99

APPENDIX B:

**WASTEWATER UTILITY
FINANCIAL PLAN
COST OF SERVICE AND
RATE DESIGN**

Table B-1
City of West Jordan, UT
Wastewater Utility
Impact Fee and Bond Cash Flow Analysis (Restricted)

Line No.	Description	Fiscal Year Ending June 30					
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
		\$	\$	\$	\$	\$	\$
Sources of Funds							
1	Transfer From Unrestricted Balances	3,450,102	1,113,839	1,030,781	3,533,767	1,131,306	667,350
2	Impact Fees	650,000	1,002,151	1,168,781	1,168,781	1,168,095	1,169,502
3	Impact Fee Revenue Bond Proceeds	0	0	0	0	0	0
4	Investment Income	5,200	10,900	11,700	11,800	11,800	10,700
5	Total Sources	4,105,302	2,126,890	2,211,263	4,714,349	2,311,201	1,847,552
Uses of Funds							
6	Impact Fee Projects	1,351,262	150,618	312,739	2,857,824	451,919	208,416
7	Issuance Expense	0	0	0	0	0	0
Debt Service							
8	Existing Debt Service	1,718,839	1,860,572	1,867,724	1,856,425	1,859,282	1,860,237
9	Proposed Debt Service	0	0	0	0	0	0
10	Total Debt Service	1,718,839	1,860,572	1,867,724	1,856,425	1,859,282	1,860,237
11	Total Uses	3,070,102	2,011,190	2,180,463	4,714,249	2,311,201	2,068,652
Annual Surplus (Deficiency)							
12	Annual Surplus (Deficiency)	1,035,200	115,700	30,800	100	0	(221,100)
13	Beginning Balance	0	1,035,200	1,150,900	1,181,700	1,181,800	1,181,800
14	Ending Balance	1,035,200	1,150,900	1,181,700	1,181,800	1,181,800	960,700
15	Target Reserves (1 year impact fee revenue)	1,030,000	1,140,000	1,170,000	1,170,000	1,170,000	950,000
16	Over (Under) Target	5,200	10,900	11,700	11,800	11,800	10,700

Table B-2
City of West Jordan, UT
Wastewater Utility
Wastewater Capital Improvement Plan (CIP)

Line No.	Title	Service Intention %		Projected						6-Year Total
		Impact Fee	R&R	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	
				\$	\$	\$	\$	\$	\$	\$
1	na - 4257010 - Direct service fee	44%	56%	0						0
2	1 - 4740040 - Developer reimbursement	100%	0%	0						0
3	11 - 5731034 - Sewer System Maintenance - pipelines	0%	100%							0
4	9a, 11 - 5731034 - Sewer System Maintenance - manholes	0%	100%							0
5	X - 5731043 - Treatment Plant Capital	66%	34%	0						0
6	OPS - TBA - Replace 36 inch Meter - 7800 S & GV	10%	90%							0
7	New - TBA - Bangarter Bridges - 7000 & 9000 S	50%	50%							0
8	4b - TBA - 1300 West Pipe Burst Sewer upgrade	12%	88%							0
9	8b - TBA - Twin Oaks and Taymar Streets, replace pipe	0%	100%							0
10	15a - TBA - Mountain Meadow Pipe Upsize	12%	88%							0
11	15b - TBA - 2200 W 8100 S Upsize Pipe	0%	100%							0
12	17 - TBA - Extend Pipeline Behind College	0%	100%							0
13	23, 24 - TBA - 7000 South Upgrades 1905 W to 3200 W	44%	56%	500,000						500,000
14	New - TBA - 5490 West from 7800 S to 7100 S (8"to 12")	100%	0%							0
15	19a - TBA - Dannon Way, slip line pipe & manholes	0%	100%							0
16	na - 4257010 - Direct service fee	59%	41%	175,000						175,000
17	1 - 4740040 - Developer reimbursement	100%	0%	75,000						75,000
18	11 - 5731034 - Sewer System Maintenance - pipelines	0%	100%	648,401						648,401
19	11 - 5731034 - Sewer System Maintenance - manholes	0%	100%	175,000						175,000
20	X - 5731043 - Treatment Plant Capital - 4D Expansion et al	66%	34%	0						0
21	X - 5731043 - Treatment Plant Capital - Phosphorus nd Grit R	0%	100%	0						0
22	New - TBA - Update Master Plan	0%	100%	50,000						50,000
23	New - TBA - 5490 West from 7800 S to 7100 S (8"to 12")	100%	0%	400,000						400,000
24	New - TBA - 7800 South - 56 W to MVC (21 "Pipe Burst)	100%	0%	500,000						500,000
25	New - TBA - Inspect 36 inch 7800 South Trunk Sewer	0%	100%	200,000						200,000
26	OPS - TBA - Replace 36 inch Meter - 7800 S & GV	10%	90%	417,123						417,123
27	17 - TBA - Extend Pipeline Behind College	0%	100%	170,000		1,100,000				170,000
28	4b - TBA - 1300 West Pipe Burst Sewer upgrade	12%	88%							1,100,000
29	8b - TBA - Twin Oaks and Taymar Streets, replace pipe	0%	100%	275,000						275,000
30	7c - TBA - SkyView Estates, pipe and manhole repair	0%	100%	150,000						150,000
31	13 - TBA - Upsize Pipe in Center Park, Campus View	88%	12%				1,071,000			1,071,000
32	15a - TBA - Mountain Meadow Pipe Upsize	12%	88%	100,000						100,000
33	15b - TBA - 2200 W 8100 S Upsize Pipe	0%	100%	0	80,000					80,000
34	17 - TBA - Extend Pipeline Behind College	0%	100%							0
35	19a - TBA - Dannon Way, slip line pipe & manholes	0%	100%	500,000						500,000
36	na - 4257010 - Direct service fee	40%	60%		175,000					175,000
37	1 - 4740040 - Developer reimbursement	100%	0%		75,000					75,000
38	11 - 5731034 - Sewer System Maintenance - pipelines	0%	100%		450,000					450,000
39	11 - 5731034 - Sewer System Maintenance - manholes	0%	100%		100,000					100,000
40	X - 5731043 - Treatment Plant Capital - 4D Expansion et al	66%	34%	0	0					0
41	X - 5731043 - Treatment Plant Capital - Phosphorus nd Grit R	0%	100%	0	0					0
42	New - TBA - 7800 S @ SR-154 - 36" replacement	0%	100%	550,000						550,000
43	8a - TBA - Jordan View Estates - back lot sewer repairs	0%	100%	300,000						300,000

