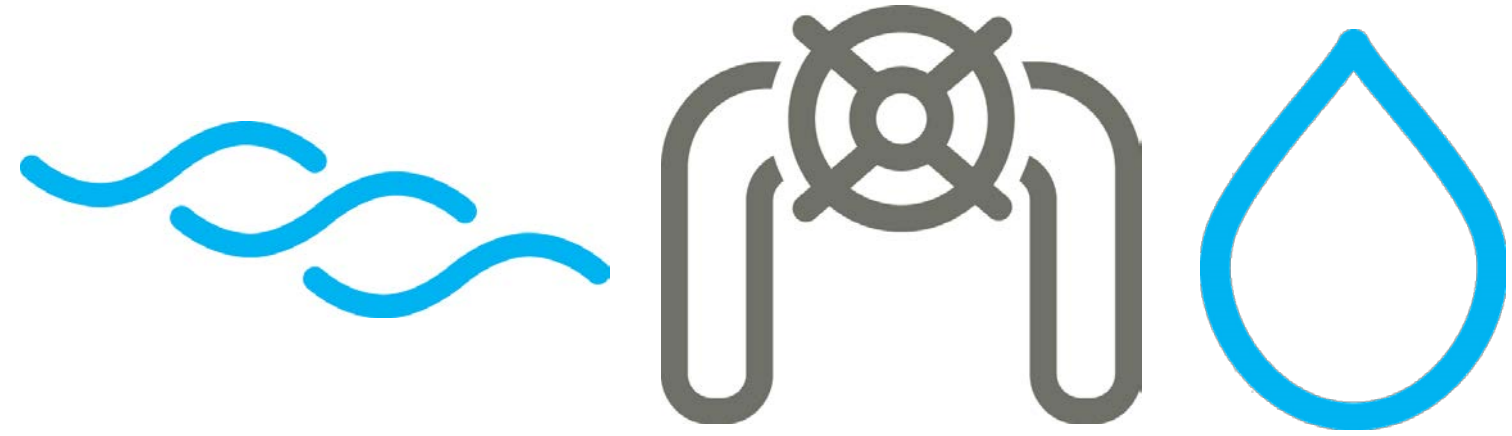


City of Merced

Water Rate & Capital Facility Charge Study

July 24, 2018

Stantec

July 24, 2018

Mr. Ken Elwin
Public Works Director
City of Merced
1776 Grogan Ave.
Merced, CA 95341

Re: **DRAFT** Water Rate & Capital Facility Charge Study

Dear Mr. Elwin,

Stantec Consulting and Hildebrand Consulting are pleased to present this report of the Water Rate & Capital Facility Charge Study (Study) that we performed for the City of Merced (City). We appreciate the fine assistance provided by you and all of the members of the City staff who participated in the Study.

If you or others at the City have any questions, please do not hesitate to call me at (510) 316-0621 or email me at mhildebrand@hildco.com. We appreciate the opportunity to be of service to the City and look forward to the possibility of doing so again in the near future.

Sincerely,

Mark Hildebrand
Project Manager

Enclosure

Executive Summary

This Executive Summary presents an overview of the results of the Water Rate and Capital Facility Charge Study (Study) that was conducted for the City of Merced (hereafter referred to as the "City") by Stantec Consulting.

ES. 1 – STUDY OBJECTIVES AND APPROACH

The primary objectives of this Study are to:

i. Develop a multi-year financial management plan that integrates the City's capital funding needs;

ii. Identify future rate adjustments to water rates that will ensure adequate revenues to meet the City's ongoing financial requirements;

iii. Determine the cost of providing water service to customers using industry accepted methodologies;

iv. Recommend specific rate structures that equitably recover the cost of service while promoting affordability and comporting with industry practices and legal requirements;

v. Review and revise the methodology for calculating the City's existing Capital Facility Charge to ensure that it is calculated based on industry-accepted methodologies; and

vi. Update the Capital Facility Charges to reflect the full cost of providing service to new customers without burdening existing users.

This study used methodologies that are aligned with industry standard practices for rate setting as promulgated by the American Water Works Association (AWWA) and all applicable law, including California Constitution Article XIII D, Section 6(b) (for water rates) and Government Code 66000-66025 (for the Capital Facility Charge).

ES. 2 – WATER RATE STUDY

This Study consisted of the following phases:

Revenue Sufficiency Analysis (RSA) – Developed and populated a multi-year forecasting model for the City to determine the level of annual rate revenue required to satisfy projected annual operating costs, debt service expenses, and capital cost requirements as well as maintain adequate reserves.

Cost-of-Service Analysis (COSA) – Using the revenue requirements from the revenue sufficiency analysis for Fiscal Year (FY) ending 2019, performed a detailed cost of service allocation based upon principles outlined by the American Water Works Association (AWWA) and other generally accepted industry practices in order to determine the proper distribution of costs and corresponding revenue requirements.

Rate Structure Analysis – Developed specific rates to recover the identified level of required rate revenue. Recommended rate schedules were designed to ensure the water rates conform to accepted industry practices and reflect the appropriate distribution of system costs, while achieving the City's policy objectives, such as fiscal stability and affordability to the greatest extent possible.

Revenue Sufficiency Analysis

In the RSA, Stantec evaluated the sufficiency of the City's rate revenues to meet all of its current and projected financial requirements over a 10-year projection period and determined the level of rate revenue increases necessary in the next 3 years to provide sufficient revenues to fund cost requirements. Input data and key assumptions were reviewed with City staff, and several alternative capital spending scenarios were evaluated during the analysis. This process generated a recommended financial plan and corresponding annual rate increases.

The proposed financial plan and associated rate revenue adjustments are based upon provided revenue and expense information, beginning balances, and key assumptions as detailed in Section 2.2 of the report. The 4-year rate revenue adjustment plan is presented in Table ES.1. It is important to note that, while rate revenues will increase by 2% as a whole, some customers' bills may go up or go down based on the recommended rate structure adjustments identified in the cost of service and rate design phases of the Study.

Table ES.1 - Proposed Plan of Water Rate Revenue Increases

Implementation Date	Rate Adjustment
January 1, 2019	2.0%
July 1, 2019	2.0%
July 1, 2020	2.0%
July 1, 2021	2.0%

Cost-of-Service Analysis

The purpose of a COSA is to determine the cost of providing water services so that the revenue requirements of the utility may be fairly collected through rates. The Study employed the "base-extra capacity" cost-of-service method promulgated in AWWA's Manual M1: Principles of Water Rates, Fees, and Charges (M1) for the water system, whereby costs are first allocated to individual functions or activities then the cost of each function is distributed to appropriate system parameters to calculate unit costs. The unit costs are then used to distribute system costs to each Customer Class based on their usage characteristics. The COSA included the following steps:

- Step 1: Allocate costs to the appropriate activities/functions
- Step 2: Allocate the costs of each function to specific system parameters
- Step 3: Calculate unit costs
- Step 4: Credit non-rate revenue

Rate Structure Recommendation

Upon completion of the COSA, a rate structure analysis was performed to identify potential rate structure modifications and specific rate schedules that would:

- Fairly and equitably recover costs through rates;
- Conform to accepted industry practice and legal requirements;
- Provide fiscal stability and recovery of fixed costs of the system; and

- Promote affordability for customers minimizing water usage.

The City follows a common industry practice with a two-part rate structure that is comprised of a fixed service charge (Base Monthly Charge) and a uniform, consumption-based rate (Volumetric Rate). The City's Base Monthly Charge is assessed based on meter size and includes an allotment of water usage (between 30 to 50 HCF per month, depending on the size of the meter). The City's uniform Volumetric Rate is charged for all water usage exceeding the water allotment that comes with the Base Monthly Charge. This Study recommends implementing the following three changes to the City's water rate structure.

1) Update the meter equivalency schedule;
2) Identify specific costs that are designated to be recovered through fixed vs. variable revenue; and
3) Change the amount of water that is allocated as part of the Base Monthly Charge.

The study also updated Private Fire Service Charges and Backflow Prevention Charges and proposes the addition of drought rates and an Outside City Surcharge to water accounts that are located outside of the City's jurisdiction. Tables ES.3 shows the proposed rates for FY 2019. The complete list of rate schedules through FY 2022 are provided in the complete report.

Table ES.3 – Proposed Rates, effective January 1, 2019

Water Rates

Meter Size	Total Base Monthly Charge
3/4"	$30.39
1"	$30.39
1 1/2"	$60.32
2"	$96.24
3"	$192.01
4"	$299.76
6"	$599.06
8"	$958.22
10"	$1,437.10
12"	$2,020.74
Volumetric Charge: $0.73 / HCF	

Outside City Surcharge

Meter Size	Monthly Charge
3/4"	$5.51
1"	$5.51
1 1/2"	$11.03
2"	$17.64
3"	$35.28
4"	$55.13
6"	$110.25
8"	$176.40

Backflow Prevention Charge

$8.75 per month

Private Fire Service

Size of Connection	Monthly Charge
2"	$1.36
3"	$3.96
4"	$8.44
6"	$24.53
8"	$52.28
10"	$94.01
12"	$151.85
Fire Hydrant	$15.19

Drought Rates

Meter Size	Total Base Monthly Charge
3/4"	$31.10
1"	$31.10
1 1/2"	$61.74
2"	$98.51
3"	$196.56
4"	$306.86
6"	$613.26
8"	$980.94
10"	$1,471.18
12"	$2,068.66
Volumetric Charge: $0.98 / HCF	

ES. 3 – CAPITAL FACILITY CHARGE

The Capital Facility Charge study summarizes the findings and recommendations from Stantec's independent review of the City's Capital Facility Charge for new connections to the City's water system. A Capital Facility Charge is a one-time charge paid by a new utility customer to purchase system capacity in order to join the system. The Report discusses the regulatory requirements, computational methods, and the approach used to compute the proposed Capital Facility Charge schedule. Capital Facility Charges are legally referred to as "capacity charges" in California state law and are also known as "developer impact fees" and "system development charges" (among other terms).

Approach

This study used the "incremental approach" to calculate the Capital Facility Charges due to the fact that the existing water system is currently operating near its full capacity. Cost estimates for growth-related projects were used in the calculation of system expansion costs under the incremental approach. The cost of each project and the capacity associated with the projects allowed for calculation of the unit-cost for capacity expansion.

Calculation of Charge

Based on the costs for planned growth-related projects for the water system over the next 5 years ($28.5 million), the new capacity associated with those projects (14.4 million gallons per day during a peak day), and the capacity requirements of a new single-family account (3,121 gallons per day during a peak day), the Capital Facility Charge was calculated to be $6,037 per 1" meter. Capital Facility Charges were determined for each meter size based on an industry standard meter equivalency schedule to scale the charges according to the capacity of each meter. The complete schedule is provided in Table ES.4.

Table ES.4 - Proposed Capital Facility Charge Schedule

Meter Size	Capital Facility Charge
1"	$6,037
1.5"	$12,074
2"	$19,318
3"	$38,637
4"	$60,370
6"	$120,740
8"	$193,184
10"	$289,776
12"	$407,498

In addition to a customer's peak demands for water consumption, the water system needs to be sized to accommodate fire flow requirements. Consistent with the City's historical practice, customers with a higher fire flow requirement will pay for the incremental cost of the extra fire flow capacity needed to serve them. This Fire Flow Charge will be based on the incremental increases in fire flow demand above the fire flow requirements of a "standard" account (a 1" meter). Thus, the incremental Fire Flow Charge will be calculated as follows:

$$Fire\ Flow\ Charge = \left[\left(\frac{Fire\ Flow\ Req't\ (gpm) \times Duration\ (hours)}{1{,}500\ gpm \times 2\ hours}\right) - 1\right] \times 1"\ Meter\ Capital\ Facility\ Charge$$

TABLE OF CONTENTS

Section 1. INTRODUCTION

Stantec Consulting has been retained by the City of Merced (City) to conduct a Water Rate and Capital Facility Charge Study (Study). This report describes in detail the assumptions, procedures, and results of the Study, including conclusions and recommendations.

1.1 UTILITY BACKGROUND

The City of Merced is located in Merced County in the Central San Joaquin Valley, 110 miles southeast of San Francisco and 310 miles northwest of Los Angeles. The City's existing water service area is over 21 square miles. The existing water service area comprises the area within the city limits, UC Merced campus and some small county areas outside the City limits. The City manages water resources and constructs, operates, maintains, repairs, and replaces water system facilities as needed to provide water service in compliance with applicable standards and regulations.

The City currently depends solely on groundwater supplied from 22 wells located throughout the water service area. The pumped water level in the wells generally ranges from 60 to 230 feet.

The City completed its metering program in 2017. This is the first rate study to be completed by the City since metering all customers. Although a full year of metering data was not yet available, the study was able to use 9 months of metering data to infer annual water consumption.

According to U.S. Census data the population growth in the City from 2007 to 2012 was 2.3 percent, which as slow relative to historical rates due to the housing market collapse that occurred in 2008. The growth that did occur was mainly due to UC Merced expansion.

1.2 OBJECTIVES

The primary objectives of this Study are to:

i. Develop a multi-year financial management plan that integrates the City's capital funding needs;

ii. Identify future rate adjustments to water rates that will ensure adequate revenues to meet the City's ongoing financial requirements;

iii. Determine the cost of providing water service to customers using industry accepted methodologies;

iv. Recommend specific rate structures that equitably recover the cost of service while promoting affordability and comporting with industry practices and legal requirements;

v. Review and revise the methodology for calculating the City's existing Capital Facility Charge to ensure that it is calculated based on industry-accepted methodologies; and

vi. Update the Capital Facility Charges to reflect the full cost of providing service to new customers without burdening existing users.

1.3 ACRONYMS

The following acronyms are used in this Report.

AF	acre-feet
AWWA	American Water Works Association
CIP	capital improvement program
COSA	cost of service analysis
DCR	debt service coverage ratio
ERU	equivalent residential unit
FAMS-XL	Financial Analysis and Management System model
FTE	full time equivalent (employee)
FY	fiscal year (which ends on June 30 for the City)
gpd	gallons per day

gpm	gallons per minute
GSA	Groundwater Sustainability Agency
HCF	hundred cubic feet
ME	meter equivalents
mgd	millions of gallons per day
PERS	Public Employees Retirement System
RSA	revenue sufficiency analysis
SGMA	Sustainable Groundwater Management Act
UWMP	Urban Water Management Plan

1.4 REPORT ORGANIZATION

Section 2 of this Report addresses the Water Rate Study approach, methodology and recommendations, and Section 3 details the same for the Capital Facility Charge.

