

FINAL

## Water Utility Financial Plan and Rates Study

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Prepared for  
City of Fresno, California  
September 2018



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Owner  
Thomas Pavletic

September 27, 2018

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Date

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## List of Abbreviations

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ACP	Affordability Credit Program
AF	acre feet (equal to 325,851 gallons)
AWWA	American Water Works Association
CIP	Capital Improvement Program
City	City of Fresno
DBCP	Dibromochloropropane
DPU	Department of Public Utilities
DSC	debt service coverage
DWR	Department of Water Resources
FY	Fiscal year (July 1 to June 30)
FY20	July 1, 2019 to June 30, 2020
gpd	gallons per day
HCF	Hundred Cubic Feet (equal to ~ 748.1 gallons)
mgd	million gallons per day
MTBE	Methyl Tertiary Butyl Ether
O&M	Operation and maintenance
SRF	State Revolving Fund
UB&C	Utility Billing and Collection

# Executive Summary

The City of Fresno, in conjunction with Municipal Financial Services, has analyzed the adequacy of revenues to meet projected expenditures of the water enterprise fund to determine whether revenues will be adequate to cover operating and maintenance costs as well as needed capital costs while supporting debt service obligations and meeting goals found in the Financial Management Plan and Guiding Principles (Financial Management Plan) for the City of Fresno's Department of Public Utilities (DPU). Rates and charges were developed for the five-year period Fiscal Year 2019 – 20 (FY20) through FY24 (2020 Rate Plan).

## 2015 Rate Plan

The city is currently implementing a five-year rate plan for FY15 – FY19 (2015 Rate Plan) that was adopted during February 2015. Rate increases in the 2015 Rate Plan were developed as shown in the *Water Utility Financial Plan and Rates Study* dated February 2015.

The first set of rate changes in the 2015 Rate Plan were on March 30, 2015. The final set of rate increases to be implemented as part of the 2015 Rate Plan are effective July 1, 2018 (for FY19).

## 2014 Settlement Agreement Regarding Water Rates

Prior to development of the 2015 Rate Plan, the City entered into a “Settlement Agreement and General Release of Claims” (2014 Settlement Agreement) to settle a dispute related to water rates implemented during 2013.

Section II, 1, D. of the 2014 Settlement Agreement contains requirements for the timeframe and duration of future water rate plans and increases. DPU has interpreted the 2014 Settlement Agreement to prohibit the City from increasing water rates again until March 30, 2020. To comply with the 2014 Settlement Agreement, rates are not increased in the first year of the Water 2020 Rate Plan.

## Affordability Credit Program

The water enterprise currently has a water Affordability Credit Program. Staff is recommending updates to the Affordability Credit Program that would include wastewater and solid waste customers. The Affordability Credit Program is funded with non-rate revenues.

## Revenue Required from Water Rates

The approximate amount of revenues required from rates (water charges) for the five-year period, FY20 through FY24, is \$621.1 million. Another \$43.5 million in revenues is projected from other sources. Expenditures during the same period are projected to be approximately \$662.6 million and transfers out of the fund approximately \$30.8 million. The operating fund balance is projected to decline from approximately \$69.1 to \$40.3 million during the five-year period. The minimum ending fund balance in FY24 is \$38.9 million.

**Table ES-1. Projected FY18 – FY24 Cash Flow**

	Actual FY18	Budget FY19	Projected Five-Year Plan					FY20 - FY24
			FY20	FY21	FY22	FY23	FY24	
<b>REVENUES</b>								
Water Charges	\$104.5	\$111.7	\$110.2	\$117.3	\$123.9	\$130.9	\$138.8	\$621.1
Other Charges for Services	3.3	3.3	3.4	3.5	3.6	3.7	3.7	17.9
All Other	3.0	4.7	9.8	4.3	4.4	4.4	2.7	25.6
<b>Total Revenues</b>	<b>110.9</b>	<b>119.7</b>	<b>123.5</b>	<b>125.1</b>	<b>131.9</b>	<b>139.0</b>	<b>145.1</b>	<b>664.6</b>
<b>EXPENDITURES</b>								
Operating Expenditures	\$57.4	\$64.6	\$68.6	\$70.8	\$73.1	\$75.4	\$77.8	\$365.7
Debt Service	21.8	22.5	31.5	30.0	30.0	30.0	30.0	151.4
Capital Expenditures (cash)	14.2	32.0	40.2	23.9	24.2	25.2	32.0	145.5
<b>Total Expenditures</b>	<b>93.4</b>	<b>119.1</b>	<b>140.3</b>	<b>124.7</b>	<b>127.2</b>	<b>130.6</b>	<b>139.8</b>	<b>662.6</b>
<b>NET TRANSFERS</b>								
	\$0.0	(\$21.1)	(\$7.0)	(\$7.0)	(\$5.7)	(\$7.4)	(\$3.7)	(\$30.8)
Operating Fund Ending Balance, June 30	\$88.5	\$69.1	\$45.3	\$38.8	\$37.7	\$38.7	\$40.3	
<i>Minimum Balance</i>	<i>\$28.7</i>	<i>\$32.3</i>	<i>\$34.3</i>	<i>\$35.4</i>	<i>\$36.5</i>	<i>\$37.7</i>	<i>\$38.9</i>	
<i>Days Cash</i>	<i>563</i>	<i>390</i>	<i>241</i>	<i>200</i>	<i>188</i>	<i>187</i>	<i>189</i>	
Debt Service Coverage Ratio	2.46x	2.45x	1.74x	1.82x	1.96x	2.12x	2.25x	
<i>Minimum Coverage Ratio</i>	<i>1.60x</i>	<i>1.60x</i>	<i>1.60x</i>	<i>1.60x</i>	<i>1.60x</i>	<i>1.60x</i>	<i>1.60x</i>	

Projections of operating, debt service and capital (cash) expenditures for FY20 – FY24 in the current study (\$665 million) are greater than were projected for those same years as part of the 2015 Rate Plan (\$629 million).<sup>1</sup>

Combined expenditures for debt service and capital (cash) in the current study for FY20 – FY24 are approximately \$297 million compared to approximately \$294 million projected for those same years as part of the 2015 Rate Plan. Operating expenditures for FY20 – FY24 in the current study (\$366 million) are approximately \$31 million greater than projected for those same years as part of the 2015 Rate Plan (\$335 million). Net Transfers are projected to decrease the fund balance by approximately \$31 million.