Table B-2
City of West Jordan, UT
Wastewater Utility
Wastewater Capital Improvement Plan (CIP)

Line No.	Title	Service Intention %		Projected						6-Year Total
		Impact Fee	R&R	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	
				\$	\$	\$	\$	\$	\$	\$
44	18 - TBA - Damon Way, slip line pipe & manholes	0%	100%		375,000					375,000
45	na - 4257010 - Direct service fee	47%	53%			175,000				175,000
46	1 - 4740040 - Developer reimbursement	100%	0%			75,000				75,000
47	11 - 5731034 - Sewer System Maintenance - pipelines	0%	100%			450,000				450,000
48	11 - 5731034 - Sewer System Maintenance - manholes	0%	100%			100,000				100,000
49	X - 5731043 - Treatment Plant Capital - 4D Expansion et al	66%	34%			0				0
50	X - 5731043 - Treatment Plant Capital - Phosphorus nd Grit R	0%	100%			0				0
51	14 - TBA - 3200 W 8900 S upgrade 8 inch to 12 inch	0%	100%			125,000				125,000
52	15b - TBA - 2200 W 8100 S upgrade	0%	100%			100,000				100,000
53	na - 4257010 - Direct service fee	57%	43%				175,000			175,000
54	1 - 4740040 - Developer reimbursement	100%	0%				75,000			75,000
55	11 - 5731034 - Sewer System Maintenance - pipelines	0%	100%				450,000			450,000
56	11 - 5731034 - Sewer System Maintenance - manholes	0%	100%				100,000			100,000
57	X - 5731043 - Treatment Plant Capital - 4D Expansion et al	66%	34%				0			0
58	X - 5731043 - Treatment Plant Capital - Phosphorus nd Grit R	0%	100%				0			0
59	19b - TBA - Sunleaf - 10inch pipe upgrade	0%	100%				175,000			175,000
60	21 - TBA - Wells Park and Hawley Park Upgrades	85%	15%				1,675,000			1,675,000
61	na - 4257010 - Direct service fee	55%	45%					175,000		175,000
62	1 - 4740040 - Developer reimbursement	100%	0%					75,000		75,000
63	11 - 5731034 - Sewer System Maintenance - pipelines	0%	100%					450,000		450,000
64	11 - 5731034 - Sewer System Maintenance - manholes	0%	100%					100,000		100,000
65	X - 5731043 - Treatment Plant Capital - 4D Expansion et al	66%	34%					0		0
66	X - 5731043 - Treatment Plant Capital - Phosphorus nd Grit R	0%	100%					0		0
67	22 - TBA - 9000 S - 30 inch upgrade (610 LF) 1100 W	43%	57%					500,000		500,000
68	na - 4257010 - Direct service fee	55%	45%						175,000	175,000
69	1 - 4740040 - Developer reimbursement	100%	0%						75,000	75,000
70	11 - 5731034 - Sewer System Maintenance - pipelines	0%	100%						450,000	450,000
71	11 - 5731034 - Sewer System Maintenance - manholes	0%	100%						100,000	100,000
72	X - 5731043 - Treatment Plant Capital - 4D Expansion et al	66%	34%						0	0
73	X - 5731043 - Treatment Plant Capital - Phosphorus and Grit R	0%	100%						0	0
74	Total CIP Program			4,335,524	2,105,000	2,125,000	3,721,000	1,300,000	800,000	14,386,524

Table B-2
City of West Jordan, UT
Wastewater Utility
Wastewater Capital Improvement Plan (CIP)

Line No.	Title	Service Intention %		Projected					6-Year Total
		Impact Fee	R&R	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	
		\$		\$	\$	\$	\$	\$	\$
Capital Project Summary - No Inflation									
75	Growth Related Projects			1,351,262	144,825	289,145	2,540,595	386,303	4,883,432
76	Non-Growth Related Projects			2,984,262	1,960,175	1,835,855	1,180,405	913,698	9,503,092
77	Total			4,335,524	2,105,000	2,125,000	3,721,000	1,300,000	14,386,524
Capital Project Summary with 4.0 Annual Inflation									
78	Growth Related Projects			1,351,262	150,618	312,739	2,857,824	451,919	5,332,778
79	Non-Growth Related Projects			2,984,262	2,038,582	1,985,661	1,327,795	1,068,897	10,170,103
80	Total			4,335,524	2,189,200	2,298,400	4,185,619	1,520,816	15,502,881

Table B-3
City of West Jordan, UT
Wastewater Utility
Operating Cash Flow Analysis (Unrestricted)