Section 2. WATER RATE STUDY

This Water Rate Study Report has been organized into a discussion of the general methodology, the revenue sufficiency analysis (financial plan), cost of service/rate design, and rate recommendations.

This study applied methodologies that are aligned with industry standard practices for rate setting as promulgated by the American Water Works Association (AWWA) and all applicable law, including California Constitution Article XIII D, Section 6(b), commonly known as Proposition 218.

2.1 GENERAL METHODOLOGY

The Study began with development of a multi-year financial management plan that determined the level of annual rate revenue required to cover projected annual operating expenses, debt service (including coverage targets), and capital cost requirements as well as maintain adequate reserves. This portion of the Study was conducted using the revenue sufficiency and financial planning module of Stantec's proprietary Financial Analysis and Management System (FAMS-XL) modeling system. The model was customized to reflect the financial dynamics and most current data available for the City's operations in order to develop a long-term financial management plan, inclusive of projected annual revenue requirements and corresponding annual rate adjustments.

Revenue requirements calculated during the revenue sufficiency analysis for Fiscal Year[1] ending June 2019 (FY 2019) were then used to perform a detailed cost-of-service allocation (COSA) analysis. The COSA analysis was conducted based upon principles outlined by the AWWA and other generally accepted industry practices to develop rates that reflect the cost of providing service.

[1] Fiscal years are indicated by their ending years. For example, FY 2017 starts on July 1, 2016 and ends on June 30, 2017

The recommended rate schedules presented herein are designed to ensure that the City's water rates conform to accepted industry practice, legal requirements, and reflect the equitable distribution of system costs, while achieving the City's policy objectives, such as fiscal stability and affordability.

2.2 REVENUE SUFFICIENCY ANALYSIS

This section presents the financial management plan and corresponding plan of water rate adjustments developed in the revenue sufficiency analysis (RSA), including a description of the source data, assumptions, and policies reflected in the RSA. Appendix A includes detailed schedules supporting the financial plan identified herein.

During the RSA, Stantec reviewed alternative multi-year financial management plans and corresponding water rate revenue adjustment outcomes through several interactive work sessions with City staff. As a result of this process, the Study has produced a proposed financial plan and corresponding plan of debt issuance that will allow the City to meet its respective revenue requirements and financial performance objectives throughout the projection period with minimal rate increases.

2.2.1 DATA & ASSUMPTIONS

The City provided historical and budgeted financial information regarding the operation of the utility, including multi-year capital improvement program (CIP) and current debt service obligations and covenants. City staff also assisted in providing other assumptions and policies, such as water demands and customer growth, debt coverage requirements, operating reserve targets, earnings on invested funds, and escalation rates for operating costs (all of which are described in the following subsections). The following presents the key source data relied upon in conducting the RSA.

2.2.1.1 Beginning Fund Balances

The ending cash balances for FY 2017 were used to establish the FY 2018 beginning balances, as outlined in **Table 1**.

Table 1: FY 2018 Beginning Cash Balance

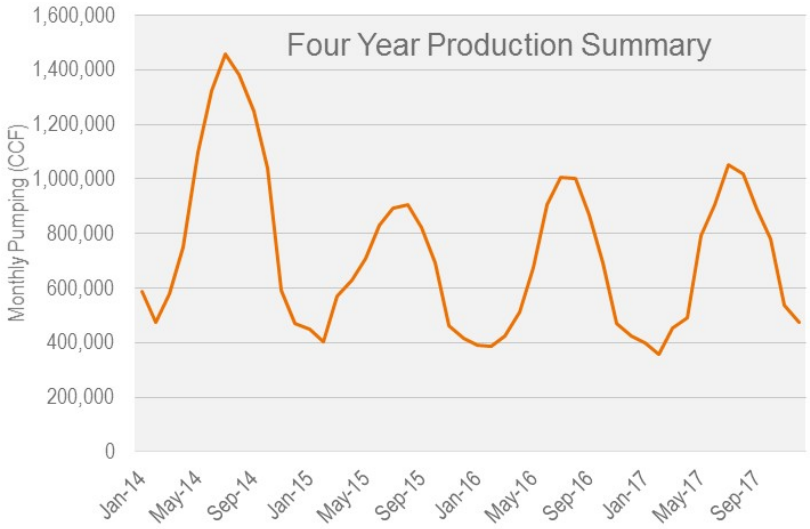
FUND BALANCES:		Total Cash Assets
Water System-Enterprise Fund (557)	$	21,607,222
Restricted Capacity Charge Revenue (556 & 566)	$	27,069,943
University Capital Charge (344)	$	480
PCE CIP Enterprise Fund (463)	$	578,482
MTBE Settlement Fund (464)	$	1,546,612
TOTAL CONSOLIDATED FUND BALANCE:	**$**	**50,802,739**

2.2.1.2 Customer Growth & Volume Forecast

Based upon a review of recent Capital Facility Charge revenues and recent growth data, the RSA assumes that the customer base will grow at a pace of 1.0% per year over the study period.

Forecasting the future usage of water is a perennial challenge for water utilities. **Figure 1** shows how total water production from City wells can vary by as much as 20% over the course of a couple years. Actual water *usage* (as opposed to water production) during that 4-year period is not known since the City has only recently completed installing meters on all accounts. While the recent drought has been declared over, this study assumes that total water usage for the City will remain flat over the course of the five-year study period (equal to FY 2017 usage). This assumption was partially based on the expectation that there will be little "rebound" of water usage. Lower water use may be the "new normal" as the State passes laws such as SB 606 and AB 1668, which establish state-wide mandates to limit per capita indoor water use.

Figure 1 – Historical Water Production at City Wells



2.2.1.3 Rate Revenues

The focus of this Study is the "rate revenue," which is the revenue that is received from customers for water service. The City receives rate revenue in the form of fixed charges ("Base Monthly Charge") and consumption-based variable charges ("Volumetric Rate"). Current rate revenue in the financial plan is based on FY 2018 budgeted revenues, adjusted annually to reflect assumed customer growth, changes in water demand[2], and the rate revenue adjustments that are proposed by this Study. Budgeted and projected revenues are listed in detail in **Schedule 1** of Appendix A[3].

2.2.1.4 Non-Rate Revenues

In addition to rate revenue, the City receives a limited amount of non-rate revenue related to miscellaneous service fees and interest revenue on investments

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[2] As discussed in Section 2.2.1.2, this study assumed that there would be no change in the average water demand from customers during the planning period.

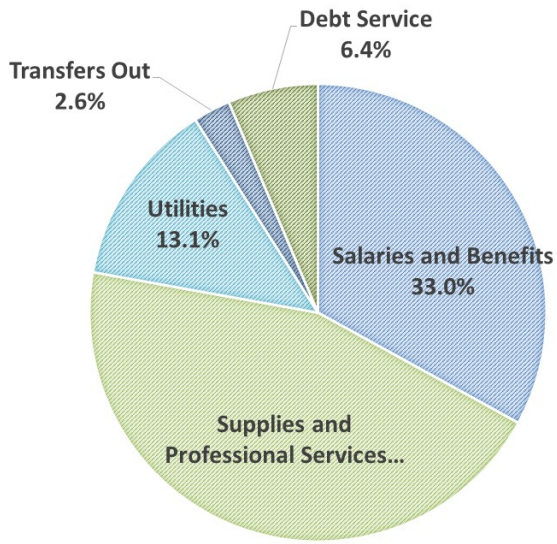
[3] The rate revenue in Schedule 1 does not include the proposed rate adjustment proposed by this Report.

(as well as revenue from Capital Facility Charges, which is restricted to spending only on growth-related capital projects). Projections of all non-rate revenues were based on FY 2018 budget values with the exception of interest income which was calculated annually based upon projected average fund balances and assumed interest rates. Budgeted and projected non-rate revenues are listed in detail in **Schedule 1** of Appendix A.

2.2.1.5 Operating Expenses & Existing Debt

The City's operating expenses include all operating and maintenance expenses, debt service requirements, and minor capital outlay. Future operating expenses were projected based upon the budgeted expenditures from FY 2018, adjusted for inflation (see Section 2.2.1.6). Budgeted operating expense categories for FY 2018 are depicted in **Figure 2**. Budgeted and projected operating costs are listed in detail in **Schedule 2** of Appendix A.

Figure 2 – FY 2018 Budgeted Expense Categories



The City's outstanding debt includes a 2012 Series Water Revenue Bond that will be fully repaid in FY 2025 and a California Infrastructure and Economic Development Bank Enterprise Fund Installment Sales Agreement that will be fully repaid in FY 2034. The corresponding annual debt service for these issuances is identified in **Schedule 2**.

2.2.1.6 Cost Escalation

Annual cost escalation factors for the various types of operating and maintenance expenses were developed based upon a review of historical trends, our industry experience, and detailed discussions with City staff. This study assumes that salaries will escalate at an average of 1.9%, benefits, including the cost of Public Employees' Retirement System (PERS) expenses, will escalate at an average of 5.5%, and all other operating expenses, including the cost of capital projects, will escalate at a rate of 3.0% per year.

2.2.1.7 Capital Improvement Program

City staff provided the forecasted spending on the CIP from FY 2018 through FY 2028. In total, the CIP for repair and replacement projects from FY 2018 – FY 2028 is approximately $18.3 million (excluding escalation), averaging about $1.7 million per year. A detailed list of repair and replacement projects and costs by year are provided in **Schedule 3** of Appendix A. It should be noted that capital spending forecasts beyond a 5-year planning horizon are difficult to forecast and this study is primarily concerned with the capital spending forecasts within the next 5 years.

As reflected in Section 2.2.1.6, the RSA includes an annual cost escalation factor for capital costs of 3.0% based upon historical increases observed in the Engineering News Record 20-City Construction Cost Index.

2.2.1.8 Interest Earnings on Invested Funds

The RSA reflects interest earnings on invested funds at a rate of 1.13%, based on the recent historical performance of the City's investment earnings as well as input from City staff.

2.2.1.9 Minimum Operating Reserve Balance

Reserve balances for utility systems are funds set aside for a specific cash flow requirement, financial need, or debt covenant. These balances are maintained in order to meet short-term cash flow requirements while minimizing the risk associated with meeting the financial obligations and continued operational and capital needs under adverse conditions. The level of reserves maintained by a

utility is an important component and consideration of developing a multi-year financial plan.

Many utilities, rating agencies, and the investment community as a whole place a significant emphasis on having sufficient reserves available for potentially adverse conditions. The rationale related to the maintenance of adequate reserves is twofold. First, it helps to ensure that a utility will have adequate funds available to meet its financial obligations under unforeseen circumstances (i.e. when revenues are unusually low and/or expenditures are unusually high). Second, it provides funds that can be used for emergency repairs or replacements to the system that can occur as a result of natural disasters or unanticipated system failures.

Financial policies should articulate how these balances are established, how funds are to be used, and how to determine the adequacy of the reserve fund balances. Once reserve targets are established, they should be reviewed annually during the budgeting process to monitor current levels and assure conformance with stated policies and practices. Decisions can be made to maintain, increase, or spend down reserve balances, as appropriate, depending upon the impact of such decisions to the upcoming budget period.

For purposes of this Study, all of the City's existing reserve policies have been incorporated into the RSA[4]. The levels of the City reserve policies are consistent with 1) our industry experience for similar systems, 2) the findings of reserve studies conducted by the AWWA, and 3) a healthy level of reserves for a municipal utility system per the evaluation criteria published by the municipal utility rating agencies (e.g. Fitch, Moody's, and Standard & Poor's).

The City currently maintains a 6-month Operating Reserve, which means that 120 days of operating costs are kept available in cash reserves. This reserve ensures

[4] The City's reserve policies are guidelines used by the Finance Department, and not formally adopted as resolutions. Stantec recommends that the existing guidelines be adopted as policies in order to strengthen the City's image in the eyes of rating agencies.

continuity of service regardless of short-term changes in cash flow or sudden increases in operating costs. Because this reserve target is set relative to the City's operating budget, the target will change as the expenses change. Given that the current operating budget is approximately $10 million, the Operating Reserve target is about $5 million.

The City also maintains a Capital Improvement Reserve with a target of $5 million, which is roughly equal to the replacement value of some of the system's more critical assets, including pump stations. For purposes of this study, the Capital Improvement Reserve target was increased annually by the 3% capital cost escalation factor discussed in Section 2.2.1.6.

The total reserve target by year is shown in Schedule 4 of Appendix A.

2.2.1.10 Future Borrowing Assumptions

This Report does not propose the issuance of new debt. That being said, the Study did consider the issuance of new debt as a potential strategy. The assumed financing terms for those scenarios, for the sake of documentation, were as follows:

- 20-year term, level debt service
- 2.0% cost of issuance
- Fixed interest rate of 5.0% for debt issued in each fiscal year of the projection period.
- A one-year debt service reserve

2.2.1.11 Debt Coverage

The existing 2012 Water Revenue Bond has a debt service coverage ratio (DCR) requirement of 1.25 (including Connection Fee revenue). Per recently published guidance from Fitch Ratings[5], utility systems with *midrange* financial profiles should maintain debt service coverage greater than 1.50 times net revenue. As such, Stantec ensured that a DCR of at least 1.5 was met in all years in order to enable

[5] As published on July 31, 2013.

the City to access favorable terms from the debt market should the need arise (in fact the lowest DCR level that is projected in the next 5 years will be 2.79).

2.2.2 PROPOSED RATE ADJUSTMENTS

All of the above information was entered into Stantec's FAMS-XL interactive modeling system. This module of FAMS-XL produced a ten-year projection of the sufficiency of revenues to meet current and projected financial requirements and determined the level of rate revenue increases necessary in each year of the projection period.