Rate increases in the current study are estimated to increase revenues by approximately \$62 million over the five-year period. The additional revenue from rates is intended to enable the water enterprise to meet the additional operating expenditures and transfers, and the strategic financial management plan and guiding principles.

Cash flow for FY19 includes a transfer of \$16.6 million to the Solid Waste fund as a short-term loan. The loan terms are 2.25 percent interest and 10 payments over five years beginning January 1, 2019. The loan is paid by FY24 and does not impact the rate increase recommendations. The Water fund earns interest of approximately \$1.0 million for making the loan.

<sup>1</sup> Projections for FY20 – FY24 from the 2015 Rate Plan are based on proforma estimates of operating expenditures, projection of debt service principal and interest payments, and estimates of cash available for capital expenditures made as part of that study.



## Projected Capital Improvement Program Expenditures and Funding

As part of the FY 2020-2024 Rate Plan, cash financing of capital improvements (pay-as-you-go) from the Water Enterprise Fund is proposed for the on-going capital budget to provide necessary replacements, rehabilitation and improvements to water facilities (wells, pumps, water mains, fire hydrants, etc.), account for inventory, and comply with mandates. Funding for growth-related capital projects are described in the City of Fresno *Water Capacity Fee Study* dated February 27, 2017.

No additional debt financing (revenue bonds, state loans, etc.) is anticipated.

The benefits of a proactive asset management program include:

- Prolonging asset life and improving decisions about asset rehabilitation, repair, and replacement
- Meeting consumer demands with a focus on system sustainability
- Setting rates based on sound operational and financial planning
- Budgeting focused on critical activities for sustained performance
- Meeting customer service expectations and regulatory requirements
- Improving responses to emergencies
- Improving the security and safety of assets
- Reducing overall costs for both operations and capital expenditures

Between FY20 and FY24 (five fiscal years), total projected CIP expenditures of approximately \$145.5 million are planned to be cash funded through rates. These planned expenditures, by project category, are summarized in the tables below.

**Table ES-2. Projected FY18 - FY24 Capital Expenditures**

Project Category	Actual	Budget	Projected					Totals	
	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY20 - FY24	
Main Renewal	\$10.0	\$8.9	\$8.8	\$10.0	\$13.0	\$14.0	\$17.0	\$62.8	43%
Well Construction	0.7	3.6	3.6	3.6	3.6	3.6	5.0	19.4	13%
Water Well Development	0.0	0.4	0.4	0.4	0.4	0.4	0.8	2.4	2%
Well Rehabilitation	0.3	1.4	1.4	3.0	4.0	4.0	4.5	16.9	12%
Pump Rehabilitation	0.0	0.1	0.1	0.5	0.5	0.5	0.8	2.4	2%
DPU Admin & Mtce Facility	0.0	4.0	22.2	3.0	0.0	0.0	0.0	25.2	17%
SCADA System Improvements	0.2	3.4	0.5	0.5	0.5	0.5	1.0	3.0	2%
City Recharge Basins	0.0	1.0	1.5	1.5	1.5	1.5	2.0	8.0	5%
Master Planning	0.6	0.7	0.7	0.7	0.0	0.0	0.0	1.4	1%
Water Facilities Security Improvement	0.0	0.3	0.3	0.3	0.3	0.3	0.5	1.7	1%
All Other Water CIP	2.3	8.2	0.7	0.4	0.4	0.4	0.4	2.3	2%
<b>Total Expenditures</b>	<b>\$14.2</b>	<b>\$32.0</b>	<b>\$40.2</b>	<b>\$23.9</b>	<b>\$24.2</b>	<b>\$25.2</b>	<b>\$32.0</b>	<b>\$145.5</b>	<b>100%</b>

Project Category	Actual	Budget	Projected					Totals	
	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY20 - FY24	
Main Renewal	\$10.0	\$8.9	\$8.8	\$10.0	\$13.0	\$14.0	\$17.0	\$62.8	43%
Water Wells and Pumps	1.0	5.5	5.5	7.5	8.5	8.5	11.1	\$41.1	28%
DPU Admin & Mtce Facility	0.0	4.0	22.2	3.0	0.0	0.0	0.0	\$25.2	17%
SCADA, Recharge Basins, All Other	3.2	13.6	3.7	3.4	2.7	2.7	3.9	\$16.4	11%
<b>Total Expenditures</b>	<b>\$14.2</b>	<b>\$32.0</b>	<b>\$40.2</b>	<b>\$23.9</b>	<b>\$24.2</b>	<b>\$25.2</b>	<b>\$32.0</b>	<b>\$145.5</b>	<b>100%</b>

## Water System Capital Asset Valuation

The City reports water capital asset values according to Governmental Accounting Standards Board (GASB) accounting pronouncements. Capital assets values are reported in the City's Comprehensive Annual Financial Report (CAFR). Capital asset values are based on "book" values. The book value of an asset is its original purchase cost, adjusted for any subsequent changes, such as for impairment or depreciation. The replacement value of an asset is the cost of a new, comparable asset.