Line No.	Description	Fiscal Year Ending June 30				
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
		\$	\$	\$	\$	\$
Sources of Funds						
1	Rate Revenue from Existing Wastewater Rates	9,403,787	9,584,768	9,769,367	9,957,659	10,149,717
2	Additional Wastewater Rate Revenue from Rate Increases	705,284	1,913,759	2,419,416	2,962,996	3,322,403
3	Total Wastewater Rate Revenue	10,109,071	11,498,526	12,188,784	12,920,655	13,472,120
4	Other Miscellaneous Revenue	5,400	5,500	5,600	5,700	5,800
5	Repair & Replacement Revenue Bond Proceeds	0	0	0	0	0
6	Investment Income	56,400	31,100	30,500	26,100	29,800
7	Total Sources	10,170,871	11,535,126	12,224,884	12,952,455	13,507,720
8	Uses of Funds					
	Total Operations and Maintenance	7,552,000	7,778,600	8,011,800	8,252,000	8,499,100
	Debt Service					
9	Existing Debt Service	885,463	958,476	962,161	956,340	957,812
10	Proposed Debt Service	0	0	0	0	0
11	Total Debt Service	885,463	958,476	962,161	956,340	957,812
12	Transfer To Restricted for Impact Fee Cash Flow					
13	Repair & Replacement Capital	3,450,102	1,113,839	1,030,781	3,533,767	1,131,306
14	Total Uses	2,984,262	2,038,582	1,985,661	1,327,795	1,068,897
		14,871,826	11,889,497	11,990,403	14,069,902	11,657,115
15	Annual Surplus (Deficiency)	(4,700,954)	(354,371)	234,481	(1,117,447)	1,850,605
16	Beginning Balance	7,990,188	3,289,234	2,934,862	3,169,343	2,051,896
17	Ending Balance	3,289,234	2,934,862	3,169,343	2,051,896	3,902,502
18	Total Target Operating Reserves	1,260,000	1,514,000	1,768,000	2,022,000	2,276,000
19	Over/(Under) Reserve Target	2,029,234	1,420,862	1,401,343	29,896	1,626,502
20	Annual Revenue Increase	18.0%	4.0%	4.0%	4.0%	0.0%
21	Cumulative Revenue Increase	18.0%	22.7%	27.6%	32.7%	32.7%
22	Months Effective	5	5	5	5	5
23	Debt Service Coverage	1.01	3.92	4.38	4.92	5.23
						5.26

Table B-4
City of West Jordan, UT
Wastewater Utility
Historical & Projected Operation and Maintenance Expense

Line No.	Account Description	Budget				Projected			
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24		
		\$	\$	\$	\$	\$	\$		\$
1	Salaries and Wages	694,600	715,400	736,900	759,000	781,800	805,300		
2	Salaries Part/Seasonal	16,300	16,800	17,300	17,800	18,300	18,800		
3	Overtime	5,000	5,200	5,400	5,600	5,800	6,000		
4	Sick Leave Buyout	1,400	1,400	1,400	1,400	1,400	1,400		
5	On Call Salaries	3,600	3,700	3,800	3,900	4,000	4,100		
6	Retirement	140,100	144,300	148,600	153,100	157,700	162,400		
7	Medical and Dental Insurance	223,500	230,200	237,100	244,200	251,500	259,000		
8	Workers Compensation	9,000	9,300	9,600	9,900	10,200	10,500		
9	Long-term Disability	8,800	9,100	9,400	9,700	10,000	10,300		
10	Unemployment	700	700	700	700	700	700		
11	Books and Subscriptions	200	200	200	200	200	200		
12	Memberships	1,200	1,200	1,200	1,200	1,200	1,200		
13	Office Supplies	1,400	1,400	1,400	1,400	1,400	1,400		
14	Equipment Supplies & Maint.	10,000	10,300	10,600	10,900	11,200	11,500		
15	Uniforms	12,200	12,600	13,000	13,400	13,800	14,200		
16	Fleet O&M Charge	112,800	116,200	119,700	123,300	127,000	130,800		
17	Fleet Replacement Charge	255,100	262,800	270,700	278,800	287,200	295,800		
18	Utilities	0	0	0	0	0	0		
19	Telephone	0	0	0	0	0	0		
20	Professional & Technical	29,700	30,600	31,500	32,400	33,400	34,400		
21	Training	12,000	12,400	12,800	13,200	13,600	14,000		
22	Travel	10,300	10,600	10,900	11,200	11,500	11,800		
23	Dept Supplies	0	0	0	0	0	0		
24	Memberships	500	500	500	500	500	500		
25	Building Rent	290,700	299,400	308,400	317,700	327,200	337,000		
26	Interfund Service Fee	621,600	640,200	659,400	679,200	699,600	720,600		
27	Direct Services Fee	367,000	378,000	389,300	401,000	413,000	425,400		
28	Professional & Technical	23,500	24,200	24,900	25,600	26,400	27,200		
29	Training	600	600	600	600	600	600		

Table B-4
City of West Jordan, UT
Wastewater Utility
Historical & Projected Operation and Maintenance Expense

Line No.	Account Description	Budget		Projected			
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
		\$	\$	\$	\$	\$	\$
30	Travel	500	500	500	500	500	500
31	Sewage Treatment	4,400,000	4,532,000	4,668,000	4,808,000	4,952,200	5,100,800
32	Books and Subscriptions	400	400	400	400	400	400
33	Equipment Supplies & Maint.	50,000	51,500	53,000	54,600	56,200	57,900
34	Professional & Technical	13,600	14,000	14,400	14,800	15,200	15,700
35	Dept Supplies	49,100	50,600	52,100	53,700	55,300	57,000
36	Equipment Supplies & Maint.	43,000	44,300	45,600	47,000	48,400	49,900
37	Professional & Technical	25,900	26,700	27,500	28,300	29,100	30,000
38	Dept Supplies	61,500	63,300	65,200	67,200	69,200	71,300
39	Equipment Supplies & Maint.	1,200	1,200	1,200	1,200	1,200	1,200
40	Dept Supplies	15,000	15,500	16,000	16,500	17,000	17,500
41	Clean Up Contingency	15,000	15,500	16,000	16,500	17,000	17,500
42	Trans to Risk Management	25,000	25,800	26,600	27,400	28,200	29,000
43	Total	7,552,000	7,778,600	8,011,800	8,252,000	8,499,100	8,753,800

Table B-5
City of West Jordan, UT
Wastewater Utility
Test Year Revenue Requirement