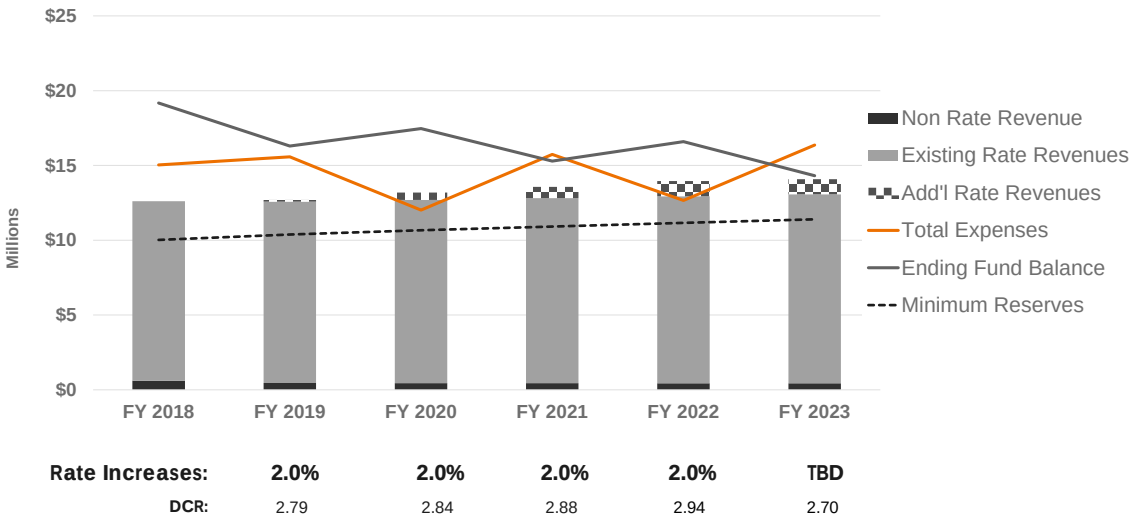
Based upon the previously discussed financial data, assumptions, and policies, Stantec proposes a financial strategy of rate adjustments over the next four years, as detailed in Table 2.

Table 2: Recommended Water Rate Revenue Increase

Implementation Date	Rate Adjustment
January 1, 2019	2.0%
July 1, 2019	2.0%
July 1, 2020	2.0%
July 1, 2021	2.0%

The numbers provided in **Schedule 4** are summarized graphically in Figure 3, which shows that cash reserves and DCR targets are maintained over the course of the planning period.

Figure 3 – Financial Projection with Recommended Rate Increases



The years beyond FY 2022 will very likely require similar rate increases in order to keep revenues on pace with inflation.

2.3 COST-OF-SERVICE ALLOCATION

The purpose of a Cost-of-Service Allocation (COSA) analysis is to determine the cost of providing water service and to allocate those costs to customer classes and/or rate structure components so that the proposed rate structure is aligned with those costs. This Study employed well-established industry practices as recognized by the AWWA and other accepted industry standards. The following section presents a detailed description of the COSA methodology and corresponding results.

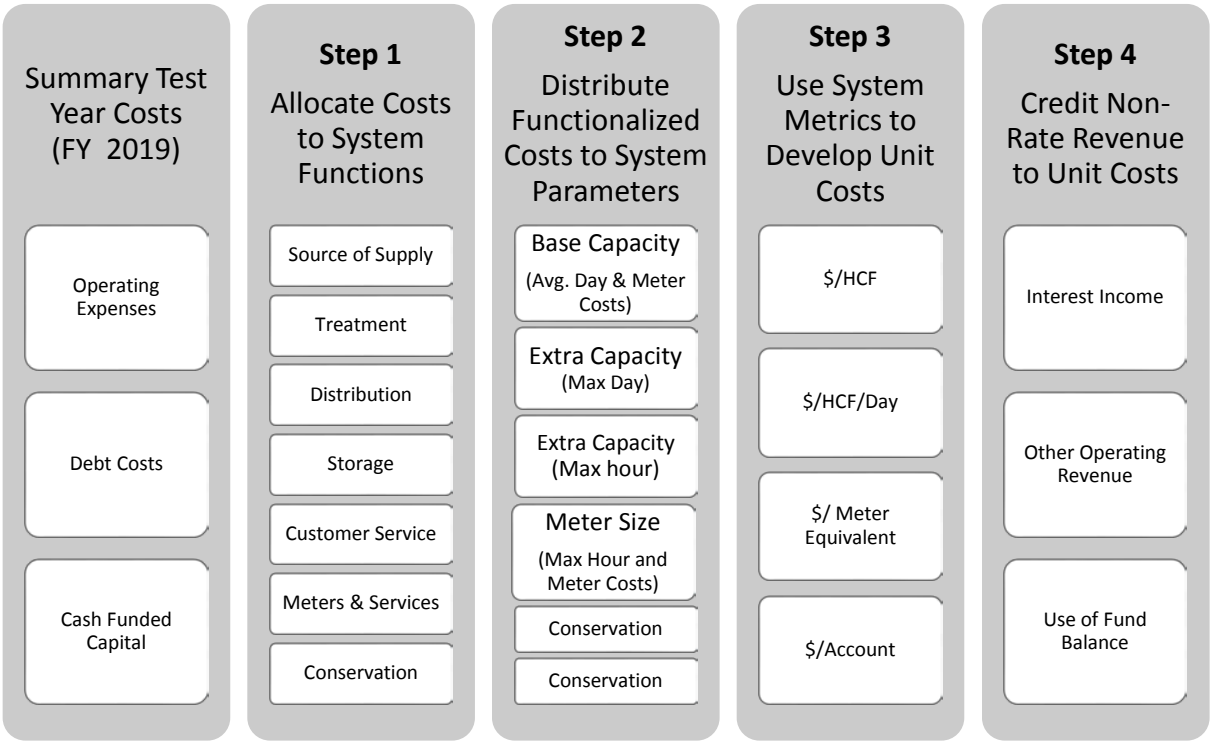
This Study employed the "base-extra capacity" COSA methodology promulgated in AWWA's Manual M1: Principles of Water Rates, Fees, and Charges (M1) for the water system, whereby costs are first allocated to individual functions or activities, including, but not limited to, Source of Supply, Treatment, Transmission & Distribution, Storage, Customer Service, Meters & Services, and Conservation. After functionalizing costs, each cost category is distributed to appropriate system parameters to calculate unit costs. These system parameters include Base

Capacity (average day demands), Extra Capacity (maximum day demands & peak hour demands[6]), Customer costs, Meter costs, and Conservation. The unit costs are then used to distribute system costs to the various components of the rate structure (see Section 2.4).

In addition to standard water rates, this study includes recommendations on the creation of an Outside City Surcharge and updates to the existing Backflow Prevention Program Charge, and Private Fire Prevention Charge.

2.3.1 PROCESS

The COSA was based upon the City's FY 2019 annualized expenditure and revenue requirements per the RSA, and included the following steps:



[6] For this study, billing data was used to directly measure average day and maximum month demands. A Max Day peaking factor of 1.8 and Max Hour peaking factor of 2.8 were applied in accordance with the City's Master Plan.

The following sub-sections give a detailed description of the COSA methodology and high-level results, while **Appendix B** includes detailed schedules of those results.

2.3.1.1 Step 1: Allocate Costs to System Functions

The operating expenses, debt service, and cash-funded capital requirements within the water system were distributed to specific activities or functional components of service.

Industry best practices provide a framework for assigning operating and capital expenses to system functions; however, because the reality of each utility's cost causation and design can vary, the specific knowledge and insight of City staff was relied upon to functionalize line item costs to the respective functional components identified above. A summary of cost functionalization is presented in **Table 3.** The Capital Asset percentages were assigned based on the book value of existing assets.

The detailed summary of all cost allocations to functional components is presented in **Schedule 5** of Appendix B. While many costs can be allocated directly to a functional component, some costs are divided among multiple functional components. In those cases, costs were distributed to the functional component based on either the percentage of full time equivalent (FTE) employees for all functions, or the percentage of FTEs in field operations.

Table 3: Allocation of Cost Categories to Functional Components

	Functional Components							
Cost Categories	General & Admin	Groundwater Pumping	Treatment	Trans & Dist	Storage	Customer Service	Meters & Services	Conservation
General & Admin	100.0%							
Pumping		100.0%						
Treatment			100.0%					
Trans & Dist				100.0%				
Storage					100.0%			
Customer Service						100.0%		
Meters & Services							100.0%	
Conservation								100.0%
Fire Protection								
Capital Assets								
Total FTEs	19.5%	7.6%	7.6%	51.9%		1.0%	9.2%	3.1%
Field FTEs		10.0%	10.0%	68.0%			12.0%	

2.3.1.2 Step 2: Distribute Functionalized Costs to System Parameters

Next the costs allocated to each functional component were distributed to system parameters based on measurable metrics. Assigning costs to each functional component not only allowed for cost allocation to specific customer classes but was also foundational to developing a rate structure that was aligned with the cost to provide service (as required by Proposition 218).

For the most part, the system parameters were direct counterparts to the functional components already discussed. For example (and as shown in **Table 4**), **Customer Service** costs were allocated to the Customer parameter, **Conservation** costs were allocated to Conservation parameter, and **Meters & Services** were allocated to the Meter Size parameter. Similarly, **Groundwater Pumping** (source of supply) costs were allocated to the system's Base Capacity parameter, which is a measure of the system's average daily usage.

Treatment costs were split between the Base Capacity and Extra Capacity-Max Day parameter. This Base Capacity portion was calculated as the ratio of the Max Day System Water Demands and the Average Day System Water Demands (see the two formulas below and Table 5).

$$Base\ Capacity = \frac{Average\ Day}{Max\ Day} = 55.6\%$$

$$Extra\ Capacity = 100\% - Base\ Capacity = 44.4\%$$

Transmission & Distribution and **Storage** costs were split three ways between the system's Base Capacity (average demand), Extra Capacity – Max Day, and Extra Capacity – Max-Hour (see the three formulas below). See **Table 5** for the volumetric relationship between average day, maximum month, maximum day, and maximum hour[7].

$$Base\ Capacity\ Costs = \frac{Average\ Day}{Max\ Hour} = 35.7\%$$

$$Extra\ Capacity\ (Max\ Day) = \frac{Max\ Day - Average\ Day}{Max\ Hour} = 28.6\%$$

$$Max\ Capacity\ (Max\ Hour) = \frac{Max\ Hour - Max\ Day}{Max\ Hour} = 35.7\%$$

[7] IBID

Table 4: Mapping Functional Components to System Parameters

	System Parameters					
Functional Component	Base Capacity (HCF, Annual Use)	Extra Capacity (HCF, Max Day)	Extra Capacity (HCF, Max Hour)	Meter Size (Equivalent Meter)	Conservation (HCF, Average Day)	Customer (No. of Accounts)
General & Admin						
Groundwater Pumping	100.0%					
Treatment	55.6%	44.4%				
Trans & Dist	35.7%	28.6%	35.7%			
Storage	35.7%	28.6%	35.7%			
Customer Service						100.0%
Meters & Services				100.0%		
Conservation					100.0%	

Missing from the functional components listed above is **General and Administration** cost, which has been distributed among the other functional components using the indirect cost allocation method.

Table 5: Water System Peaking Profile

	Average Day (HCF/day)	Max Month Average Day (HCF/day)	Max Day (Coincident) (HCF/day)	Max Hour (Full Day) (HCF/day)
Water System Demands	20,398	32,059	36,716	57,114

2.3.1.3 Step 3: Use System Metrics to develop Unit Costs

Next the functionalized costs for operating, debt service and capital spending from **Step 1** were allocated to system parameters based on the values shown in **Table 4.** The System Parameter costs were then converted to a Unit Cost of Service based on the appropriate system metrics. The results are summarized in **Schedule 6** in Appendix B.

For example, **Schedule 6** presents $2,786,048 in Groundwater costs (row 3) which were 100% allocated to the Base Capacity parameter. Total operating expenses allocated to the Base Capacity parameter equaled $5,340,972 (row 10). These costs were then converted to unit costs by dividing by the relevant functional units listed in Row 1, which were 7,445,233 hundred cubic feet (HCF) per year in

demand for Base Capacity. In the case of the Base Capacity parameter for operating costs the unit cost was calculated as $0.72 / HCF (Row 12 and 57). When adding the capital expenses and debt expenses, the total unit cost associated with Base Capacity was $1.00 / HCF (Row 60).

2.3.1.4 Step 4: Credit Non-Rate Revenue

Non-rate revenue was used to offset the annual cost of service that would otherwise need to be recovered in rates or service charges. Non-rate revenue includes interest income and other operating revenue (such as miscellaneous fees). Non-rate revenues were allocated equitability among customers using the same proportions calculated in previous cost allocations.

The non-rate revenue was credited as shown in below in **Table 6** and yields the total rate revenue requirement. Notice that the Total Costs in **Table 6** match the total costs from **Schedule 6** (row 60).

Table 6: Total Rate Revenue Requirement

Total Costs	$15,577,655
Change in Fund Balance	-$2,877,649
Non-Rate Revenue	-$883,635
Rate Revenue Requirement	$11,816,372

Finally, the rate revenue requirement is expressed in terms of System Parameters and by customer class as shown in **Table 7**. In this case, the City only has one primary customer class (Retail) and a secondary customer class for outside city customers. Costs were allocated to those two customer classes based on their respective use of the system (average water usage, peak water usage, number of accounts, etc.).

Table 7: Total Rate Revenue Requirement by System Parameter

System Parameters	Total	Retail Inside	Retail Outside*
Base Capacity (Annual Use)	$5,650,439	$5,364,316	$286,122
Extra Capacity (Max Day)	$2,263,613	$2,104,206	$159,407
Extra Capacity (Peak Hour)	$2,263,908	$2,129,364	$134,545
Conservation	$162,620	$154,386	$8,235
Customers	$119,285	$114,675	$4,610
Meter Size	$1,356,506	$1,308,169	$48,337
Total Revenue Requirement:	11,816,372	11,175,116	641,256

* The costs attributed to outside city customers in this table do not include the outside city surcharge described in Section 2.4

The manner in which the allocated system parameter costs were used in the rate design will be described in Section 2.4.

2.4 RATE STRUCTURE

Upon completion of the COSA, a rate structure analysis was performed to identify potential rate structure modifications and calculate specific rate schedules for implementation in FY 2019. The proposed rate structure was designed to:

- Fairly and equitably recover costs through rates;
- Conform to accepted industry practice and legal requirements;
- Provide fiscal stability and recovery of fixed costs of the system; and
- Promote affordability for customers that try to minimize water usage.