As of June 30, 2017, water system capital assets had a book value of approximately \$824.3 million and accumulated depreciation of approximately \$205.6 million. Comparable water systems in California have a replacement value to book value ratio of approximately 2.2 : 1.<sup>2</sup> The replacement value of water system capital assets is approximately \$1,834 million ( $\$824.3 \times 2.2$ ).

If water system capital assets are assigned an average useful life of 50 years and a replacement value of approximately \$1,834 million, the average expense for replacement of the water system capital assets would be approximately \$36.7 million per year. This calculation shows the projected CIP by the City is reasonable as compared to the estimated average annual replacement expense.

This annual expense for capital asset replacements helps to quantify the Financial Management Plan goal to "provide adequate funds to construct, maintain, rehabilitate and replace assets and infrastructure as required."

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<sup>2</sup> Based on the best professional judgment of Municipal Financial Services, the replacement value to book value ratio for water assets generally varies from 2:1 to 2.5:1.

## Water System Financial Management Plan Goals

The purpose of the Financial Management Plan is to outline the strategic financial management plan and guiding principles for the City of Fresno's water, wastewater and solid waste utility funds. The strategic financial management plan is intended to establish basic guidance for fiscal management. The goals of the fiscal management policies are categorized in the Financial Management Plan into the categories of general financial; asset management; debt management; rates, fees and charges; customer care; and annual budget process.

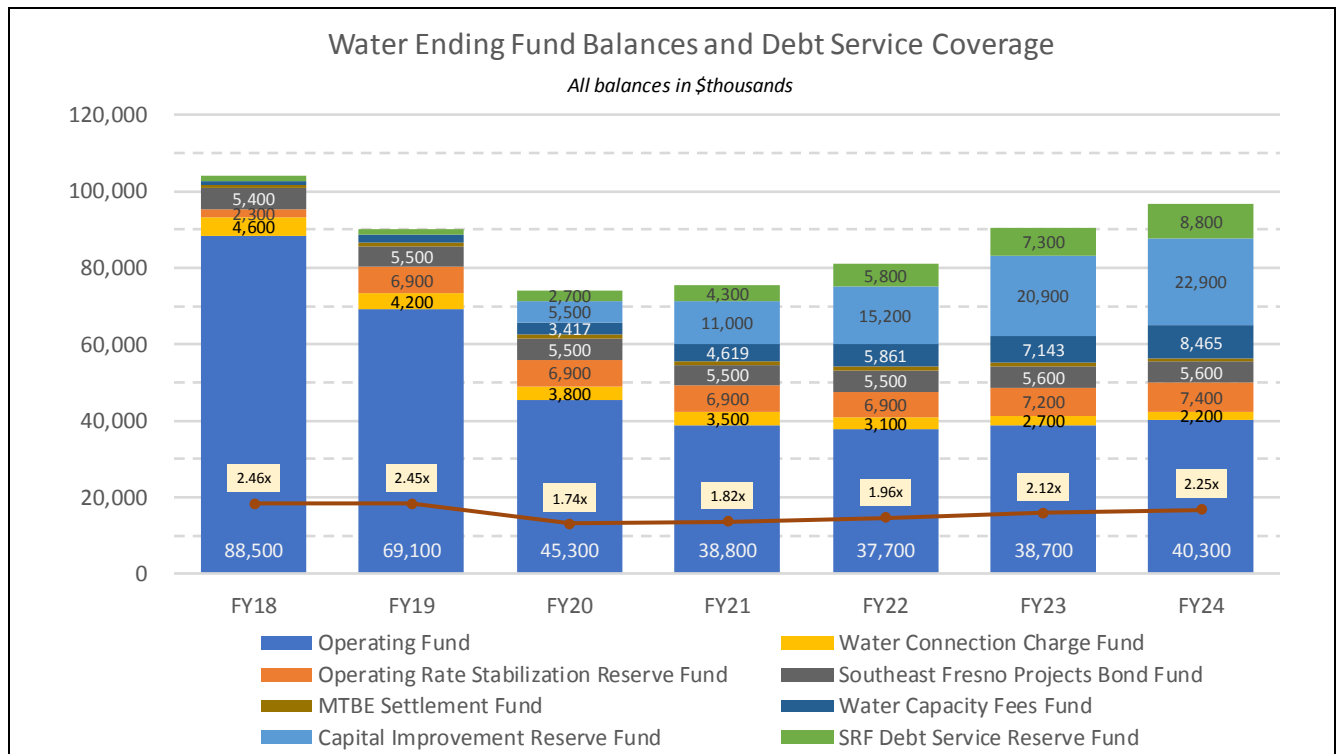
Measures of attainment of targets for each goal are listed in the table below.

**Table ES-3. Financial Management Plan Goals, FY18 – FY24**

<b>GENERAL FINANCIAL</b>								
<i>Operating Reserves</i>	<u>Minimum</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
Fund Balance as a Percent of O&M	=>50%	154%	107%	66%	55%	52%	51%	52%
Fund Balance as Days of O&M Expenditures	180	563	390	241	200	188	187	189
Minimum Ending Balance		28,700	32,300	34,300	35,400	36,500	37,700	38,900
<b>RATES, FEES AND CHARGES</b>								
<i>Operating Rate Stabilization Reserve</i>	<u>Minimum</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
Reserve as a Percent of Operating Revenues	=>5%	2%	6%	6%	6%	5%	5%	5%
Minimum Ending Balance		5,500	6,000	6,200	6,300	6,600	7,000	7,300
<b>ASSET MANAGEMENT RATIOS</b>								
<i>Capital Improvements Reserve</i>	<u>Minimum</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
Reserve as a Percent of Net Total Capital Assets	=>2%	0%	0%	0.5%	1.1%	1.5%	2%	2%
Minimum Ending Balance		12,300	18,900	20,300	20,400	20,600	20,800	21,100
<b>DEBT MANAGEMENT</b>								
<i>Debt Service Coverage Ratio</i>	<u>Minimum</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
Coverage Ratio	1.60x	2.46x	2.45x	1.74x	1.82x	1.96x	2.12x	2.25x
<i>Debt Service as a Percent of Revenue</i>	<u>Minimum</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
Debt Service as a Percent of Revenue	<=35%	20%	19%	26%	24%	23%	22%	21%
	7-Year							
<i>Cash Financing of Capital</i>	<u>\$ Weighted Minimum</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
Cash for Capital Projects	100%	=>30%	100%	100%	100%	100%	100%	100%
<i>Debt Burden to Asset Value</i>	<u>Maximum</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
Debt Burden to Asset Value Ratio	<=50%	27%	53%	49%	47%	45%	42%	39%