Line No	Description	Operating Expense	Capital Expense	Total
Revenue Requirements				
1	Operating & Maintenance Expense	7,552,000		7,552,000
2	Debt Service		885,463	885,463
3	Capital Improvements		6,434,363	6,434,363
4	Total Revenue Requirement	7,552,000	7,319,826	14,871,826
Revenue Requirement Adjustments				
5	Miscellaneous Revenue	5,400		5,400
6	Transfer From Capital Fund		0	0
7	Interest Income	56,400		56,400
8	Operating Reserve Increase (Decrease)		(3,837,157)	(3,837,157)
9	Total Adjustments	61,800	(3,837,157)	(3,775,357)
10	Subtotal	7,613,800	3,482,669	11,096,469
11	Net Annualized Revenue Requirement			11,096,469

Table B-6
City of West Jordan, UT
Wastewater Utility
Allocation of Test Year O&M Expense

Line No.		Test Year	Collection Mains	Customer / Billing	Indirect	Total
		FY 2018-19				
1	Salaries and Wages	694,600	0%		100%	100%
2	Salaries Part/Seasonal	16,300	0%		100%	100%
3	Overtime	5,073	0%		100%	100%
4	Sick Leave Buyout	1,420	0%		100%	100%
5	On Call Salaries	3,652	0%		100%	100%
6	Retirement	140,100	0%		100%	100%
7	Medical and Dental Insurance	223,500	0%		100%	100%
8	Workers Compensation	9,000	0%		100%	100%
9	Long-term Disability	8,800	0%		100%	100%
10	Unemployment	700	0%		100%	100%
11	Books and Subscriptions	200	0%		100%	100%
12	Memberships	1,200	0%		100%	100%
13	Office Supplies	1,400	0%		100%	100%
14	Equipment Supplies & Maint.	10,000	0%		100%	100%
15	Uniforms	12,200	0%		100%	100%
16	Fleet O&M Charge	112,800	0%		100%	100%
17	Fleet Replacement Charge	255,100	0%		100%	100%
18	Utilities	0	0%			0%
19	Telephone	0			0%	0%
20	Professional & Technical	29,700			100%	100%
21	Training	12,000	100%			100%
22	Travel	10,300	100%			100%
23	Dept Supplies	0				0%
24	Memberships	500	100%			100%
25	Building Rent	290,700			100%	100%
26	Interfund Service Fee	621,600		70%	30%	100%
27	Direct Services Fee	367,000	70%		30%	100%
28	Professional & Technical	23,500			100%	100%
29	Training	600	100%			100%

Table B-6
City of West Jordan, UT
Wastewater Utility
Allocation of Test Year O&M Expense

Line No.		Test Year FY 2018-19	Collection Mains	Customer / Billing	Indirect	Total
30	Travel	500	100%			100%
31	Sewage Treatment	4,400,000	100%			100%
32	Books and Subscriptions	400	100%			100%
33	Equipment Supplies & Maint.	50,000	100%			100%
34	Professional & Technical	13,600	100%			100%
35	Dept Supplies	49,100	100%			100%
36	Equipment Supplies & Maint.	43,000	100%			100%
37	Professional & Technical	25,900	100%			100%
38	Dept Supplies	61,500	100%			100%
39	Equipment Supplies & Maint.	1,200	100%			100%
40	Dept Supplies	15,000	100%			100%
41	Clean Up Contingency	15,000	100%			100%
42	Trans to Risk Management	25,000	0%		100%	100%
43	Total	\$7,552,000	\$4,955,500	\$435,120	\$2,161,525	\$7,552,145

Table B-7

City of West Jordan, UT
Wastewater Utility
Capital Improvement Cost Allocation

Line No.	Description	Budget FY 2018-19 \$	Collection			Customer /		Total
			Mains	Billing	Indirect			
1	na - 4257010 - Direct service fee	0	100%					100%
2	1 - 4740040 - Developer reimbursement	0	100%					100%
3	11 - 5731034 - Sewer System Maintenance - pipelines	0	100%					100%
4	9a, 11 - 5731034 - Sewer System Maintenance - manholes	0	100%					100%
5	X - 5731043 - Treatment Plant Capital	0	100%					100%
6	OPS - TBA - Replace 36 inch Meter - 7800 S & GV	0	100%					100%
7	New - TBA - Bangerter Bridges - 7000 & 9000 S	0	100%					100%
8	4b - TBA - 1300 West Pipe Burst Sewer upgrade	0	100%					100%
9	8b - TBA - Twin Oaks and Taymar Streets, replace pipe	0	100%					100%
10	15a - TBA - Mountain Meadow Pipe Upsize	0	100%					100%
11	15b - TBA - 2200 W 8100 S Upsize Pipe	0	100%					100%
12	17 - TBA - Extend Pipeline Behind College	0	100%					100%
13	23, 24 - TBA - 7000 South Upgrades 1905 W to 3200 W	500,000	100%					100%
14	New - TBA - 5490 West from 7800 S to 7100 S (8"to 12")	0	100%					100%
15	19a - TBA - Dannon Way, slip line pipe & manholes	0	100%					100%
16	na - 4257010 - Direct service fee	175,000	0%	100%				100%
17	1 - 4740040 - Developer reimbursement	75,000	100%					100%
18	11 - 5731034 - Sewer System Maintenance - pipelines	648,401	100%					100%
19	11 - 5731034 - Sewer System Maintenance - manholes	175,000	100%					100%
20	X - 5731043 - Treatment Plant Capital - 4D Expansion et al	0	100%					100%
21	X - 5731043 - Treatment Plant Capital - Phosphorus nd Grit R	0	100%					100%
22	New - TBA - Update Master Plan	50,000	100%					100%
23	New - TBA - 5490 West from 7800 S to 7100 S (8"to 12")	400,000	100%					100%
24	New - TBA - 7800 South - 56 W to MVC (21 "Pipe Burst)	500,000	100%					100%
25	New - TBA - Inspect 36 inch 7800 South Trunk Sewer	200,000	100%					100%
26	OPS - TBA - Replace 36 inch Meter - 7800 S & GV	417,123	100%					100%
27	17 - TBA - Extend Pipeline Behind College	170,000	100%					100%

Table B-7
City of West Jordan, UT
Wastewater Utility
Capital Improvement Cost Allocation