The following sub-sections describe the basis for the recommended rate structure and a specific 4-year rate schedule for implementation on January 1, 2019 (and adjusted every July 1st thereafter). The recommended rate schedules are designed such that each customer class pays its own proportionate share of the cost to provide service.

2.4.1 CURRENT RATES

The City follows a common industry practice with a two-part rate structure that is comprised of a fixed service charge (Base Monthly Charge) and a uniform, consumption-based rate (Volumetric Rate). Recovering a portion of the system costs through a fixed service charge recognizes that utilities incur fixed costs and some of the fixed costs are proportionate to the capacity and size of the water system infrastructure. Ultimately the size and capacity of the infrastructure is driven by peak water demands.

The City's Base Monthly Charge is assessed based on meter size (see Section 2.4.2.1) and currently recovers 77.0% of rate revenue. This fixed charge recovers nearly all of the water utility's fixed costs. The Base Monthly Charge includes an allotment of water usage (between 30 to 50 HCF per month, depending on the size of the meter, see Section 2.4.2.3).

The City's uniform Volumetric Rate is charged for all water usage that is in excess of the base water allotment associated with the Base Monthly Charge.

2.4.2 PROPOSED RATE STRUCTURE

This Study recommends implementing the following three changes to the City's water rate structure.

4) Update the meter equivalency schedule;
5) Identify the specific costs that are designated to be recovered through fixed vs. variable revenue; and
6) Adjust the amount of water that is allocated as part of the Base Monthly Charge consistent with the updated meter equivalency schedule.

2.4.2.1 Meter Equivalency Schedule

The meter equivalency metric is an industry-standard factor used to represent the proportional capacity associated with different sizes of meters. A meter equivalency schedule allows for representation of each meter size in terms of multiples of the lowest common denominator (in this case a ¾" meter).

The meter equivalency schedule that is inferred from the City's current Base Monthly Charge is not recognized by Stantec as a published or calculated equivalency schedule. This study recommends that it be replaced with a standard meter equivalency table from AWWA's M1 manual as shown in **Table 8**.

Table 8: Meter Equivalencies

Meter Size	Meter Type	GPM *	Meter Equivalence
3/4"	Displacement	30	1.0
1"	Displacement	50	1.0
1 1/2"	Displacement	100	2.0
2"	Displacement	160	3.2
3"	Compound	320	6.4
4"	Compound	500	10.0
6"	Compound	1,000	20.0
8"	Compound	1,600	32.0
10"	Propeller-Type	2,400	48.0
12"	Propeller-Type	3,375	67.5

* Source: Table B-1, Appendix B, *AWWA M1 Manual*, 6th Ed.

2.4.2.2 *Allocation of Capacity Costs to Fixed vs. Variable Revenue*

As summarized in Table 7, the COSA allocated costs to the System Parameters of Base Capacity, Extra Capacity (Max Day), and Extra Capacity (Max Hour). The rate design process then required allocation of those capacity-related costs to either the Base Monthly Charge (fixed revenue) or the Volumetric Rate (variable revenue). Considering the fact that the utility's variable costs are approximately 20% of the operating budget (driven primarily by utility costs at $1.5 million), this study sought to collect approximately 20% of its revenue from the Volumetric rates. The first step towards achieving this outcome was to assign 60% of all capacity-related costs to the Base Monthly Charge ($6.11 million). Of the 40% remaining ($4.07 million), the portion associated with Base Capacity ($2.26 million) and Extra Capacity - Max Day ($905 thousand) were further split between the Base Monthly Charge and the Volumetric Rate based on the amount of water allocated to users under the Base Monthly Charge as opposed to the amount collected through the Volumetric Rates (54.1% and 45.9% respectively, see Section 2.4.2.3). As such, an additional $1.22 million of the Base Capacity costs and $489 thousand of the Extra Capacity – Peak Day costs were designed to be collected through the Base Monthly Charge. The 40% of Extra Capacity – Peak Hour costs ($905 thousand) were designated to be collected through the Volumetric Rates.

This ultimately resulted in 78.4% of the capacity-related costs (or $7.82 million) being designated for recovery through the Base Monthly Charge.

The Base Monthly Charge was also designed to recover:

a. Customer costs ($119 thousand, see Table 7) which were allocated equally among all accounts (regardless of meter size); and
b. Meter costs ($1.36 million, see Table 7) which were allocated among all customers based on meter size (in accordance with the meter equivalency schedule).

In total the Base Monthly Charge will recover $9.29 million in costs.

Finally, the Volumetric Charge will recover the last $2.52 million of revenue requirements, made up of the remaining 21.6% in capacity-related costs (or $2.36 million) and the costs associated with Conservation ($163 thousand).

2.4.2.3 *Water Allocation*

The City's current Base Monthly Charge includes an allotment of water, above which the user must pay the Volumetric Rate. The allotment is 30 HCF for ¾" and 1" meters, 40 HCF for 1 ½" meters, and 50 HCF for meters 2" and larger. This study is recommending changes to this allocation for two reasons:

1) The average water usage for a single-family home, typically having a ¾" or 1" meter (and the most populous class of customer), is just under 20 HCF, which means that an allotment of 30 HCF results in most of those customers paying for water that they don't typical need or use.
2) The maximum allotment of 50 HCF means that customers with larger meters receive an insignificant allotment of water relative to their consumption.
3) The water allotment is paid for by the Base Monthly Charge; therefore, it stands to reason that customers with 12" meters should receive a significantly larger allocation than those with 2" meters.

This report recommends that the water allocation begin with 20 HCF for ¾" meters and increase in accordance with the meter equivalency schedule, as summarized in **Table 9**.

Table 9: Water Allocation

Meter Size	Monthly Water Allocation (HCF)
3/4"	20
1"	20
1 1/2"	40
2"	64
3"	128
4"	200
6"	400
8"	640
10"	960
12"	1,350

This change in the water allocation will result in 4.063 million HCF (54.1%) of water being provided through the base water allotment, and 3.453 million HCF (45.9%) being sold at the Volumetric Rate.

2.4.3 PROPOSED BASE MONTHLY CHARGE

Based on the analysis in Section 2.4.2.2 the total costs designated to be collected through the Base Monthly Charge for the test year is $9.29 million. Of that amount, $9.17 million is allocated to customers based on meter size and $119 thousand is allocated per account. Given that there are 25,548 equivalent meters in the system and 21,425 accounts, the resulting unit costs are as follows:

Base Monthly Charge Components

$0.46 / account

$29.93 / equivalent meter

The full schedule for the Base Monthly Charge is presented in **Table 10**. The rates for the 4-year planning horizon are presented in **Schedule 7** through **Schedule 10**.

Table 10: Base Monthly Charge (FY 2019)

Meter Size	Account Charge	Meter Charge	Total Base Monthly Charge
3/4"	$0.46	$29.93	$30.39
1"	$0.46	$29.93	$30.39
1 1/2"	$0.46	$59.86	$60.32
2"	$0.46	$95.78	$96.24
3"	$0.46	$191.55	$192.01
4"	$0.46	$299.30	$299.76
6"	$0.46	$598.60	$599.06
8"	$0.46	$957.76	$958.22
10"	$0.46	$1,436.64	$1,437.10
12"	$0.46	$2,020.28	$2,020.74

These proposed rates will modestly reduce the fixed monthly charge for the smallest meters and significantly increase the fixed monthly charge for larger meters.

2.4.4 VOLUMETRIC RATE

Based on the analysis in Section 2.4.2.2 the total costs designated to be collected through the Volumetric Rates is $2.52 million. It is expected that 3.453 million HCF will be sold at the Volumetric Rate As described in Section 2.4.2.3). Therefore, the Volumetric Rate in FY 2019 is proposed to be $0.73/HCF. The Volumetric Rates for the 4-year planning horizon are presented in **Schedule 7** through **Schedule 10**.

2.4.5 DROUGHT RATES

As seen most recently between 2011 to 2017, California can be subject to prolonged drought that results in statewide water shortages and water conservation mandates. During these drought periods, water utilities can expect to sell less water and spend more on conservation programs. And while revenues decrease during these periods, water utilities like the City of Merced will not experience a material decrease in the cost of water supply (despite delivering lower volumes) because the City doesn't purchase the water and has limited treatment costs.

As a result of the above, the City can expect to experience revenue shortfalls during significant drought periods. As a result, this Study proposes drought rates that are designed to recover the utility's cost of providing service during those drought periods. The drought rates will be "triggered" only if the City Council formally declares a Stage 3 drought, as described by the City Urban Water Management Plan (UWMP). Given that the UWMP described a Stage 3 water shortage as having a water supply reduction of 20% - 35%, this study assumes that the City's water sales would decrease by 20% during a Stage 3 water shortage event.

Using the same rate basis as described in the previous Sections, Stantec calculated the rates that would be necessary in the event that all customers reduce their water usage by 20%. The analysis did not consider the changes to the utility's O&M budget (increases to the conservation program costs or decreases to pumping and treatment costs) since the net change to costs is not clear.

Table 11 summarizes the proposed drought rates for FY 2019. The complete drought rate schedules for the 4-year planning horizon are presented in **Schedule 7** through **Schedule 10**.

Table 11: Drought Rates (FY 2019)

Meter Size	Total Base Monthly Charge
3/4"	$31.10
1"	$31.10
1 1/2"	$61.74
2"	$98.51
3"	$196.56
4"	$306.86
6"	$613.26
8"	$980.94
10"	$1,471.18
12"	$2,068.66
Volumetric Charge: $0.98 / HCF	

2.4.6 OUTSIDE CITY SURCHARGE

The City of Merced provides water service to retail customers located outside of the City's jurisdictional boundaries. That service provision has a certain level of risk and responsibility. A government-owned utility may be considered to be the property of the citizens within the city. Customers within the city are owner customers, who bear the risks and responsibilities of utility ownership. Inside-city customers cannot "walk away" from the utility, and the utility has a responsibility to develop the system to serve all customers within the jurisdictional boundaries. In contrast, outside-city and wholesale customers are non-owner customers, and as such have no risk, or different risks, from the owner customers. As a consequence, the City may receive a reasonable return on investment for its delivery of services to non-owner customers.

This study recommends calculating the reasonable return on investment on the value of the infrastructure devoted to serving the outside city customers using the methodology described by AWWA's M1 manual[8]. This so-called "utility-basis" approach is consistent with market mechanisms for capital cost recovery including recognition of business-related risks. The risks that are relevant in this case include:

a. The risk associated with the uncertainty and consequences of unplanned events that result in the inability of the City to meet its financial obligations. The City and its taxpayers are ultimately responsible for paying all operating expenses and capital costs incurred by the City's water utility. By extension, those taxpayers bear the risk of tort liability and civil penalties related to system operations and construction activities.

b. Committing debt capacity (now or in the future) to finance infrastructure serving outside-city customers may decrease the City's overall capacity to issue future debt for non-water utility purposes.

c. The extent to which infrastructure for, and delivery of, services to outside-city customers may increase risks such as the transmission of water to areas where land use development practices are not within the City's jurisdiction and which may engender higher risks of water quality degradation or pipeline failures. By extension, the City must mitigate against this risk with the use of financial instruments such as insurance.

A cost of capital analysis is the generally accepted method for determining an appropriate rate of return, as described by AWWA's M1 manual. In this case, we have considered the City's cost of debt by measuring the imbedded interest rate of outstanding debt. While the M1 manual also recommends a return on equity (which would significantly increase the surcharge on outside city customers), the City has elected to limit the rate of return to the more modest cost of capital. The interest rate on the City's 2012 Series Water Revenue Bond is 3.5%.

According to the City's asset register, the total book value of the water utility is $47.8 million. The outside city customers are served by 3.56% of the system's

[8] Chapter V.1 in the 6th Edition

equivalent meters (902 meter equivalents (MEs) out of a total of 25,299 MEs), therefore the "plant value" attributable to outside city customers is $1.703 million. Using the cost of capital (3.5% as described above), the annual surcharge from outside city customers should yield $59,636. Allocating those costs to outside city customers based on meter size and the proposed meter equivalency schedule, the monthly outside city surcharges were calculated and are presented in **Table 12**.

Table 12: Recommended Outside City Surcharge

Meter Size	Monthly Charge
3/4"	$5.51
1"	$5.51
1 1/2"	$11.03
2"	$17.64
3"	$35.28
4"	$55.13
6"	$110.25
8"	$176.40

2.4.7 PRIVATE FIRE RATES

When calculating the rates for private fire service (accounts that have a dedicated service line for fire protection), this Study first calculated the total cost of fire protection within the City's entire water system. This was accomplished by calculating the Base Capacity required by the fire system[9] and the peak capacity requirements of the water system[10]. The total cost allocated to fire protection (both public and private) was $1.007 million.

The next step was to split the total fire protection costs between the public fire system and the private fire systems. This was done by allocating the costs based

[9] The Base Capacity is also known as the average usage of water. Since fire systems don't meter water usage, this Study adopted a guideline published by AWWA that used for fire systems typically use 1% of water flows.

[10] Based on the assumption that the system was designed to be able to fight two simultaneous fires in the same pressure zone at a total flow rate of 3,000 gallons per minutes and for a total duration of 2 hours.

on the relative number of equivalent connections for each system. The public fire system is made up of 3,035 hydrants, while the network of private connections consists of 260 total connections of different sizes. The size equivalency was calculated using a Demand Factor[11] for different connection sizes similar to the meter equivalency factor described in Section 2.4.2.1. The equivalent connections total 337,829 (88.7%) for the public system and 43,154 (11.3%) private connections. This results in $114,123 being allocated to the private fire connections. **Table 13** shows the proposed monthly Private Fire Charge schedule.

Table 13: Private Fire Charges

Size of Connection	Demand Factor (1)	Proposed Monthly Charge
2"	6.19	$1.36
3"	17.98	$3.96
4"	38.32	$8.44
6"	111.31	$24.53
8"	237.21	$52.28
10"	426.58	$94.01
12"	689.04	$151.85
Fire Hydrant	68.91	$15.19

(1) Based on AWWA's practice of estimating the relative flow through pressure conduits as the diameter raised to power of 2.63.