## Non-reserve and Reserve Funds Balances

Projected fiscal year ending balances for five non-reserve and three reserve funds are shown in the figure below.<sup>3</sup> The non-reserve funds are: Operating, Water Connection Charge, Southeast Fresno Projects Bond, MTBE (Methyl Tertiary Butyl Ether) Settlement, and Water Capacity Fees. The three reserve funds are: Capital Improvement, Operating Rate Stabilization and SRF (State Revolving Fund) Debt Service. The projected annual debt service coverage ratio is shown as a line with corresponding data labels.



**Figure ES-1. Water Ending Fund Balances and Debt Service Coverage, FY18 – FY24**

<sup>3</sup> DBCP (Dibromochloropropane) Recovery Fund and Copper River Ranch Water Infrastructure Fund ending balances are zero for FY20 and onward and are not included in the figure.

## Recommended Water Rates

Recommended rates and charges for FY20 – FY24 are shown in the table below. The effective dates are July 1 of each fiscal year. July 1 is the beginning of the fiscal year. There is no rate increase projected for July 1, 2019 (FY20) and rates effective July 1, 2018 will remain in effect through June 30, 2020.

**Table ES-4. Current and Recommended Water Rates and Charges, FY20 – FY24**

Item	effective date >	no increase	7/1/2020	7/1/2021	7/1/2022	7/1/2023	FY19	Recommended				
	7/1/2018	7/1/2020	7/1/2021	7/1/2022	7/1/2023	FY19		FY20	FY21	FY22	FY23	FY24
<b>Water Quantity Charges, \$/HCF</b>												
Potable Water Meters	Adopted FY19	FY20	FY21	FY22	FY23	FY24	FY19	FY20	FY21	FY22	FY23	FY24
Private Wells	\$1.74	\$1.74	\$1.94	\$2.08	\$2.23	\$2.39	16%	0%	11%	7%	7%	7%
Meter Charges, \$/month	\$0.218	\$0.218	\$0.26	\$0.27	\$0.28	\$0.29	0%	0%	19%	4%	4%	4%
<b>All x/Irrigation</b>												
¾-inch	\$13.50	\$13.50	\$13.00	\$13.70	\$14.50	\$15.30	13%	0%	-4%	5%	6%	6%
1.0-inch	\$17.90	\$17.90	\$17.50	\$18.50	\$19.50	\$20.70	13%	0%	-2%	6%	5%	6%
1.5-inch	\$20.80	\$20.80	\$20.60	\$21.70	\$22.90	\$24.20	13%	0%	-1%	5%	6%	6%
2.0-inch	\$35.30	\$35.30	\$35.70	\$37.70	\$39.70	\$42.10	13%	0%	1%	6%	5%	6%
3.0-inch	\$52.80	\$52.80	\$54.00	\$57.00	\$60.00	\$64.00	13%	0%	2%	6%	5%	7%
4.0-inch	\$79.00	\$79.00	\$82.00	\$86.00	\$91.00	\$96.00	13%	0%	4%	5%	6%	5%
6.0-inch	\$152.00	\$152.00	\$157.00	\$166.00	\$175.00	\$185.00	13%	0%	3%	6%	5%	6%
8.0-inch	\$705.00	\$705.00	\$732.00	\$773.00	\$815.00	\$863.00	13%	0%	4%	6%	5%	6%
10.0-inch	\$1,113.00	\$1,113.00	\$1,156.00	\$1,220.00	\$1,287.00	\$1,362.00	13%	0%	4%	6%	5%	6%
12.0-inch	\$1,462.00	\$1,462.00	\$1,520.00	\$1,603.00	\$1,691.00	\$1,790.00	13%	0%	4%	5%	5%	6%
<b>Irrigation</b>												
¾-inch	\$10.70	\$10.70	\$10.60	\$11.10	\$11.80	\$12.40	13%	0%	-1%	5%	6%	5%
1.0-inch	\$13.40	\$13.40	\$13.70	\$14.40	\$15.20	\$16.10	14%	0%	2%	5%	6%	6%
1.5-inch	\$15.20	\$15.20	\$15.70	\$16.60	\$17.50	\$18.50	13%	0%	3%	6%	5%	6%
2.0-inch	\$24.10	\$24.10	\$26.00	\$27.40	\$28.90	\$30.60	13%	0%	8%	5%	5%	6%
3.0-inch	\$34.90	\$34.90	\$38.30	\$40.40	\$42.60	\$45.10	13%	0%	10%	5%	5%	6%
4.0-inch	\$51.00	\$51.00	\$57.00	\$60.00	\$64.00	\$67.00	11%	0%	12%	5%	7%	5%
6.0-inch	\$96.00	\$96.00	\$109.00	\$115.00	\$121.00	\$128.00	13%	0%	14%	6%	5%	6%
8.0-inch	\$436.00	\$436.00	\$499.00	\$527.00	\$556.00	\$588.00	13%	0%	14%	6%	6%	6%
10.0-inch	\$687.00	\$687.00	\$787.00	\$830.00	\$876.00	\$927.00	13%	0%	15%	5%	6%	6%
12.0-inch	\$901.00	\$901.00	\$1,034.00	\$1,091.00	\$1,150.00	\$1,218.00	13%	0%	15%	6%	5%	6%
<b>Private Fire Protection Charges, \$/month</b>												
<b>Fire Service Connections</b>												
1.0-inch	\$15.70	\$15.70	\$14.90	\$15.70	\$16.50	\$17.50	13%	0%	-5%	5%	5%	6%
1.5-inch	\$15.70	\$15.70	\$14.90	\$15.70	\$16.50	\$17.50	13%	0%	-5%	5%	5%	6%
2.0-inch	\$15.70	\$15.70	\$14.90	\$15.70	\$16.50	\$17.50	13%	0%	-5%	5%	5%	6%
3.0-inch	\$15.70	\$15.70	\$14.90	\$15.70	\$16.50	\$17.50	13%	0%	-5%	5%	5%	6%
4.0-inch	\$15.70	\$15.70	\$14.90	\$15.70	\$16.50	\$17.50	13%	0%	-5%	5%	5%	6%
6.0-inch	\$45.60	\$45.60	\$43.30	\$45.60	\$48.00	\$50.70	13%	0%	-5%	5%	5%	6%
8.0-inch	\$98.00	\$98.00	\$93.00	\$97.00	\$103.00	\$108.00	13%	0%	-5%	4%	6%	5%
10.0-inch	\$175.00	\$175.00	\$166.00	\$175.00	\$184.00	\$195.00	13%	0%	-5%	5%	5%	6%
12.0-inch	\$283.00	\$283.00	\$268.00	\$282.00	\$297.00	\$314.00	13%	0%	-5%	5%	5%	6%