Line No.	Description	Budget FY 2018-19 \$	Collection			Customer / Billing	Indirect	Total
			Mains					
28	4b - TBA - 1300 West Pipe Burst Sewer upgrade	0	100%					100%
29	8b - TBA - Twin Oaks and Taymar Streets, replace pipe	275,000	100%					100%
30	7c - TBA - SkyView Estates, pipe and manhole repair	150,000	100%					100%
31	13 - TBA - Upsize Pipe in Center Park, Campus View	0	100%					100%
32	15a - TBA - Mountain Meadow Pipe Upsize	100,000	100%					100%
33	15b - TBA - 2200 W 8100 S Upsize Pipe	0	100%					100%
34	17 - TBA - Extend Pipeline Behind College	0	100%					100%
35	19a - TBA - Dannon Way, slip line pipe & manholes	500,000	100%					100%
36	na - 4257010 - Direct service fee	0	0%		100%			100%
37	1 - 4740040 - Developer reimbursement	0	100%					100%
38	11 - 5731034 - Sewer System Maintenance - pipelines	0	100%					100%
39	11 - 5731034 - Sewer System Maintenance - manholes	0	100%					100%
40	X - 5731043 - Treatment Plant Capital - 4D Expansion et al	0	100%					100%
41	X - 5731043 - Treatment Plant Capital - Phosphorus nd Grit R	0	100%					100%
42	New - TBA - 7800 S @ SR-154 - 36" replacement	0	100%					100%
43	8a - TBA - Jordan View Estates - back lot sewer repairs	0	100%					100%
44	18 - TBA - Dannon Way, slip line pipe & manholes	0	100%					100%
45	na - 4257010 - Direct service fee	0	0%		100%			100%
46	1 - 4740040 - Developer reimbursement	0	100%					100%
47	11 - 5731034 - Sewer System Maintenance - pipelines	0	100%					100%
48	11 - 5731034 - Sewer System Maintenance - manholes	0	100%					100%
49	X - 5731043 - Treatment Plant Capital - 4D Expansion et al	0	100%					100%
50	X - 5731043 - Treatment Plant Capital - Phosphorus nd Grit R	0	100%					100%
51	14 - TBA - 3200 W 8900 S upgrade 8 inch to 12 inch	0	100%					100%
52	15b - TBA - 2200 W 8100 S upgrade	0	100%					100%
53	na - 4257010 - Direct service fee	0	0%		100%			100%
54	1 - 4740040 - Developer reimbursement	0	100%					100%

Table B-7

City of West Jordan, UT

Wastewater Utility

Capital Improvement Cost Allocation

Line No.	Description	Budget FY 2018-19 \$	Collection Mains	Customer / Billing	Indirect	Total
55	11 - 5731034 - Sewer System Maintenance - pipelines	0	100%			100%
56	11 - 5731034 - Sewer System Maintenance - manholes	0	100%			100%
57	X - 5731043 - Treatment Plant Capital - 4D Expansion et al	0	100%			100%
58	X - 5731043 - Treatment Plant Capital - Phosphorus and Grit R	0	100%			100%
59	19b - TBA - Sunleaf - 10inch pipe upgrade	0	100%			100%
60	21 - TBA - Wells Park and Hawley Park Upgrades	0	100%			100%
61	na - 4257010 - Direct service fee	0	100%			100%
62	1 - 4740040 - Developer reimbursement	0	100%			100%
63	11 - 5731034 - Sewer System Maintenance - pipelines	0	100%			100%
64	11 - 5731034 - Sewer System Maintenance - manholes	0	100%			100%
65	X - 5731043 - Treatment Plant Capital - 4D Expansion et al	0	100%			100%
66	X - 5731043 - Treatment Plant Capital - Phosphorus and Grit R	0	100%			100%
67	22 - TBA - 9000 S - 30 inch upgrade (610 LF) 1100 W	0	100%			100%
68	na - 4257010 - Direct service fee	0	0%	100%		100%
69	1 - 4740040 - Developer reimbursement	0	100%			100%
70	11 - 5731034 - Sewer System Maintenance - pipelines	0	100%			100%
71	11 - 5731034 - Sewer System Maintenance - manholes	0	100%			100%
72	X - 5731043 - Treatment Plant Capital - 4D Expansion et al	0	100%			100%
73	X - 5731043 - Treatment Plant Capital - Phosphorus and Grit R	0	100%			100%
74	Total Capital Improvement Program	\$4,335,524	\$4,160,524	\$175,000	\$0	\$4,335,524

Table B-8
City of West Jordan, UT
Wastewater Utility
Allocation of Costs to Cost Components

Line No	Description	Total	Flow	Customer	Specific to Industrial
1	O&M	\$7,552,145	\$6,942,551	\$575,981	\$33,613
2	Capital	6,434,363	6,259,363	175,000	
3	Debt Service	885,463	885,463		
4	Total	14,871,971	14,087,377	750,981	33,613
5	Less: Misc Rev	(61,800)	(58,672)	(3,128)	
6	Change in Fund Balance	(3,713,702)	(3,713,702)		
7	Net Rev Requirement	\$11,096,469	\$10,315,003	\$747,854	\$33,613

Table B-9
City of West Jordan, UT
Wastewater Utility
Units of Service

Line No	Customer Class	Annual Bills [a]	Accounts	Percent of Accounts	Volume	Percent of Use
1	Residential	254,210	254,210	95.2%	1,344,768	56.1%
2	Multifamily	102,776	3,170	1.2%	390,551	16.3%
3	Commercial	9,529	9,529	3.6%	445,559	18.6%
4	Industrial/Dannon	12	12	0.0%	217,527	9.1%
5	Fairchild	0	0	0.0%	0	0.0%
6	Metered Irrigation	0	0	0.0%	0	0.0%
7	Total	366,527	266,921	100%	2,398,405	100%

[a] Multifamily is number of billed units

Table B-10
City of West Jordan, UT
Wastewater Utility
Unit Cost of Service

Line No.	Description	1,000 Gal	Customer Related	Specific to Dannon	Total
1	Total Cost of Service	\$10,315,003	\$747,854	\$33,613	\$11,096,469
2	Units of Service	2,398,405	266,921	12	
3	Unit Cost of Service	\$4.30	\$2.80	\$2,801.05	