2.4.8 BACKFLOW PREVENTION RATES

The City requires the installation of backflow prevention assemblies whenever a potential hazard is present within a consumer's premises. Backflow is the undesirable reversal of flow of non-potable water or other substances through a cross-connection and into the piping of a public water system or consumer's

[11] The Demand Factors are based on AWWA's practice of estimating the relative flow through pressure conduits as the diameter raised to power of 2.63.

potable water system. Accounts that pose a risk of backflow are required to install backflow assemblies to protect the public water supply.

The backflow program requires the City to regularly inspect and maintain backflow devices. The Study found that the Backflow Program requires 2.5 FTEs. At a burdened annual salary of $93,600 the total labor costs for the program are $234,000. The Backflow Program also requires two trucks, which represent $16,000 in depreciation expense. With a total program cost of $250,000 and 2,383 units, **the calculated monthly Backflow Prevention Rate is $8.75**.

2.5 SUMMARY OF PROPOSED RATES

This Report used methodologies that are aligned with industry standard practices for rate setting as promulgated by AWWA and all applicable laws, including California's Proposition 218. The proposed adjustments to the rates (see Section 2.2.2) will provide revenue stability and continue to equitably and proportionately recover costs from the customers. A complete schedule of rates over the 4-year planning period are summarized in Appendix C (**Schedule 7** through **Schedule 10**).

Section 3. CAPITAL FACILITY CHARGE STUDY

This Capital Facility Charge study summarizes the findings and recommendations from Stantec's independent review of the City's Capital Facility Charge for new connections to the City's water system. A Capital Facility Charge is a one-time charge paid by a new utility customer to purchase system capacity in order to join the system[12]. This Report discusses the regulatory requirements, computational methods, and the approach used to compute the proposed Capital Facility Charge schedule.

3.1 CAPITAL FACILITY CHARGES GENERALLY

Capital Facility Charges are legally referred to as "capacity charges" in California state law and are also known as "developer impact fees" and "system development charges" (among other terms). A capacity charge is a one-time fee that recovers the proportional costs associated with the system capacity necessary to serve that new customer. The primary objective of establishing a full-cost recovery capacity charge is to provide a mechanism by which new water system users can pay for the cost of the infrastructure and water resources required to serve them without burdening existing users. This is often referred to as a policy of "growth pays for growth".

It is important to distinguish between the Capital Facility Charge and connection fees. Connection fees are used to recover the costs associated with the *physical connection* of the distribution system to lateral connections and meters and can be thought of as "plumbing charges". The scope of this study is limited to a review of the Capital Facility Charge.

[12] Capital Facility Charges are also assessed to existing customers requiring increased system capacity.

3.2 APPLICABLE LAW

California enacted statutes in 1987 which created procedural and substantive requirements related to the calculation, adoption, administration and enforcement of capacity charges. The basic statutory standards governing water system capacity charges are embodied in the Mitigation Fee Act (Government Code 66000-66025). Government Code 66013 requires that capacity charges must be based on an estimate of the reasonable cost of providing capacity. Furthermore, whenever capacity charges must be paid to a utility as a condition to the approval of a development project, the utility must identify the purpose of the charge and the public facilities to be financed. Put another way, capacity charges may only recover the costs incurred to expand the utility system, which means that capacity charges cannot be used to defray the costs to repair system deficiencies.

In support of this applicable law, this Report specifically:

1. Identifies the purpose of the Capital Facility Charge;
2. Shows a reasonable relationship between the amount of the Capital Facility Charge and the cost of building new capacity to serve future customers; and
3. Identifies the uses to which the Capital Facility Charge will be put by identifying the needed facilities listed in the City's capital improvement plan (CIP).

More generally, this Report satisfies the "rational nexus" criteria that is generally applied to these types of charges by:

a. Demonstrating the connection between new development (water connections) and the need to expand or build facilities to accommodate it.
b. Not exceeding the new development's proportional share of the cost of facilities needed to serve that development; and
c. Not being arbitrary or discriminatory in the application of fees for individuals or customer classes.

3.3 EXISTING CAPACITY CHARGES

The last Capital Facility Charge study was conducted by a consultant for the City in 2012. It is appropriate to periodically update capacity charges to recognize that the cost of infrastructure changes over time. In reviewing the 2012 report, Stantec found the methodology to simply rely on the number of equivalent meters in the system to measure the system capacity. Our recommendation is to follow a more robust and engineering-based methodology for calculating the system's capacity.

A note on "Frontage Fees" – the Merced city code includes a "frontage fee" rate that is charged to certain properties depending on the location. This frontage fee is not used to pay for system capacity and is not part of this current study.

3.4 INCREMENTAL APPROACH COMPONENT

The capacity charge methods that are described by AWWA's M1 manual include:

1. **Buy-in approach** – The capacity charge is calculated to recover prior spending on infrastructure that still has reserve capacity. This approach is appropriate when a utility has excess capacity and room for new customers;
2. **Incremental approach** – The capacity charge is calculated to recover projected spending on capital projects to increase system capacity. This approach is appropriate when a utility has limited remaining capacity and must build new capacity in order to accommodate new customers.

As described in Section 3.3, this study has found that the City's water system is close to its designed capacity; therefore, the incremental approach is the appropriate methodology. The incremental approach uses cost estimates for growth-related projects in order to determine the cost of expanding the system. The cost of each project and the capacity associated with the projects allows for calculation of the unit-cost of capacity expansion. Finally, the Capital Facility Charge is established by applying the unit cost to the design capacity for new connections and scaled according to the meter equivalency schedule previously outline in **Table 8**.

3.5 CURRENT WATER SYSTEM CAPACITY

The City's 2014 Water Master Plan shows that the maximum capacity of the existing groundwater wells (based on pump tests) is 48,905[13] gallons per minute (gpm) or 70.42 million gallons per day (mgd). However, to remain conservative in the evaluation of system capacity, the City's system capacity drops to 64.66 mgd in the event that the largest pump is offline.

The current average demand of the water system is 23.1 mgd. Multiplying the average demand by the maximum hour peaking factor (2.8[14]) the peak hour demand on the pumping system reaches 64.74 mgd.

Given the fact that the maximum capacity of the groundwater pumping system (minus one pump) is nearly the same as the peak demand of the system, for purposes of this study the water system was deemed to be operating at its full capacity, and therefore the incremental approach was appropriate. This study also assumed that the groundwater pumping capacity is proportionate to the capacity of the transmission and distribution system.

3.6 GROWTH-RELATED PROJECTS

The planned growth-related capital projects for the City's water system are summarized in **Table 14**[15]. Four new wells are to be installed (Wells 20, 21, 22, & 23) with each providing approximately 2,500 gpm (or 3.6 mgd) in additional peak pumping capacity, for a total of 14.4 mgd. The increase in capacity was assumed to be the same for the transmission/distribution system.

[13] 2014 Water Master Plan, Table 3-1, AECOM

[14] 2014 Water Master Plan, Table 4-3, AECOM

[15] These projects are tentatively planned, subject to whether growth occurs.

Table 14: 5-Year Capital Improvement Program (growth projects only)

Project Name	Groundwater Pumping	Transmission / Distribution
Water Well #20	$524,812	$0
Water Meter Installation	$2,372,415	$0
Water Well 21 Bellevue & G Street	$3,823,456	$0
Well Site#2 Wellhead Treatment	$3,125,000	$0
Well Site #7 Wellhead Treatment	$2,500,000	$0
Water Well # 22 Location TBD	$2,750,000	$0
Water Well # 23 Location TBD	$2,750,000	$0
Well Sites Land Acquisition Locations TBD	$4,960,000	$0
Restricted Water Wells PTBD	$1,536,742	$0
Water Well 20 Bellevue West	$0	$132,777
12 Inch Water Main	$0	$380,000
Pressure Sustaining Valve #3	$0	$100,000
Restricted Water Main Fund PTBD	$0	$2,900,387
Total:	$21,445,198	$3,513,164

3.7 CALCULATION OF CHARGE

In order to calculate the cost of the system capacity that is attributed to new customers, the capacity associated with new customers was determined based on information provided by the City. In accordance with the City's 2014 Water Master Plan, the average residential water use (hereafter equivalent residential unit or "ERU") is 1,643 gpd[16]. For purposes of this study, 1 ERU was assumed to be equivalent to a 1" meter. Using the max day peaking factor this yielded 3,121 gpd per ERU in additional capacity needs for new connections.

To calculate the cost for providing system capacity to a new ERU, charges were calculated for both the Groundwater Pumping and the Transmission/Distribution system. It was assumed that the groundwater pumping system will be needed for

[16] Converted form 1.84 acre-feet per year for low density residential use per the 2014 Water Master Plan, Table 4-4.

average day demands (7.58 mgd) while the Transmission/Distribution system will be used for the full peak day capacity (14.40 mgd).

Dividing the average day capacity of the new pumps (7.58 mgd) by the average day demand of an ERU (1,643 gpd), resulted in 4,614 ERUs that could be served by the new pumps could serve. Dividing the capital costs associated with the Groundwater Pumping ($23.3 million) by the ERUs to be served yielded $5,276 per ERU for the groundwater pumping component of the Capital Facility Charge.

Similarly, dividing the peak day capacity of the new Transmission/Distribution system (14.40 mgd) by the peak day demand of an ERU (3,121 gpd) indicated the new transmission system could also serve 4,614 ERUs. Dividing the capital costs associated with the Transmission/Distribution system ($3.5 million) by the ERUs to be served yielded $761 per ERU for the Transmission/Distribution component of the Capital Facility Charge.

Adding these two components together produced a total charge of $6,037 per ERU. That rate is scale based on the meter equivalency schedule to establish a schedule of Capital Facility Charges for varying meter sizes (see Table 15).

Table 15: Proposed Capital Facility Charge

Meter Size	Capital Facility Charge
1"	$6,037
1.5"	$12,074
2"	$19,318
3"	$38,637
4"	$60,370
6"	$120,740
8"	$193,184
10"	$289,776
12"	$407,498

3.8 FIRE FLOW

In addition to a customer's peak demands for water consumption, the water system needs to be sized to accommodate fire flow requirements. The system's

standard fire flow requirement for a typical account is 1,500 gpm for a duration of 2 hours (in addition to the system's normal peak demand). Some accounts require either a higher flow or a longer duration, or a combination of the two (for example 2,500 gpm for a duration of 4 hours), as determined by the fire department. There are costs associated with that additional capacity, specifically in the form of larger transmission mains and increased storage.

This study recommends that the capacity associated with the standard fire flow requirement (1,500 gpm for 2 hours) be excluded from the capacity charge for the simple reason that the fire flow requirements are largely to support the public fire system (fire hydrants), which is shared by all customers and supported by water rates.

Consistent with the City's historical practice, customers that have a higher fire flow requirement will pay for the incremental cost of the extra fire flow capacity needed to serve them. This Fire Flow Charge will be based on the incremental increase in fire flow requirements above those of a "standard" account (a 1" meter). Thus, the incremental Fire Flow Charge will be calculated as follows:

$$Fire\ Flow\ Charge = \left[\left(\frac{Fire\ Flow\ Req't\ (gpm) \times\ Duration\ (hours)}{1{,}500\ gpm\ \times\ 2\ hours}\right) - 1\right] \times\ Capital\ Facility\ Charge\ for\ 1"\ Meter$$

The revenue from these fees will contribute towards the cost of system capacity associated with satisfying higher fire flow requirements (larger transmission mains and reservoirs).

3.9 INDEXING THE CAPITAL FACILITY CHARGE

The cost and value of infrastructure increases every year due to escalation/inflation. As such, Stantec recommends that the City continue to adjust the Capital Facility Charge schedule by an amount equal to the percent change in the All Urban Consumers Index, U.S. City Average (USCA), as supplied by the Bureau of Labor Statistics. The updated Capital Facility Charge should be computed as follows:

$$Capital\ Facility\ Charge = \frac{Then - current\ CPI\ Index}{2018\ CPI\ Index} x 2018\ Capital\ Facility\ Charge$$

DISCLAIMER

This document was produced by Stantec Consulting Services, Inc. ("Stantec") for the City of Merced ("City") and is based on a specific scope agreed upon by both parties. In preparing this report, Stantec utilized information and data obtained from the City or public and/or industry sources. Stantec has relied on the information and data without independent verification, except only to the extent such verification is expressly described in this document. Any projections of future conditions presented in the document are not intended as predictions, as there may be differences between forecasted and actual results, and those differences may be material.

Additionally, the purpose of this document is to summarize Stantec's analysis and findings related to this project, and it is not intended to address all aspects that may surround the subject area. Therefore, this document may have limitations, assumptions, or reliances on data that are not readily apparent on the face of it. Moreover, the reader should understand that Stantec was called on to provide judgments on a variety of critical factors which are incapable of precise measurement. As such, the use of this document and its findings by the City should only occur after consultation with Stantec, and any use of this document and findings by any other person is done so entirely at their own risk.