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## Section 1

# Introduction

This section describes the organization of the report, rate-making objectives, the rate-setting process, and a general description of the water system.

## 1.1 Organization of the Report

This report is divided into seven sections. This introduction provides an overview of the study objectives and description of the City's water system.

Section 2 describes the water use characteristics of customers. The number, type and size of connections and water consumption projected for FY18 – FY24 is developed in this section.

Section 3 summarizes the five-year Financial Plan for the water enterprise and describes the development of revenue required from water rates.

Section 4 describes the allocation of revenue requirements to defined functional cost categories.

Section 5 describes the development of the water rate structure and water rates and charges.

Section 6 describes the impact of recommended water rates and charges upon customers.

Section 7 describes the limitations of the study document.

## 1.2 Rate-Making Objectives

There are numerous rate-making objectives that must be considered when developing rates and rate structures.

**Revenue sufficiency.** Generate sufficient revenue to fund operating costs, capital costs, bonded debt, and adequate reserves.

**Revenue stability.** Recover revenue from fixed and variable charges that will cover fixed and variable costs (barring water shortages when rationing may be required).

**Meet Fiscal Management Goals.** Meet the goals of the policies that are in the City's Financial Management Plan.

**Administrative ease and cost of implementation.** Enable easy and cost-efficient implementation and ongoing administration, including monitoring and updating.

**Affordability.** Be as affordable as possible while maintaining the utilities sound financial position and credit rating.

**Customer acceptance.** Be as simple as possible to facilitate customer understanding and acceptance.

**Fairness.** Provide for each customer class to pay its proportionate share of the required revenue in compliance with legal rate-making requirements.

**Economic development.** Rates must be competitive with local jurisdictions to retain and attract economic development.

## 1.3 Overview of Utility Rate Setting Process

Rate studies classically have three categories of technical analysis – the development of revenue required from rates, the allocation of costs among functional cost categories (cost-of-service analysis) and the design of a rate structure. An overview of the rate-setting analytical steps is shown in Figure 1-1.

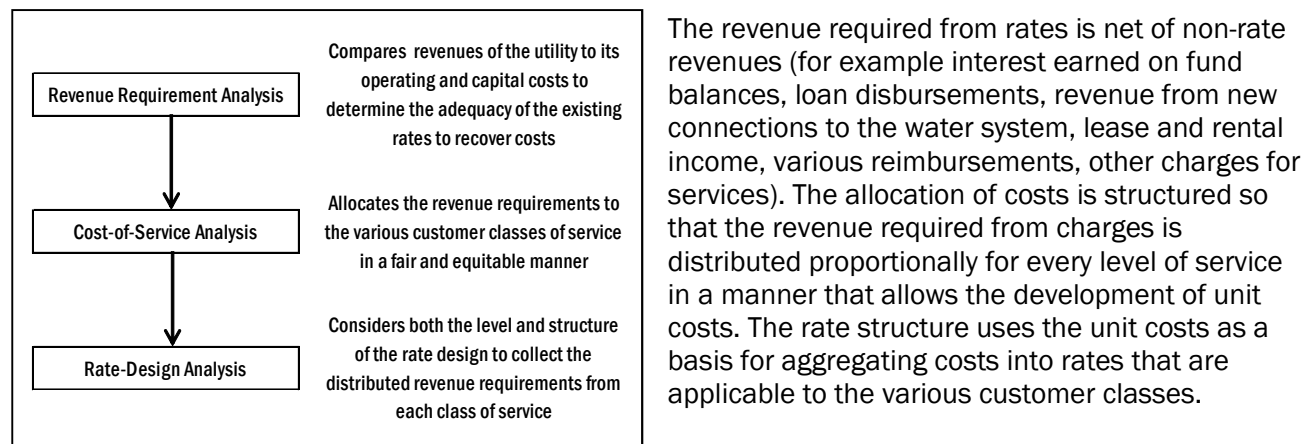


Figure 1-1. Overview of Rate Setting Steps

Information and data for the development of water rates and preparation of this report comes from many documents provided by the City. The list of documents, and the key information and data from each used in this study, are summarized below.