Table B-11
City of West Jordan, UT
Wastewater Utility
Distribution of Costs to Customer Classes

Line No	Description	Collection System	Billing	Specific to Dannon	Total
1	Residential	\$5,783,548	\$712,240		\$6,495,788
2	Multifamily	1,679,671	8,882		1,688,553
3	Commercial	1,916,249	26,698		1,942,947
4	Industrial/Dannon	935,535	34	33,613	969,181
5	Fairchild	0	0		0
6	Metered Irrigation	0	0		0
7	Total	\$10,315,003	\$747,854	\$33,613	\$11,096,469

Table B-12
City of West Jordan, UT
Wastewater Utility
Wastewater Rate Design - Alternative 3

Line No	Description	Total	Multifamily	Residential/ Commercial/ Industrial [a]
Base Charge Calculation				
1	Total Revenue Requirement	\$11,096,469	\$1,688,553	\$9,407,916
2	Less Industrial Surcharge			\$33,613
3	Percent of Revenue to Recover in Base Charge			35.0%
4	Base Charge Revenue Requirement			\$3,281,006
5	Projected Accounts [b]		102,776	266,921
6	Base Charge / Acct		\$16.43	\$12.29
7	Volume Charge Calculation			
8	Volume Charge Revenue Requirement			\$6,126,910
9	Projected Billed Volume (Kgal)			2,007,854
10	\$ per 1,000 gallons			\$3.05

[a] Industrial customer total monthly service charge is \$12.44 plus their contracted monthly charge.

[b] Multifamily is number of billed units.

APPENDIX C:

**STORMWATER UTILITY
FINANCIAL PLAN
AND
RATE DESIGN**

Table C-1
City of West Jordan, UT
Stormwater Utility
Impact Fee and Bond Cash Flow Analysis (Restricted)

Line No.	Description	Fiscal Year Ending June 30					
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
		\$	\$	\$	\$	\$	\$
Sources of Funds							
1	Transfer From Unrestricted Balances	4,236,910	534,105	1,449,905	169,717	2,385,997	0
2	Impact Fees	1,100,000	1,095,199	1,278,540	1,278,552	1,278,704	1,278,704
3	Impact Fee Revenue Bond Proceeds	0	0	0	0	0	0
4	Investment Income	5,600	11,200	11,300	11,300	11,300	13,600
5	Total Sources	5,342,510	1,640,505	2,739,745	1,459,569	3,676,001	1,292,304
Uses of Funds							
6	Impact Fee Projects	3,742,408	1,155,872	2,262,102	980,341	3,198,580	353,024
7	Issuance Expense	0	0	0	0	0	0
Debt Service							
8	Existing Debt Service	480,394	479,032	477,544	479,228	477,421	478,786
9	Proposed Debt Service	0	0	0	0	0	0
10	Total Debt Service	480,394	479,032	477,544	479,228	477,421	478,786
11	Total Uses	4,222,801	1,634,905	2,739,645	1,459,569	3,676,001	831,810
Annual Surplus (Deficiency)							
12	Beginning Balance	1,119,709	5,600	100	0	0	460,494
13	Ending Balance	1,891	1,121,600	1,127,200	1,127,300	1,127,300	1,127,300
14		1,121,600	1,127,200	1,127,300	1,127,300	1,127,300	1,587,794
15	Target Reserve (1 year impact fee revenue)	1,116,000	1,116,000	1,116,000	1,116,000	1,116,000	1,116,000
16	Over (Under) Target	5,600	11,200	11,300	11,300	11,300	471,794

Table C-2
City of West Jordan, UT
Stormwater Utility
Stormwater Capital Improvement Plan (CIP)