APPENDIX A: RSA SCHEDULES

Schedule 1 - Budgeted and Projected Cash Inflows
Schedule 2 - Budgeted and Projected Cash Outflows
Schedule 3 - Capital Improvement Program
Schedule 4 - Cash Flow Proforma

Schedule 1 – Budgeted and Projected Cash Inflows

		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
1	Water Rate Revenue	$ 12,000,000	$ 12,240,204	$ 12,735,744	$ 13,120,364	$ 13,516,599	$ 13,651,765	$ 13,788,283	$ 13,926,165	$ 14,065,427	$ 14,206,081	$ 14,348,142
2	Other Operating Income	259,769	259,769	259,769	259,769	259,769	259,769	259,769	259,769	259,769	259,769	259,769
3	Interest Income	346,669	200,034	190,394	184,742	179,806	174,250	154,765	139,312	108,088	60,415	-
4	Capital Facility Charges	911,249	1,363,659	1,346,161	1,359,622	1,373,219	1,386,951	1,400,820	1,414,828	1,428,977	1,443,267	1,457,699
5	Restricted Interest Income	272,119	35,820	29,742	24,494	35,790	30,152	16,615	19,527	22,566	25,640	28,748
6	**Total Revenue**	**$ 13,789,806**	**$ 14,099,487**	**$ 14,561,810**	**$ 14,948,992**	**$ 15,365,183**	**$ 15,502,887**	**$ 15,620,252**	**$ 15,759,602**	**$ 15,884,827**	**$ 15,995,171**	**$ 16,094,358**

Schedule 2 – Budgeted and Projected Cash Outflows

		FY 2018 Budget	FY 2019 Forecast	FY 2020 Forecast	FY 2021 Forecast	FY 2022 Forecast	FY 2023 Forecast	FY 2024 Forecast	FY 2025 Forecast	FY 2026 Forecast	FY 2027 Forecast	FY 2028 Forecast
	Water System-Enterprise Fund (557)											
1	557-1106-531.1-0 Regular Salaries	$ 2,007,204	$ 2,063,842	$ 2,148,198	$ 2,170,436	$ 2,190,882	$ 2,201,354	$ 2,261,891	$ 2,324,093	$ 2,388,006	$ 2,453,676	$ 2,521,152
2	557-1106-531.3-0 Extra Help	9,869	10,151	10,419	10,419	10,419	10,419	10,907	11,418	11,953	12,512	13,099
3	557-1106-531.4-1 Regular Overtime	95,119	97,839	100,423	100,423	100,423	100,423	105,127	110,050	115,205	120,601	126,249
4	557-1106-531.4-4 Call Back Time Worked	25,183	25,903	26,587	26,587	26,587	26,587	27,832	29,136	30,500	31,929	33,425
5	557-1106-531.10-2 Unused Sick Leave	3,524	3,625	3,721	3,721	3,721	3,721	3,895	4,078	4,269	4,469	4,678
6	557-1106-531.10-5 Retirement PERS Classic	112,708	114,890	125,212	136,996	136,996	136,996	143,413	150,130	157,161	164,522	172,228
7	557-1106-531.10-6 Social Security-OASDI	132,300	136,174	141,727	143,105	144,373	145,023	151,815	158,926	166,370	174,162	182,319
8	557-1106-531.10-7 Social Security-Medicare	31,084	31,994	33,297	33,620	33,916	34,068	35,664	37,334	39,083	40,913	42,829
9	557-1106-531.10-10 Retirement-PERS New Membr	43,392	-	194	790	2,861	2,940	3,078	3,222	3,373	3,531	3,696
10	557-1106-531.10-12 Workers Compensation	94,429	50,539	57,617	65,109	67,010	67,985	71,169	74,503	77,992	81,645	85,469
11	557-1106-531.10-17 Stand By Pay	60,917	98,171	102,070	106,134	110,370	114,785	120,161	125,789	131,681	137,848	144,305
12	557-1106-531.10-20 Earned Benefit	7,137	62,659	64,314	64,314	64,314	64,314	67,326	70,480	73,781	77,236	80,854
12	557-1106-531.10-21 Bilingual Pay Program	-	7,341	7,535	7,535	7,535	7,535	7,888	8,257	8,644	9,049	9,473
13	557-1106-531.10-23 Uniform Cleaning	9,062	9,062	9,062	9,062	9,062	9,062	9,486	9,931	10,396	10,883	11,393
14	557-1106-531.10-27 PTS Plan FICA Alternative	128	132	135	135	135	135	141	148	155	162	170
15	557-1106-531.10-33 Core Allowance	589,889	597,043	622,142	648,337	675,604	706,414	739,501	774,137	810,395	848,352	888,086
16	557-1106-531.10-35 Post Employment Benefits	45,244	54,855	58,289	62,005	66,029	70,384	73,681	77,132	80,744	84,526	88,485
17	557-1106-531.10-73 Retirement UAL Misc	210,424	254,854	305,610	344,952	395,322	440,754	461,398	483,008	505,631	529,313	554,105
19	557-1106-532.11-0 Utilities	1,490,491	1,535,206	1,581,262	1,628,700	1,677,561	1,727,888	1,779,724	1,833,116	1,888,109	1,944,753	2,003,095
20	557-1106-532.12-0 Telephone	13,982	14,401	14,834	15,279	15,737	16,209	16,695	17,196	17,712	18,243	18,791
21	557-1106-532.13-0 Postage	52,582	54,159	55,784	57,458	59,182	60,957	62,786	64,669	66,609	68,608	70,666
22	557-1106-532.14-0 Advertising	40,000	41,200	42,436	43,709	45,020	46,371	47,762	49,195	50,671	52,191	53,757
23	557-1106-532.16-0 Printing	17,888	18,425	18,977	19,547	20,133	20,737	21,359	22,000	22,660	23,340	24,040
24	557-1106-532.17-0 Professional Services	1,051,871	1,083,427	1,115,930	1,149,408	1,183,890	1,219,407	1,255,989	1,293,669	1,332,479	1,372,453	1,413,627
25	557-1106-532.18-0 Travel and Meetings	9,400	9,682	9,972	10,272	10,580	10,897	11,224	11,561	11,908	12,265	12,633
26	557-1106-532.19-0 Mileage	1,000	1,030	1,061	1,093	1,126	1,159	1,194	1,230	1,267	1,305	1,344
27	557-1106-532.20-0 Training Expense	15,400	15,862	16,338	16,828	17,333	17,853	18,388	18,940	19,508	20,094	20,696
28	557-1106-532.21-0 Rents/Leases	1,520	1,566	1,613	1,661	1,711	1,762	1,815	1,869	1,925	1,983	2,043
29	557-1106-532.23-0 Vehicle Operations/Maint	250,925	258,453	266,206	274,193	282,418	290,891	299,618	308,606	317,864	327,400	337,222
30	557-1106-532.24-0 Memberships, Subscription	19,519	20,105	20,708	21,329	21,969	22,628	23,307	24,006	24,726	25,468	26,232
31	557-1106-532.25-0 Maintenance Matls & Svcs	608,841	627,106	645,919	665,297	685,256	705,814	726,988	748,798	771,262	794,399	818,231
32	557-1106-532.26-0 Other Equipment O & M	65,009	66,959	68,968	71,037	73,168	75,363	77,624	79,953	82,351	84,822	87,367
33	557-1106-532.27-0 Small Tools	14,171	14,596	15,034	15,485	15,950	16,428	16,921	17,429	17,951	18,490	19,045
34	557-1106-532.28-0 Safety Supplies	29,396	30,278	31,186	32,122	33,085	34,078	35,100	36,153	37,238	38,355	39,506
35	557-1106-532.29-0 Other Materials Supplies	244,315	251,644	259,194	266,970	274,979	283,228	291,725	300,477	309,491	318,776	328,339
36	557-1106-532.30-1 Dept Share of Insurance	114,187	117,613	121,141	124,775	128,518	132,374	136,345	140,436	144,649	148,988	153,458
37	557-1106-532.32-0 Vehicle Replacement Fee	318,834	328,399	338,251	348,399	358,850	369,616	380,704	392,126	403,889	416,006	428,486
38	557-1106-532.35-84 Retro Fee Expense	156	161	166	170	176	181	186	192	198	204	210
39	557-1106-532.38-0 Support Services	124,297	128,026	131,867	135,823	139,897	144,094	148,417	152,870	157,456	162,179	167,045
40	557-1106-532.45-0 Facilities Maint Charge	64,637	66,576	68,573	70,631	72,750	74,932	77,180	79,495	81,880	84,337	86,867
41	557-1106-532.46-0 Computer Replacement Chrg	28,286	29,135	30,009	30,909	31,836	32,791	33,775	34,788	35,832	36,907	38,014
42	557-1106-533.43-0 Machinery/Equipment	40,000	41,200	42,436	43,709	45,020	46,371	47,762	49,195	50,671	52,191	53,757
43	557-1106-534.91-1 Adm Exp-City Manager	99,171	102,146	105,211	108,367	111,618	114,966	118,415	121,968	125,627	129,396	133,278
44	557-1106-534.91-2 Adm Exp-City Attorney	26,365	27,156	27,971	28,810	29,674	30,564	31,481	32,426	33,398	34,400	35,432
45	557-1106-534.91-3 Adm Exp-City Clerk	40,609	41,827	43,082	44,375	45,706	47,077	48,489	49,944	51,442	52,986	54,575
46	557-1106-534.91-9 Adm Exp-Finance	263,705	271,616	279,765	288,158	296,802	305,706	314,878	324,324	334,054	344,075	354,397
47	557-1106-534.91-10 Adm Exp-Purchasing	32,074	33,036	34,027	35,048	36,100	37,183	38,298	39,447	40,630	41,849	43,105
48	557-1106-534.91-11 Adm Exp-Public Works	156,581	161,278	166,117	171,100	176,233	181,520	186,966	192,575	198,352	204,303	210,432
49	557-1106-534.91-16 Adm Exp-City Council	27,192	28,008	28,848	29,713	30,605	31,523	32,469	33,443	34,446	35,479	36,544
50	557-1106-535.92-1 Interdept DSC-General Fnd	654,950	674,599	694,836	715,682	737,152	759,267	782,045	805,506	829,671	854,561	880,198
51	557-1106-535.92-17 Interdept DSC-Develop Svc	470,930	485,058	499,610	514,598	530,036	545,937	562,315	579,184	596,560	614,457	632,891
52	557-1106-535.92-29 Interdept DSC-Pub Works	99,409	102,391	105,463	108,627	111,886	115,242	118,700	122,261	125,928	129,706	133,597
53	557-1106-535.92-53 Interdept DSC-Wastewater	159	164	169	174	179	184	190	196	201	207	214
54	557-1106-535.92-72 Interdept DSC-Supprt Sr	83,827	86,342	88,932	91,600	94,348	97,178	100,094	103,097	106,190	109,375	112,656
55	557-701-706.73-1 Agent Fees-Bond Payment	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
56	Backflow Program Staff Increase	-	234,073	246,480	254,033	261,283	267,666	275,027	282,590	290,362	298,347	306,551
57	**Total Operations & Maintenance Expenses**	**$ 1,790,827**	**2,078,565**	**2,146,246**	**2,210,733**	**2,276,624**	**2,343,407**	**2,412,980**	**2,484,622**	**2,558,394**	**2,634,360**	**2,712,585**
	Long-Term Debt Service Payments:											
58	Existing Debt Service	$ 737,390	744,851	756,223	761,507	765,803	761,955	769,363	766,126	257,001	262,844	256,242
59	Cumulative New Debt Service	-	-	-	-	-	-	-	-	-	-	-
60	**Total Long-Term Debt Service Payments**	**$ 737,390**	**744,851**	**756,223**	**761,507**	**765,803**	**761,955**	**769,363**	**766,126**	**257,001**	**262,844**	**256,242**
	Transfers											
61	Transfers Out	$ 250,000	$ 787,448	$ -	$ 289,170	$ 304,466	$ -	$ 330,931	$ 290,931	$ -	$ 289,655	$ -
62	**Transfers Total**	**$ 250,000**	**787,448**	**-**	**289,170**	**304,466**	**-**	**330,931**	**290,931**	**-**	**289,655**	**-**
63	**TOTAL CASH OUTFLOWS**	**$ 2,806,503**	**$ 3,639,998**	**$ 2,932,478**	**$ 3,292,319**	**$ 3,378,729**	**$ 3,138,153**	**$ 3,547,049**	**$ 3,576,467**	**$ 2,851,227**	**$ 3,223,766**	**$ 3,006,841**

Schedule 3 – Capital Improvement Program (R&R projects only)

		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
1	Water Supply Plan	55,983	-	-	-	-	-	-	-	-	-	-
2	PCE Sampling and Testing	21,872	-	-	-	-	-	-	-	-	-	-
3	MTBE Litigation	29,234	-	-	-	-	-	-	-	-	-	-
4	Well #3 Wellhead Treatment	4,346	-	-	-	-	-	-	-	-	-	-
5	Well #7 Wellhead Treatment	10,000	-	-	-	-	-	-	-	-	-	-
6	Well Pump Enclosure	300,000	-	-	-	-	-	-	-	-	-	-
7	Easement Line and Service Replacement	150,000	-	-	-	-	-	-	-	-	-	-
8	Nitrate and Arsenic Analysis	100,000	-	-	-	-	-	-	-	-	-	-
9	REG Water Mgmt Programs	261,510	-	-	-	-	-	-	-	-	-	-
10	Technology Enhancements	4,480	-	-	-	-	-	-	-	-	-	-
11	Security System Improvements	31,152	-	-	-	-	-	-	-	-	-	-
12	Merced Roadway - R St	345,044	-	-	-	-	-	-	-	-	-	-
13	Well #3C Clean -UP	63,902	-	-	-	-	-	-	-	-	-	-
14	Well Site #1 Ladder repair	8,000	-	-	-	-	-	-	-	-	-	-
15	Sewer Main Repl -21st/22nd	40	-	-	-	-	-	-	-	-	-	-
16	GIS Survey Monuments	16,792	-	-	-	-	-	-	-	-	-	-
17	Elevated Tanks Assessment	150,000	-	-	-	-	-	-	-	-	-	-
18	North PW Station	150,000	-	-	-	-	-	-	-	-	-	-
19	Black Rascal Consolidation	50,000	-	-	-	-	-	-	-	-	-	-
20	Well Site 3 Tank Removal	147,000	-	-	-	-	-	-	-	-	-	-
21	Well Site 3 A/C Improvements	6,000	-	-	-	-	-	-	-	-	-	-
22	Gateway Terrace II Apts	255,362	-	-	-	-	-	-	-	-	-	-
23	EPA Emergency Generators @ Well Sites	1,500,000	-	-	-	-	-	-	-	-	-	-
24	Well Site 8 - Site Work	60,000	-	-	-	-	-	-	-	-	-	-
25	Well Site 2 & 7 - Site Work	400,000	-	-	-	-	-	-	-	-	-	-
26	Disinfect Byproducts	-	250,000	-	-	-	-	-	-	-	-	-
27	SCADA Expansion and Maintenance	-	100,000	-	-	-	-	-	-	-	-	-
28	Water Main Oversizing	-	50,000	-	-	-	-	-	-	-	-	-
29	Pave Well Sites	-	100,000	-	-	-	-	-	-	-	-	-
30	Parkway Cleaners Pilot Program	-	200,000	-	-	-	-	-	-	-	-	-
31	Water Storage Tanks	-	250,000	-	-	-	-	-	-	-	-	-
32	Groundwater Remediation	-	250,000	-	-	-	-	-	-	-	-	-
33	Campus Parkway Water Main Crossing	-	1,300,000	-	-	-	-	-	-	-	-	-
34	Water Main Looping At Lake Road	-	1,250,000	-	-	-	-	-	-	-	-	-
35	Water Storage Tank & Booster Pump Station #1	-	-	-	2,730,000	-	-	-	-	-	-	-
36	Water Storage Tank & Booster Pump Station #2	-	-	-	-	-	455,000	455,000	455,000	455,000	455,000	455,000
37	Water Storage Tank & Booster Pump Station #3	-	-	-	-	-	455,000	455,000	455,000	455,000	455,000	455,000
39	Water System Fund PTBD	218,598	-	-	-	-	-	-	-	-	-	-
40	Public Works Corporate Yard	-	-	25,991	389,870	-	1,039,653	-	-	-	-	-
42	Two New Trucks at $40K each	-	80,000	-	-	-	-	-	-	-	-	-
43	New Step-In Van for Backflow Program	-	80,000	-	-	-	-	-	-	-	-	-
44	Citywide computer and financial system	-	107,111	126,585	126,585	126,585	-	-	-	-	-	-
Total CIP Budget (Current $)		**$ 4,339,315**	**$ 4,017,111**	**$ 152,576**	**$ 3,246,455**	**$ 126,585**	**$ 1,949,653**	**$ 910,000**	**$ 910,000**	**$ 910,000**	**$ 910,000**	**$ 910,000**
Annual Adjustment for Compounded Cost Escalation		$ 4,339,315	$ 4,137,624	$ 161,868	$ 3,547,489	$ 142,473	$ 2,260,182	$ 1,086,588	$ 1,119,185	$ 1,152,761	$ 1,187,344	$ 1,222,964