**City of Fresno Fiscal Year 2018-19 Adopted Budget (FY2019 Budget).** The City of Fresno Annual Budget is the most important document the City produces. It outlines the City's spending plan and priorities for the coming fiscal year, which runs from July 1st to June 30th. Each year, the city's budget is developed in conjunction with the Mayor, City Manager and all city departments. The budget is then reviewed and approved by the City Council. The result is a budget that closely matches the community's highest priorities each fiscal year.

All revenue, expenditure and fund balance data used in the development of water rates and charges in this study were provided by the City.

**City of Fresno Fiscal Year 2017-2018 Comprehensive Annual Financial Report (FY18 CAFR).** The City of Fresno *Comprehensive Annual Financial Report* shows the financial position and results of the City's operations as represented by the financial activity of its various funds.

**Utility Billing System data.** The City provided billing data from its Utility Billing system for all metered connections and all private fire service connections.



## 1.4 Fresno Water Utility

The original Fresno water system began in 1876 as a nonprofit organization established by a group of public-minded citizens. Initially, the water system consisted of one pumping station, composed of small pumps and two storage tanks located above the second floor of an early building, located on Fresno Street between "J" and "K" Streets, presently known as Broadway and Fulton.

By the late 1880's, the town had grown into a small city in need of an improved water distribution system, so in 1888, the first pumping station and water tower of a permanent nature were constructed at Fresno and "O" Streets. These facilities were designed to be an integral part of a larger and continually expanding water system. This first station was in continuous use until 1959, when it was retired, having served its purpose. Today, this building, which has since been declared a historical structure, is widely known throughout Fresno as the "Water Tower".

In 1926, the plant and distribution system was purchased by the California Water Service Company. In 1931, the company sold the water system to the City of Fresno, which operated as a municipal utility. It was first managed under an appointed water board, and is currently a Division of the Public Utilities Department. The Water Division manages and operates the City of Fresno's water system. The City delivers drinking water to about 533,000 urban residential, commercial, and industrial customers in over 114 square miles of the City, and many County Islands, within the City's Sphere of Influence.

Fresno's primary source of water is groundwater, coming from a natural underground basin, called an aquifer. Using approximately 260 wells, the Water Division pumps approximately 125 million gallons water per day (mgd). In addition to groundwater, the Fresno water supply is now supplemented with water delivered directly from the Sierra Nevada mountain range to the Northeast Surface Water Treatment Facility, which supplies about 20 million gallons of water per day.

## 1.5 Water Rates and Charges Effective July 1, 2018

Water rates and charges effective July 1, 2018 – for FY19 – are listed in the table below. Each water account has one or more meters or private fire protection connections. Each meter is billed for metered water use at the rates shown (except private fire protection accounts which have no water meter and are not billed for water use). Pages from the Master Fee Schedule (MFS) that list water rates are included in Appendix A.

**Table 1-1. Water Rates and Charges Effective July 1, 2018**

Table 1-1. Water Rates and Charges Effective July 1, 2018					
Quantity Rates, \$/HCF	\$1.74				
Monthly Charges, \$/month					
<i>Domestic</i>		<i>Irrigation</i>		<i>Private Fire Protection</i>	
¾-inch	\$13.50	¾-inch	\$10.70	Fire Hydrants	\$45.60
1.0-inch	\$17.90	1.0-inch	\$13.40	1.0-inch	\$15.70
1.5-inch	\$20.80	1.5-inch	\$15.20	1.5-inch	\$15.70
2.0-inch	\$35.30	2.0-inch	\$24.10	2.0-inch	\$15.70
3.0-inch	\$52.80	3.0-inch	\$34.90	3.0-inch	\$15.70
4.0-inch	\$79.00	4.0-inch	\$51.00	4.0-inch	\$15.70
6.0-inch	\$152.00	6.0-inch	\$96.00	6.0-inch	\$45.60
8.0-inch	\$705.00	8.0-inch	\$436.00	8.0-inch	\$98.00
10.0-inch	\$1,113.00	10.0-inch	\$687.00	10.0-inch	\$175.00
12.0-inch	\$1,462.00	12.0-inch	\$901.00	12.0-inch	\$283.00

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## Section 2

# User Characteristics

The purpose of this section is to summarize use of the water system by all customers connected to the system. The data used in this section comes from the City's Utility Billing system. Customer data is used for the allocation of costs, development of rates and charges and analysis of the impact on customer bills.

## 2.1 Projected Water Use

Although the Governor of California has called an end to the drought, the State is still very focused on water conservation. On May 31, 2018, Governor Brown signed two bills into law (SB 606 and AB 1668) which support making "Water Conservation a California Way of Life" as outlined in the California Water Action Plan. As stated by Governor Brown "In preparation for the next drought and our changing environment, we must use our precious resources wisely. We have efficiency goals for energy and cars- and now we have them for water." In addition, the State Water Resources Control Board is in the process of strengthening their Conservation and the Prevention of Waste and Unreasonable use laws by adopting the prohibited water uses during the drought into the California Code of Regulations, Title 23.

Water use data for the 24 months ending June 2017 was evaluated to determine recent water conservation trends; identify annual and seasonal water use patterns; and project water consumption for FY18 – FY24.

Since FY16, water use for Single Family accounts has increased from 16.4 HCF (hundred cubic feet) per month (approximately 400 gallons per day) to 17.0 HCF per month (approximately 420 gallons per day) in FY17. Single Family water use for FY18 is projected to be 19.0 HCF per month (approximately 465 gallons per day). Single Family water use for FY19 – FY24 is projected to decrease from 16.7 HCF per month (approximately 411 gallons per day) to 15.1 HCF per month (approximately 372 gallons per day).

As with Single Family accounts, water use for nonresidential and irrigation accounts has rebounded since FY16. Projected water use for FY19 is projected to decrease to approximately FY16 levels and then continue decreasing by one percent per year.