Line No.	Title	Service Intention %		Projected						6-Year Total
		Impact Fees	R&R	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	
				\$	\$	\$	\$	\$	\$	\$
1	- 4257010 - Direct Service Fee	24%	76%	0						0
2	- 4740040 - Developer reimbursement (Kraftmaid)	100%	0%	0						0
3	- 4740040 - Developer reimbursement (other)	100%	0%	0						0
4	- TBA - Debt Service	8%	92%	0						0
5	NEW - 550024 - Relocate Barney's Wash Detention Pond	30%	70%							0
6	3 - 550003 - Constitution Park det expand	70%	30%							0
7	1 - 550021 - 7000 South 60 inch trunkline	10%	90%							0
8	4 - TBA - Executive Drive - 7265 S to Richland Circle	30%	70%							0
9	72 - 550025 - 7000 S - 4600 W to Airport Rd (24 inch)	100%	0%	275,000						275,000
10	24 - TBA - 3400 West from Lady Dove Ln to 9200 S	0%	100%	158,000						158,000
11	OPS - SS - TBA - 1300 West Safe Sidewalk - Irrigation line	0%	100%	200,000						200,000
12	OPS - 550018 - O'Reilly SD (7800 S completion item)	0%	100%							0
13	SS - 550022 - OBH Safe Sidewalk project (Irrigation & SD)	0%	100%							0
14	32 - 550027 - Leo Park & Hawley Park Rd (waterways)	0%	100%							0
15	42 - TBA - Barney's Wash (Terminal) Detention (design & property)	100%	0%							0
16	34 - TBA - Barney's Creek West Detention (design)	100%	0%							0
17	- 4257010 - Direct Service Fee	64%	36%	100,000						100,000
18	- 4740040 - Developer reimbursement (Kraftmaid)	100%	0%	100,000						100,000
19	- TBA - Debt Service	8%	92%							0
20	NEW - 550024 - Relocate Barney's Wash Detention Pond	30%	70%		1,733,293					1,733,293
21	3 - 550003 - Constitution Park det expand	70%	30%	1,330,784						1,330,784
22	1 - 550021 - 7000 South 60 inch trunkline	10%	90%	539,202						539,202
23	42 - TBA - Barney's Wash (Terminal) Detention (const.)	100%	0%	2,074,000						2,074,000
24	34 - 4733056 - Barney's Creek West Detention (design) Phase 1	100%	0%	100,000						100,000
25	OPS - 550018 - O'Reilly SD (7800 S completion item)	0%	100%	75,000						75,000
26	SS - 550022 - OBH Safe Sidewalk project (Irrigation & SD)	0%	100%	700,000						700,000
27	8 - TBA - 1300 W from 6790 S to 7200 S	0%	100%	275,000						275,000
28	11 - TBA - Camelot Way and 7175 S	0%	100%	250,000						250,000
29	15 - TBA - 7480 S and Autumn Dr	0%	100%	100,000						100,000
30	18 - TBA - 7800 S Wetlands Pond (maintenance)	0%	100%	100,000						100,000
31	32 - 550027 - Leo Park & Hawley Park Rd (waterways)	0%	100%	195,000						195,000
32	20 - TBA - Festival Detention Pond Retrofits	0%	100%	400,000						400,000
33	- 4257010 - Direct Service Fee	16%	84%		100,000					100,000
34	- 4740040 - Developer reimbursement (Kraftmaid)	100%	0%		201,981					201,981
35	- TBA - Debt Service	8%	92%							0
36	4 - TBA - Executive Drive - 7000 S to 7265 S.	30%	70%	544,000						544,000
37	34 - 4733056 - Barney's Creek West Detention (construction) Phase 1	100%	0%			1,800,000				1,800,000
38	14 - TBA - Harvest Ridge Dr - 7400 S & Jordan Meadows	10%	90%	175,000						175,000
39	31 - TBA - 8660 South & 1841 West (Cajean Estates)	100%	0%	150,000						150,000
40	21 - 550013 - Axel Park RD SD Improvements	0%	100%	950,000						950,000
41	25 - TBA - 8200 S - 1500 W 18 inch pipe replacement	0%	100%	15,000						15,000
42	- 4257010 - Direct Service Fee	11%	89%			100,000				100,000
43	- 4740040 - Developer reimbursement (Kraftmaid)	100%	0%			200,000				200,000

Table C-2
City of West Jordan, UT
Stormwater Utility
Stormwater Capital Improvement Plan (CIP)

Line No.	Title	Service Intention %		Projected					6-Year	
		Impact Fees	R&R	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	Total
				\$	\$	\$	\$	\$	\$	\$
44	- TBA - Debt Service	8%	92%							0
45	8 - TBA - 1300 W from 7200 S to 7800 S	0%	100%			475,000				475,000
46	30 - TBA - 8948 S 1240 W (repairs & expansion)	0%	100%			75,000				75,000
47	28 - TBA - 1900 W 9000 S Smith's Detention rehab	0%	100%			30,000				30,000
48	- 4257010 - Direct Service Fee	18%	82%				100,000			100,000
49	- 4740040 - Developer reimbursement	100%	0%				100,000			100,000
50	- TBA - Debt Service	8%	92%							0
51	8 - TBA - 1300 W from 7800 S to 9000 S	0%	100%				475,000			475,000
52	40 - TBA - 2700 West Trunkline	0%	100%				1,250,000			1,250,000
53	30 - TBA - 8948 S 1240 W (repairs & expansion)	0%	100%				75,000			75,000
54	28 - TBA - 1900 W 9000 S Smith's Detention rehab	0%	100%				30,000			30,000
55	79 - 550012 - OBH to Bingham Creek pipeline	60%	40%				1,200,000			1,200,000
56	- 4257010 - Direct Service Fee	29%	71%					100,000		100,000
57	- 4740040 - Developer reimbursement	100%	0%					100,000		100,000
58	- TBA - Debt Service	8%	92%							0
59	34 - 4733056 - Barney's Creek West Detention (construction) Phase 2	100%	0%					2,500,000		2,500,000
60	40 - TBA - 2700 West Trunkline	0%	100%					750,000		750,000
61	- 4257010 - Direct Service Fee	29%	71%						100,000	100,000
62	- TBA - Debt Service	8%	92%							0
63	- TBA - New projects as designed by 2020 MP update	100%	0%						250,000	250,000
64	- TBA - New projects as designed by 2020 MP update	0%	100%						250,000	250,000
65	- TBA - New projects as designed by 2020 MP update	0%	100%						250,000	250,000
66	Total CIP Program			6,971,986	3,869,274	2,680,000	3,230,000	3,450,000	850,000	21,051,260
Capital Project Summary - No Inflation										
67	Growth Related Projects			3,598,469	1,068,669	2,011,000	838,000	2,629,000	279,000	10,424,138
68	Non-Growth Related Projects			3,373,517	2,800,605	669,000	2,392,000	821,000	571,000	10,627,122
69	Total			6,971,986	3,869,274	2,680,000	3,230,000	3,450,000	850,000	21,051,260
Capital Project Summary with 4.0 Annual Inflation										
70	Growth Related Projects			3,742,408	1,155,872	2,262,102	980,341	3,198,580	353,024	11,692,328
71	Non-Growth Related Projects			3,508,458	3,029,135	752,534	2,798,302	998,872	722,497	11,809,797
72	Total			7,250,866	4,185,007	3,014,636	3,778,643	4,197,453	1,075,521	23,502,125

Table C-3
City of West Jordan, UT
Stormwater Utility
Operating Cash Flow Analysis (Unrestricted)