Schedule 4 – Cash Flow Proforma

		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
1	**Rate Revenue Increase**	**0.00%**	**2.00%**	**2.00%**	**2.00%**	**2.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
	Revenues											
2	Rate Revenue Before Adjustments	$ 12,000,000	$ 12,120,000	$ 12,365,820	$ 12,493,178	$ 12,624,381	$ 12,759,547	$ 12,896,065	$ 13,033,948	$ 13,173,209	$ 13,313,864	$ 13,455,924
3	Additional Rate Revenue From Rate Adj	-	120,204	369,924	627,186	892,218	892,218	892,218	892,218	892,218	892,218	892,218
4	Other Operating Revenues	259,769	259,769	259,769	259,769	259,769	259,769	259,769	259,769	259,769	259,769	259,769
5	Interest Income	346,669	200,034	190,394	184,742	179,806	174,250	154,765	139,312	108,088	60,415	-
6	**Total Revenues**	**$ 12,606,438**	**$ 12,700,007**	**$ 13,185,907**	**$ 13,564,875**	**$ 13,956,174**	**$ 14,085,784**	**$ 14,202,817**	**$ 14,325,247**	**$ 14,433,284**	**$ 14,526,265**	**$ 14,607,911**
	Operating Expenses											
7	Salaries and Benefits	$ 3,477,613	$ 3,853,147	$ 4,063,032	$ 4,187,713	$ 4,306,842	$ 4,410,565	$ 4,569,400	$ 4,734,361	$ 4,905,700	$ 5,083,677	$ 5,268,566
8	Supplies and Professional Services	5,083,188	5,235,624	5,392,632	5,554,351	5,720,922	5,892,490	6,069,204	6,251,220	6,438,697	6,631,798	6,830,692
9	Utilities	1,490,491	1,535,206	1,581,262	1,628,700	1,677,561	1,727,888	1,779,724	1,833,116	1,888,109	1,944,753	2,003,095
10	**Total Operating Expenses**	**$ 10,051,292**	**$ 10,623,976**	**$ 11,036,926**	**$ 11,370,764**	**$ 11,705,325**	**$ 12,030,942**	**$ 12,418,328**	**$ 12,818,697**	**$ 13,232,506**	**$ 13,660,227**	**$ 14,102,353**
11	**Net Revenues**	**$ 2,555,146**	**$ 2,076,031**	**$ 2,148,981**	**$ 2,194,111**	**$ 2,250,850**	**$ 2,054,842**	**$ 1,784,489**	**$ 1,506,549**	**$ 1,200,778**	**$ 866,038**	**$ 505,558**
12	Existing Debt Service	$ 737,390	$ 744,851	$ 756,223	$ 761,507	$ 765,803	$ 761,955	$ 769,363	$ 766,126	$ 257,001	$ 262,844	$ 256,242
13	New Debt Service	-	-	-	-	-	-	-	-	-	-	-
14	Total Capital Spending	31,727,325	5,579,624	3,079,343	4,825,979	142,473	7,851,747	3,562,256	3,669,124	6,312,738	6,502,120	21,151,004
14	Debt Service Paid w Univ. Capital Char	209,890	218,451	226,623	234,407	241,803	236,755	243,763	238,326	257,001	262,844	256,242
15	Cash-funded Capital (Rate Revenue)	4,365,652	4,137,624	161,868	3,547,489	142,473	3,520,126	2,144,832	2,254,202	4,883,760	5,058,853	19,693,305
16	Cash-funded with Capital Facility Charg	25,018,940	1,442,000	2,917,475	1,278,491	-	4,331,621	1,417,424	1,414,922	1,428,977	1,443,267	1,457,699
17	Cash-funded with Other Funds	2,342,733	-	-	-	-	-	-	-	-	-	-
17	Capital Projects Paid with Debt Proceed	-	-	-	-	-	-	-	-	-	-	-
18	Balance of Transfer (In)/Out	(91,864)	(289,655)	(289,655)	(289,655)	(289,655)	(289,655)	(289,655)	(289,655)	(289,655)	(289,655)	(289,655)
19	**Revenues Over (Under) Expenses**	**$ (2,429,870)**	**$ (2,877,649)**	**$ 1,167,858**	**$ (2,170,133)**	**$ 1,294,722**	**$ (2,280,140)**	**$ (1,175,599)**	**$ (1,565,107)**	**$ (3,972,637)**	**$ (4,482,470)**	**$ (19,477,401)**
20	Operating Fund - Beginning Balance	$ 21,607,222	$ 19,177,352	$ 16,299,703	$ 17,467,561	$ 15,297,428	$ 16,592,150	$ 14,312,011	$ 13,136,412	$ 11,571,304	$ 7,598,667	$ 3,116,197
21	**Operating Fund - Ending Balance**	**19,177,352**	**16,299,703**	**17,467,561**	**15,297,428**	**16,592,150**	**14,312,011**	**13,136,412**	**11,571,304**	**7,598,667**	**3,116,197**	**(16,361,204)**
22	Operating Fund - Target Reserves	$ 10,025,646	$ 10,386,988	$ 10,669,588	$ 10,913,774	$ 11,159,480	$ 11,401,891	$ 11,676,381	$ 11,958,573	$ 12,248,716	$ 12,547,064	$ 12,853,881
23	Debt Service Cove (1.5 Req.)	3.47	2.79	2.84	2.88	2.94	2.70	2.32	1.97	4.67	3.29	1.97

APPENDIX B: COST-OF-SERVICE SCHEDULES

Schedule 5 – Allocation of Costs to Functional Components

Schedule 6 – Allocation of Costs to System Parameters

Schedule 5 – Allocation of Costs to Functional Components 1 of 2

		General & Admin	Groundwater Pumping	Treatment	Trans & Dist	Storage	Customer Service	Meters & Services	Conservation
		$ Allocation							
1	**Operating Costs**								
2	557-1106-531.1-0 Regular Salaries	$403,439	$157,593	$157,593	$1,071,635	$0	$21,433	$189,112	$63,037
3	557-1106-531.3-0 Extra Help	$1,984	$775	$775	$5,271	$0	$105	$930	$310
4	557-1106-531.4-1 Regular Overtime	$19,126	$7,471	$7,471	$50,802	$0	$1,016	$8,965	$2,988
5	557-1106-531.4-4 Call Back Time Worked	$5,064	$1,978	$1,978	$13,450	$0	$269	$2,374	$791
6	557-1106-531.10-2 Unused Sick Leave	$709	$277	$277	$1,882	$0	$38	$332	$111
7	557-1106-531.10-5 Retirement PERS Classic	$22,459	$8,773	$8,773	$59,656	$0	$1,193	$10,527	$3,509
8	557-1106-531.10-6 Social Security-OASDI	$26,619	$10,398	$10,398	$70,707	$0	$1,414	$12,478	$4,159
9	557-1106-531.10-7 Social Security-Medicare	$6,254	$2,443	$2,443	$16,613	$0	$332	$2,932	$977
10	557-1106-531.10-12 Workers Compensation	$9,879	$3,859	$3,859	$26,242	$0	$525	$4,631	$1,544
11	557-1106-531.10-17 Stand By Pay	$19,190	$7,496	$7,496	$50,975	$0	$1,019	$8,996	$2,999
12	557-1106-531.10-20 Earned Benefit	$12,249	$4,785	$4,785	$32,535	$0	$651	$5,742	$1,914
13	557-1106-531.10-21 Bilingual Pay Program	$1,435	$561	$561	$3,812	$0	$76	$673	$224
14	557-1106-531.10-23 Uniform Cleaning	$1,771	$692	$692	$4,705	$0	$94	$830	$277
15	557-1106-531.10-27 PTS Plan FICA Alternative	$26	$10	$10	$69	$0	$1	$12	$4
16	557-1106-531.10-33 Core Allowance	$116,710	$45,590	$45,590	$310,010	$0	$6,200	$54,708	$18,236
17	557-1106-531.10-35 Post Employment Benefits	$10,723	$4,189	$4,189	$28,483	$0	$570	$5,026	$1,675
18	557-1106-531.10-73 Retirement UAL Misc	$49,819	$19,460	$19,460	$132,331	$0	$2,647	$23,353	$7,784
19	557-1106-532.11-0 Utilities	$0	$1,535,206	$0	$0	$0	$0	$0	$0
20	557-1106-532.12-0 Telephone	$2,815	$1,100	$1,100	$7,478	$0	$150	$1,320	$440
21	557-1106-532.13-0 Postage	$0	$0	$0	$0	$0	$54,159	$0	$0
22	557-1106-532.14-0 Advertising	$41,200	$0	$0	$0	$0	$0	$0	$0
23	557-1106-532.16-0 Printing	$0	$0	$0	$0	$0	$18,425	$0	$0
24	557-1106-532.17-0 Professional Services	$0	$216,685	$108,343	$487,542	$108,343	$0	$162,514	$0
25	557-1106-532.18-0 Travel and Meetings	$1,893	$739	$739	$5,027	$0	$101	$887	$296
26	557-1106-532.19-0 Mileage	$0	$103	$103	$700	$0	$0	$124	$0
27	557-1106-532.20-0 Training Expense	$0	$1,586	$1,586	$10,786	$0	$0	$1,903	$0
28	557-1106-532.21-0 Rents/Leases	$1,566	$0	$0	$0	$0	$0	$0	$0
29	557-1106-532.23-0 Vehicle Operations/Maint	$0	$25,845	$25,845	$175,748	$0	$0	$31,014	$0
30	557-1106-532.24-0 Memberships, Subscription	$3,930	$1,535	$1,535	$10,439	$0	$209	$1,842	$614
31	557-1106-532.25-0 Maintenance Matls & Svcs	$0	$62,711	$62,711	$426,432	$0	$0	$75,253	$0
32	557-1106-532.26-0 Other Equipment O & M	$0	$6,696	$6,696	$45,532	$0	$0	$8,035	$0
33	557-1106-532.27-0 Small Tools	$0	$1,460	$1,460	$9,925	$0	$0	$1,752	$0
34	557-1106-532.28-0 Safety Supplies	$0	$3,028	$3,028	$20,589	$0	$0	$3,633	$0
35	557-1106-532.29-0 Other Materials Supplies	$0	$25,164	$25,164	$171,118	$0	$0	$30,197	$0
36	557-1106-532.30-1 Dept Share of Insurance	$0	$11,761	$11,761	$79,977	$0	$0	$14,114	$0
37	557-1106-532.32-0 Vehicle Replacement Fee	$0	$32,840	$32,840	$223,311	$0	$0	$39,408	$0
38	557-1106-532.35-84 Retro Fee Expense	$0	$16	$16	$109	$0	$0	$19	$0
39	557-1106-532.38-0 Support Services	$0	$12,803	$12,803	$87,058	$0	$0	$15,363	$0
40	557-1106-532.45-0 Facilities Maint Charge	$66,576	$0	$0	$0	$0	$0	$0	$0