Water use projections for FY 20 – 24 are based on projections that include the impact of new conservation regulations and the chance of renewed extreme drought conditions. It is reasonable and prudent to assume that drought conditions could occur again in the five-year rate plan period, and therefore, the usage predictions reflect that assumption.

Actual water use for FY16 and FY17 and projected water use for FY18 – FY24, for each customer class, are summarized in Table 2-1. Detailed calculations are shown in Table B-1 in Appendix B.

Table 2-1. Metered Water Use by Customer Class									
(All Use in HCF x 1,000)	Actual		Projected						
	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
<b>Annual Water Use</b>									
Single Family	22,457	23,495	26,254	23,134	22,469	22,048	21,635	21,230	21,045
Nonresidential	17,417	18,095	19,398	18,040	17,860	17,681	17,504	17,329	17,156
Irrigation	2,986	3,503	4,221	3,692	3,655	3,618	3,582	3,546	3,511
<b>Total</b>	<b>42,860</b>	<b>45,092</b>	<b>49,873</b>	<b>44,865</b>	<b>43,983</b>	<b>43,347</b>	<b>42,721</b>	<b>42,105</b>	<b>41,711</b>
<b>Annual Change in Water Use</b>									
Single Family		1,038	2,760	-3,120	-665	-421	-413	-405	-185
Nonresidential		678	1,303	-1,358	-180	-179	-177	-175	-173
Irrigation		516	718	-529	-37	-37	-36	-36	-35
<b>Total</b>		<b>2,232</b>	<b>4,781</b>	<b>-5,008</b>	<b>-882</b>	<b>-636</b>	<b>-626</b>	<b>-616</b>	<b>-394</b>
<b>Percent Change in Water Use</b>									
Single Family		5%	12%	-12%	-3%	-2%	-2%	-2%	-1%
Nonresidential		4%	7%	-7%	-1%	-1%	-1%	-1%	-1%
Irrigation		17%	21%	-13%	-1%	-1%	-1%	-1%	-1%
<b>Total</b>		<b>5%</b>	<b>11%</b>	<b>-10%</b>	<b>-2%</b>	<b>-1%</b>	<b>-1%</b>	<b>-1%</b>	<b>-1%</b>

Actual water use for FY14 – FY17 and projected water use for FY18 – FY24, for each customer class, summarized in Figure 2-1. Projected water use for FY20 – FY24 is used in the development of rates.

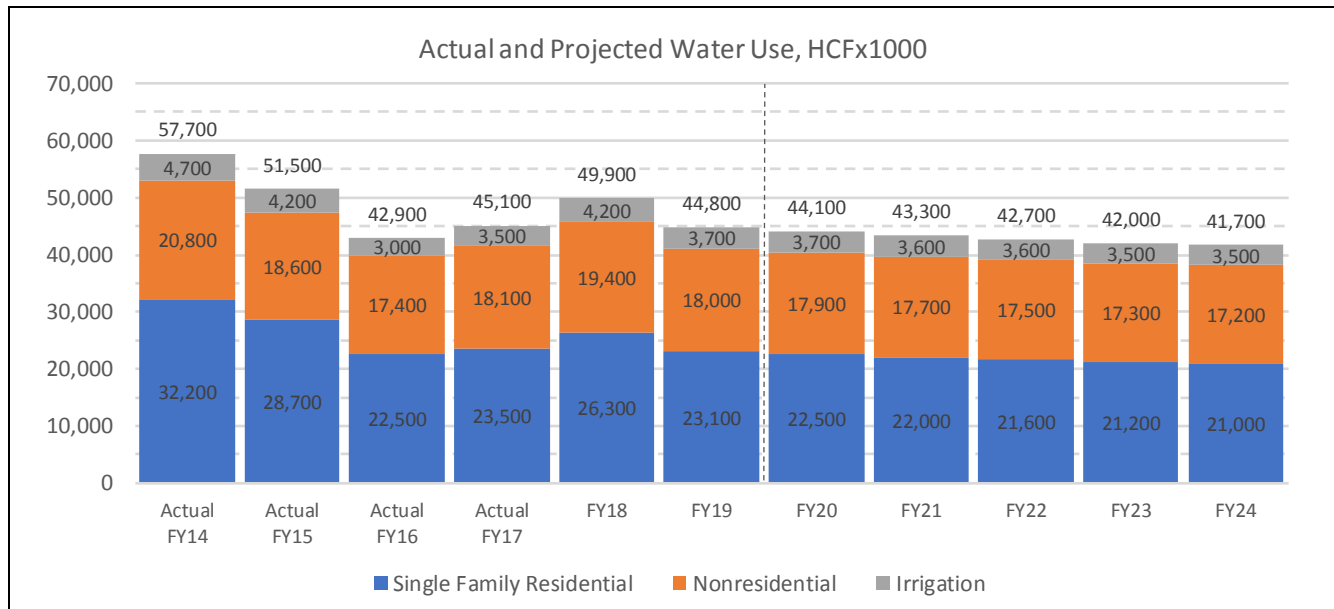


Figure 2-1. Metered Water Use by Customer Class

Projected water use by Single Family accounts is shown in the table below. Projected average water use for FY20 – FY24 is used in the development of tiered rates for the Single Family customer class.

**Table 2-2. Projected Single Family Customer Class Water Use**

(All Use in HCF x 1,000)	Actual	Actual	Projected						
	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Annual Water Use	22,457	23,495	26,254	23,134	22,469	22,048	21,635	21,230	21,045
Annual Change in Water Use		1,038	2,760	-3,120	-665	-421	-413	-405	-185
Percent Change in Water Use		5%	12%	-12%	-3%	-2%	-2%	-2%	-1%
Average Monthly Water Use									
Hundred Cubic Feet	16.4	17.0	19.0	16.7	16.2	15.9	15.6	15.3	15.1
Gallons per Day	403	419	467	411	399	391	383	375	372

## 2.2 Water Meters

The projected number of water meters, by size, was based on data from the City's utility billing system as of July 2017. Values from the utility billing system and projections for FY18 through FY24 are shown in the table below. The projected annual growth in accounts is estimated at less than one percent per year.