Line No.	Description	Fiscal Year Ending June 30				
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
		\$	\$	\$	\$	\$
Sources of Funds						
1	Rate Revenue from Existing Stormwater Rates	3,141,776	3,204,611	3,268,703	3,334,077	3,400,759
2	Additional Stormwater Rate Revenue from Rate Increases	314,178	1,166,478	2,259,851	3,022,754	3,083,210
3	Total Stormwater Rate Revenue	3,455,953	4,371,089	5,528,554	6,356,832	6,483,968
4	Other Miscellaneous Revenue	16,100	16,500	16,900	17,300	17,700
5	Repair & Replacement Revenue Bond Proceeds	0	0	0	0	0
6	Investment Income	44,000	17,700	14,800	21,400	30,800
7	Total Sources	3,516,053	4,405,289	5,560,254	6,395,532	6,532,468
Uses of Funds						
8	Total Operations and Maintenance	2,131,600	2,195,300	2,260,900	2,328,700	2,398,500
Debt Service						
9	Existing Debt Service - Repair & Replacement	247,475	246,774	246,007	246,875	245,944
10	Proposed Debt Service - Repair & Replacement	0	0	0	0	0
11	Total Debt Service - Repair & Replacement	247,475	246,774	246,007	246,875	245,944
12	Transfer To Restricted for Impact Fee Projects					
13	Repair & Replacement Projects	4,236,910	534,105	1,449,905	169,717	2,385,997
13	Total Uses	1,800,000	1,800,000	1,800,000	2,136,599	1,136,599
		8,415,986	4,776,179	5,756,813	4,881,891	6,167,040
14	Annual Surplus (Deficiency)	(4,899,933)	(370,890)	(196,559)	1,513,640	365,429
15	Beginning Balance	6,851,235	1,951,302	1,580,412	1,383,854	2,897,494
16	Ending Balance	1,951,302	1,580,412	1,383,854	2,897,494	3,262,923
17	Total Target Operating Reserves	1,360,000	1,370,000	1,380,000	1,390,000	1,400,000
18	Over (Under) Target	591,302	210,412	3,854	1,507,494	1,862,923
19	Annual Revenue Increase	24.0%	24.0%	24.0%	0.0%	0.0%
20	Cumulative Revenue Increase	24.0%	53.8%	90.7%	90.7%	90.7%
21	Debt Service Coverage	1.90	3.04	4.56	5.60	5.71
						5.79

Table C-4
City of West Jordan, UT
Stormwater Utility
Historical & Projected Operation and Maintenance Expense

Line No.	Account Description	Budget			Projected		
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
		\$	\$	\$	\$	\$	\$
1	Salaries Full-Time	712,600	734,000	756,000	778,700	802,100	826,200
2	Overtime	1,500	1,500	1,500	1,500	1,500	1,500
3	Sick Leave Buyout	1,100	1,100	1,100	1,100	1,100	1,100
4	On Call Salaries	1,000	1,000	1,000	1,000	1,000	1,000
5	Retirement	142,000	146,300	150,700	155,200	159,900	164,700
6	Medical & Dental Insurance	207,100	213,300	219,700	226,300	233,100	240,100
7	Workers Compensation	9,500	9,800	10,100	10,400	10,700	11,000
8	Long-Term Disability	9,000	9,300	9,600	9,900	10,200	10,500
9	Unemployment	700	700	700	700	700	700
10	Memberships	500	500	500	500	500	500
11	Office Supplies	500	500	500	500	500	500
12	Building Rent	269,700	277,800	286,100	294,700	303,500	312,600
13	Equipment Supplies & Maint.	0	0	0	0	0	0
14	Uniforms	8,300	8,500	8,800	9,100	9,400	9,700
15	Fleet O&M Charge	68,100	70,100	72,200	74,400	76,600	78,900
16	Fleet Replacement Charge	181,600	187,000	192,600	198,400	204,400	210,500
17	Interfund Service Fee	111,900	115,300	118,800	122,400	126,100	129,900
18	Direct Services Fee	106,500	109,700	113,000	116,400	119,900	123,500
19	Telephone	0	0	0	0	0	0
20	Professional & Technical	46,000	47,400	48,800	50,300	51,800	53,400
21	Contract Services	0	0	0	0	0	0
22	Training	14,000	14,400	14,800	15,200	15,700	16,200
23	Travel	4,000	4,100	4,200	4,300	4,400	4,500
24	Dept Supplies	116,300	119,800	123,400	127,100	130,900	134,800
25	Overtime	0	0	0	0	0	0
26	Sick Leave Buyout	0	0	0	0	0	0
27	On Call Salaries	0	0	0	0	0	0
28	Retirement	0	0	0	0	0	0

Table C-4
City of West Jordan, UT
Stormwater Utility
Historical & Projected Operation and Maintenance Expense

Line No.	Account Description	Budget		Projected				
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	
		\$	\$	\$	\$	\$	\$	\$
29	Medical & Dental Insurance	0	0	0	0	0	0	0
30	Workers Compensation	0	0	0	0	0	0	0
31	Long-Term Disability	0	0	0	0	0	0	0
32	Unemployment	0	0	0	0	0	0	0
33	Fleet O&M Charge	0	0	0	0	0	0	0
34	Contract Services	0	0	0	0	0	0	0
35	Overtime	0	0	0	0	0	0	0
36	Retirement	0	0	0	0	0	0	0
37	Medical & Dental Insurance	0	0	0	0	0	0	0
38	Workers Compensation	0	0	0	0	0	0	0
39	Long-Term Disability	0	0	0	0	0	0	0
40	Unemployment	0	0	0	0	0	0	0
41	Equipment Supplies & Maint.	107,400	110,600	113,900	117,300	120,800	124,400	
42	Fleet O&M Charge	0	0	0	0	0	0	0
43	Dept Supplies	0	0	0	0	0	0	0
44	Dept Supplies	8,000	8,200	8,400	8,700	9,000	9,300	
45	Overtime	0	0	0	0	0	0	0
46	Retirement	0	0	0	0	0	0	0
47	Medical & Dental Insurance	0	0	0	0	0	0	0
48	Workers Compensation	0	0	0	0	0	0	0
49	Long-Term Disability	0	0	0	0	0	0	0
50	Office Supplies	300	300	300	300	300	300	
51	Telephone	0	0	0	0	0	0	0
52	Dept Supplies	4,000	4,100	4,200	4,300	4,400	4,500	
53	Total	2,131,600	2,195,300	2,260,900	2,328,700	2,398,500	2,470,300	