Schedule 5 – Allocation of Costs to Functional Components 2 of 2

		General & Admin	Groundwater Pumping	Treatment	Trans & Dist	Storage	Customer Service	Meters & Services	Conservation
					$ Allocation				
1	**Operating Costs**								
41	557-1106-532.46-0 Computer Replacement Chrg	$5,695	$2,225	$2,225	$15,128	$0	$303	$2,670	$890
42	557-1106-533.43-0 Machinery/Equipment	$8,054	$3,146	$3,146	$21,393	$0	$428	$3,775	$1,258
43	557-1106-534.91-1 Adm Exp-City Manager	$19,967	$7,800	$7,800	$53,039	$0	$1,061	$9,360	$3,120
44	557-1106-534.91-2 Adm Exp-City Attorney	$5,308	$2,074	$2,074	$14,101	$0	$282	$2,488	$829
45	557-1106-534.91-3 Adm Exp-City Clerk	$8,176	$3,194	$3,194	$21,718	$0	$434	$3,833	$1,278
46	557-1106-534.91-9 Adm Exp-Finance	$53,095	$20,740	$20,740	$141,035	$0	$2,821	$24,888	$8,296
47	557-1106-534.91-10 Adm Exp-Purchasing	$6,458	$2,523	$2,523	$17,154	$0	$343	$3,027	$1,009
48	557-1106-534.91-11 Adm Exp-Public Works	$31,527	$12,315	$12,315	$83,743	$0	$1,675	$14,778	$4,926
49	557-1106-534.91-16 Adm Exp-City Council	$5,475	$2,139	$2,139	$14,543	$0	$291	$2,566	$855
50	557-1106-535.92-1 Interdept DSC-General Fnd	$131,870	$51,512	$51,512	$350,280	$0	$7,006	$61,814	$20,605
51	557-1106-535.92-17 Interdept DSC-Develop Svc	$94,819	$37,039	$37,039	$251,863	$0	$5,037	$44,446	$14,815
52	557-1106-535.92-29 Interdept DSC-Pub Works	$20,015	$7,819	$7,819	$53,166	$0	$1,063	$9,382	$3,127
53	557-1106-535.92-53 Interdept DSC-Wastewater	$32	$13	$13	$85	$0	$2	$15	$5
54	557-1106-535.92-72 Interdept DSC-Supprt Sr	$16,878	$6,593	$6,593	$44,832	$0	$897	$7,912	$2,637
55	557-701-706.73-1 Agent Fees-Bond Payment	$391	$153	$153	$1,038	$0	$21	$183	$61
56	Backflow Program Staff Increase	$234,073	$0	$0	$0	$0	$0	$0	$0
57	Total Operations	$1,467,269	$2,374,909	$731,361	$4,724,067	$108,343	$132,289	$910,136	$175,602
	Existing Debt Service								
58		$0	$105,280	$52,640	$236,880	$52,640	$0	$78,960	$0
59	Existing Debt Service Total	$0	$105,280	$52,640	$236,880	$52,640	$0	$78,960	$0
	Transfers								
60	Trsf-Downtown Maint (120)	$7	$3	$3	$19	$0	$0	$3	$1
61	Trsf-Davenport Ranch(143)	$335	$131	$131	$889	$0	$18	$157	$52
62	Trsf-PCE CleanUp Cip(463)	$48,870	$19,090	$19,090	$129,811	$0	$2,596	$22,908	$7,636
63	Trsf-Liability Insur(667)	$7,410	$2,894	$2,894	$19,682	$0	$394	$3,473	$1,158
64	Transfers Subtotal	$56,622	$22,118	$22,118	$150,401	$0	$3,008	$26,541	$8,847
	Capital Projects								
65	Projects designated to be paid by Revenue Fund	$0	$827,525	$413,762	$1,861,931	$413,762	$0	$620,644	$0
66	Capital Projects Subtotal	$0	$827,525	$413,762	$1,861,931	$413,762	$0	$620,644	$0
	Total Summary								
67	Sum of Operating Expenses & Transfers	$1,523,890	$2,397,027	$753,479	$4,874,468	$108,343	$135,297	$936,677	$184,449
68	Sum of Existing Debt Service	$0	$105,280	$52,640	$236,880	$52,640	$0	$78,960	$0
69	Sum of Capital Projects	$0	$827,525	$413,762	$1,861,931	$413,762	$0	$620,644	$0
70	Total Revenue Requirements	$1,523,890	$3,329,832	$1,219,881	$6,973,279	$574,745	$135,297	$1,636,281	$184,449
71	% Allocation	9.78%	21.38%	7.83%	44.77%	3.69%	0.87%	10.50%	1.18%

Schedule 6 – Allocation of Costs to System Parameters 1 of 2

			System Parameter					
			Base Capacity (Annual Use)	Extra Capacity (Max Day)	Extra Capacity (Peak Hour)	Conservation	Customers	Meter Size
1	Total System Metrics:		7,445,233	16,318	20,398	7,445,233	21,217	25,299
2			HCF	Max Day	Max Hour	HCF	Accounts	EM
	Operating Expenses							
3	Groundwater Pumping	$2,786,048	$2,786,048	$0	$0	$0	$0	$0
4	Treatment	875,763	486,535	389,228	-	-	-	-
5	Trans & Dist	5,665,561	2,023,415	1,618,732	2,023,415	-	-	-
6	Storage	125,926	44,974	35,979	44,974	-	-	-
7	Customer Service	157,255	-	-	-	-	157,255	-
8	Meters & Services	1,088,694	-	-	-	-	-	1,088,694
9	Conservation	214,384	-	-	-	214,384	-	-
10	Total Costs	$10,913,631	$5,340,972	$2,043,939	$2,068,388	$214,384	$157,255	$1,088,694
11	*% Allocation*		*48.9%*	*18.7%*	*19.0%*	*2.0%*	*1.4%*	*10.0%*
12	Unit Cost of Service		$0.72	$125.25	$101.40	$0.03	$7.41	$43.03
13	(Unit of measure)		(per HCF)	(per HCF)	(per HCF)	(per HCF)	(per Account)	(per EM)
14	Groundwater Pumping		$0.37	$0.00	$0.00	$0.00	$0.00	$0.00
15	Treatment		$0.07	$23.85	$0.00	$0.00	$0.00	$0.00
16	Trans & Dist		$0.27	$99.20	$99.20	$0.00	$0.00	$0.00
17	Storage		$0.01	$2.20	$2.20	$0.00	$0.00	$0.00
18	Customer Service		$0.00	$0.00	$0.00	$0.00	$7.41	$0.00
19	Meters & Services		$0.00	$0.00	$0.00	$0.00	$0.00	$43.03
20	Conservation		$0.00	$0.00	$0.00	$0.03	$0.00	$0.00
0								
	Debt Service							
21	Groundwater Pumping	$ 105,280	$ 105,280	$ -	$ -	$ -	$ -	$ -
22	Treatment	52,640	29,244	23,396	-	-	-	-
23	Trans & Dist	236,880	84,600	67,680	84,600	-	-	-
24	Storage	52,640	18,800	15,040	18,800	-	-	-
25	Customer Service	-	-	-	-	-	-	-
26	Meters & Services	78,960	-	-	-	-	-	78,960
27	Conservation	-	-	-	-	-	-	-
28	Total Costs	$ 526,400	$ 237,924	$ 106,116	$ 103,400	$ -	$ -	$ 78,960
29	% Distribution		45.2%	20.2%	19.6%	0.0%	0.0%	15.0%
30	Unit Cost of Service		$0.03	$6.50	$5.07	$0.00	$0.00	$3.12
31	(Unit of measure)		(per HCF)	(per HCF)	(per HCF)	(per HCF)	(per Account)	(per EM)
32	Groundwater Pumping		$0.01	$0.00	$0.00	$0.00	$0.00	$0.00
33	Treatment		$0.00	$1.43	$0.00	$0.00	$0.00	$0.00
34	Trans & Dist		$0.01	$4.15	$4.15	$0.00	$0.00	$0.00
35	Storage		$0.00	$0.92	$0.92	$0.00	$0.00	$0.00
36	Customer Service		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
37	Meters & Services		$0.00	$0.00	$0.00	$0.00	$0.00	$3.12
38	Conservation		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Schedule 6 – Allocation of Costs to System Parameters 2 of 2

			System Parameter					
			Base Capacity (Annual Use)	Extra Capacity (Max Day)	Extra Capacity (Peak Hour)	Conservation	Customers	Meter Size
1	Total System Metrics:		7,445,233	16,318	20,398	7,445,233	21,217	25,299
2			HCF	Max Day	Max Hour	HCF	Accounts	EM
	Cash Funded Capital							
39	Groundwater Pumping	$ 827,525	$ 827,525	$ -	$ -	$ -	$ -	$ -
40	Treatment	413,762	229,868	183,894	-	-	-	-
41	Trans & Dist	1,861,931	664,975	531,980	664,975	-	-	-
42	Storage	413,762	147,772	118,218	147,772	-	-	-
43	Customer Service	-	-	-	-	-	-	-
44	Meters & Services	620,644	-	-	-	-	-	620,644
45	Conservation	-	-	-	-	-	-	-
46	Total Costs	$ 4,137,624	$ 1,870,141	$ 834,093	$ 812,748	$ -	$ -	$ 620,644
47	% Distribution		45.2%	20.2%	19.6%	0.0%	0.0%	15.0%
48	Unit Cost of Service		$0.25	$51.11	$39.84	$0.00	$0.00	$24.53
49	(Unit of measure)		(per HCF)	(per HCF)	(per HCF)	(per HCF)	(per Account)	(per EM)
50	Groundwater Pumping		$0.11	$0.00	$0.00	$0.00	$0.00	$0.00
51	Treatment		$0.03	$11.27	$0.00	$0.00	$0.00	$0.00
52	Trans & Dist		$0.09	$32.60	$32.60	$0.00	$0.00	$0.00
53	Storage		$0.02	$7.24	$7.24	$0.00	$0.00	$0.00
54	Customer Service		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
55	Meters & Services		$0.00	$0.00	$0.00	$0.00	$0.00	$24.53
56	Conservation		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	Summary Totals	**Total Costs**			**Unit Costs**			
57	Operating	$ 10,913,631	$0.72	$125.25	$101.40	$0.03	$7.41	$43.03
58	Debt Service	526,400	$0.03	$6.50	$5.07	$0.00	$0.00	$3.12
59	Rate Funded Capital	4,137,624	$0.25	$51.11	$39.84	$0.00	$0.00	$24.53
60	Total	$ 15,577,655	$1.00	$182.87	$146.32	$0.03	$7.41	$70.69

APPENDIX C: PROPOSED RATE SCHEDULES

Schedule 7 – Proposed Rates effective January 1, 2019
Schedule 8 – Proposed Rates effective July 1, 2019
Schedule 9 – Proposed Rates effective July 1, 2020
Schedule 10 – Proposed Rates effective July 1, 2021

Schedule 7 – Proposed Rates effective January 1, 2019

Water Rates

Meter Size	Total Base Monthly Charge
3/4"	$30.39
1"	$30.39
1 1/2"	$60.32
2"	$96.24
3"	$192.01
4"	$299.76
6"	$599.06
8"	$958.22
10"	$1,437.10
12"	$2,020.74
Volumetric Charge: $0.73 / HCF	

Outside City Surcharge

Meter Size	Monthly Charge
3/4"	$5.51
1"	$5.51
1 1/2"	$11.03
2"	$17.64
3"	$35.28
4"	$55.13
6"	$110.25
8"	$176.40

Backflow Prevention Charge

$8.75 per month

Private Fire Service

Size of Connection	Monthly Charge
2"	$1.36
3"	$3.96
4"	$8.44
6"	$24.53
8"	$52.28
10"	$94.01
12"	$151.85
Fire Hydrant	$15.19

Drought Rates

Meter Size	Total Base Monthly Charge
3/4"	$31.10
1"	$31.10
1 1/2"	$61.74
2"	$98.51
3"	$196.56
4"	$306.86
6"	$613.26
8"	$980.94
10"	$1,471.18
12"	$2,068.66
Volumetric Charge: $0.98 / HCF	

Schedule 8 – Proposed Rates effective July 1, 2019

Water Rates

Meter Size	Total Base Monthly Charge
3/4"	$31.00
1"	$31.00
1 1/2"	$61.53
2"	$98.16
3"	$195.85
4"	$305.76
6"	$611.04
8"	$977.38
10"	$1,465.84
12"	$2,061.15
Volumetric Charge: $0.74/ HCF	

Outside City Surcharge

Meter Size	Monthly Charge
3/4"	$5.62
1"	$5.62
1 1/2"	$11.25
2"	$17.99
3"	$35.99
4"	$56.23
6"	$112.46
8"	$179.93

Backflow Prevention Charge

$8.93 per month

Private Fire Service

Size of Connection	Monthly Charge
2"	$1.39
3"	$4.04
4"	$8.61
6"	$25.02
8"	$53.33
10"	$95.89
12"	$154.89
Fire Hydrant	$15.49

Drought Rates

Meter Size	Total Base Monthly Charge
3/4"	$31.72
1"	$31.72
1 1/2"	$62.97
2"	$100.48
3"	$200.49
4"	$313.00
6"	$625.53
8"	$1,000.56
10"	$1,500.60
12"	$2,110.03
Volumetric Charge: $1.00 / HCF	

Schedule 9 – Proposed Rates effective July 1, 2020

Water Rates

Meter Size	Total Base Monthly Charge
3/4"	$31.62
1"	$31.62
1 1/2"	$62.76
2"	$100.12
3"	$199.77
4"	$311.88
6"	$623.26
8"	$996.93
10"	$1,495.16
12"	$2,102.37
Volumetric Charge: $0.75 / HCF	

Outside City Surcharge

Meter Size	Monthly Charge
3/4"	$5.73
1"	$5.73
1 1/2"	$11.48
2"	$18.35
3"	$36.71
4"	$57.35
6"	$114.71
8"	$183.53

Backflow Prevention Charge

$9.11 per month

Private Fire Service

Size of Connection	Monthly Charge
2"	$1.42
3"	$4.12
4"	$8.78
6"	$25.52
8"	$54.40
10"	$97.81
12"	$157.99
Fire Hydrant	$15.80

Drought Rates

Meter Size	Total Base Monthly Charge
3/4"	$32.35
1"	$32.35
1 1/2"	$64.23
2"	$102.49
3"	$204.50
4"	$319.26
6"	$638.04
8"	$1,020.57
10"	$1,530.61
12"	$2,152.23
Volumetric Charge: $1.02 / HCF	

Schedule 10 – Proposed Rates effective July 1, 2021

Water Rates

Meter Size	Total Base Monthly Charge
3/4"	$32.25
1"	$32.25
1 1/2"	$64.02
2"	$102.12
3"	$203.77
4"	$318.12
6"	$635.73
8"	$1,016.87
10"	$1,525.06
12"	$2,144.42
Volumetric Charge: $0.77 / HCF	

Outside City Surcharge

Meter Size	Monthly Charge
3/4"	$5.84
1"	$5.84
1 1/2"	$11.71
2"	$18.72
3"	$37.44
4"	$58.50
6"	$117.00
8"	$187.20

Backflow Prevention Charge

$9.29 per month

Private Fire Service

Size of Connection	Monthly Charge
2"	$1.45
3"	$4.20
4"	$8.96
6"	$26.03
8"	$55.49
10"	$99.77
12"	$161.15
Fire Hydrant	$16.12

Drought Rates

Meter Size	Total Base Monthly Charge
3/4"	$33.00
1"	$33.00
1 1/2"	$65.51
2"	$104.54
3"	$208.59
4"	$325.65
6"	$650.80
8"	$1,040.98
10"	$1,561.22
12"	$2,195.27
Volumetric Charge: $1.04 / HCF	