**Table 2-3. Water Meters by Customer Class and Size**

Customer Class and Size	July	Projected [1, 2, 3]						
	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
<b>Potable</b>								
¾-inch	17,384	17,384	17,384	17,384	17,384	17,384	17,384	17,384
1.0-inch	98,484	98,634	98,784	98,934	99,084	99,234	99,384	99,534
1.5-inch	8,237	8,259	8,281	8,303	8,325	8,347	8,369	8,391
2.0-inch	3,708	3,708	3,708	3,708	3,708	3,708	3,708	3,708
3.0-inch	138	138	138	138	138	138	138	138
4.0-inch	671	671	671	671	671	671	671	671
6.0-inch	207	207	207	207	207	207	207	207
8.0-inch	199	199	199	199	199	199	199	199
10.0-inch	9	9	9	9	9	9	9	9
12.0-inch	3	3	3	3	3	3	3	3
<b>Totals</b>	<b>129,040</b>	<b>129,212</b>	<b>129,384</b>	<b>129,556</b>	<b>129,728</b>	<b>129,900</b>	<b>130,072</b>	<b>130,244</b>
<b>Irrigation</b>								
¾-inch	92	92	92	92	92	92	92	92
1.0-inch	1,072	1,072	1,072	1,072	1,072	1,072	1,072	1,072
1.5-inch	697	697	697	697	697	697	697	697
2.0-inch	1,685	1,687	1,689	1,691	1,693	1,695	1,697	1,699
3.0-inch	27	27	27	27	27	27	27	27
4.0-inch	115	115	115	115	115	115	115	115
6.0-inch	23	23	23	23	23	23	23	23
8.0-inch	5	5	5	5	5	5	5	5
10.0-inch	0	0	0	0	0	0	0	0
12.0-inch	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>3,716</b>	<b>3,718</b>	<b>3,720</b>	<b>3,722</b>	<b>3,724</b>	<b>3,726</b>	<b>3,728</b>	<b>3,730</b>
<b>Summary</b>								
Potable	129,040	129,212	129,384	129,556	129,728	129,900	130,072	130,244
Irrigation	3,716	3,718	3,720	3,722	3,724	3,726	3,728	3,730
<b>Total</b>	<b>132,756</b>	<b>132,930</b>	<b>133,104</b>	<b>133,278</b>	<b>133,452</b>	<b>133,626</b>	<b>133,800</b>	<b>133,974</b>
<b>Notes:</b>								
1 The number of ¾-inch meters includes all ¾-inch meters.								
2 Percentages of Single Family (SF), Nonresidential (NR) and Irrigation meters by size category are based on July 2017 values.								
3 The number of new meter connections per year are listed below. All new connections are assigned the meter size shown.								
<u>Use Category</u>	<u>Meter</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
Potable	1.0-inch	150	150	150	150	150	150	150
Potable	1.5-inch	22	22	22	22	22	22	22
Irrigation	2.0-inch	2	2	2	2	2	2	2
<b>Total</b>		<b>174</b>	<b>174</b>	<b>174</b>	<b>174</b>	<b>174</b>	<b>174</b>	<b>174</b>

## 2.3 Water Meter Equivalency Factors and Demand Factors

Meter charges for meter sizes greater than ¾-inch are based, in part, on an "equivalency factor" that relates the design maximum flow capacity of a meter (in gallons per minute, gpm) to that of a standard ¾-inch meter. The equivalency factors and maximum flow capacity used in this study are shown in the table below and are based on values published by the American Water Works Association (AWWA).<sup>4</sup>

Private fire connections have no meter between the private fire water lateral and the City's water supply main and the water supply is strictly for fire flows. A different factor is used to relate the different size private fire connections for purpose of developing rates.

Private Fire Protection charges for connections greater than 1-inch are based, in part, on a "demand factor" that relates the nominal size of the cross-sectional area of the connection to that of a 1-inch connection. The demand factors used in this study are shown in the table below and are based on values published by the AWWA.<sup>5</sup>

**Table 2-4. Water Meter Equivalency and Private Fire Protection Connection Demand Factors**

Meter Size	Meter Types	AWWA Standard	Max Flow Rate	¾-inch Meter Eq. Factor	Fire Connection Size	Demand Factor
¾-inch	Displacement	C700/C710	25 gpm	1.0	Hydrant	111.3
1.0-inch	Displacement	C700/C710	40 gpm	1.6	1.0-inch	1.0
1.5-inch	Displacement	C700/C710	50 gpm	2.0	1.5-inch	2.9
2.0-inch	Displacement	C700/C710	100 gpm	4.0	2.0-inch	6.2
3.0-inch	Single Jet	C712	160 gpm	6.4	3.0-inch	18.0
4.0-inch	Single Jet	C712	250 gpm	10.0	4.0-inch	38.3
6.0-inch	Single Jet	C712	500 gpm	20.0	6.0-inch	111.3
8.0-inch	Class II Turbine	C701	2,400 gpm	96.0	8.0-inch	237.2
10.0-inch	Class II Turbine	C701	3,800 gpm	152.0	10.0-inch	426.6
12.0-inch	Class II Turbine	C701	5,000 gpm	200.0	12.0-inch	689.0

<sup>4</sup> American Water Works Association (AWWA), Manual of Water Supply Practices, M6 Water Meters - Selection, Installation, Testing and Maintenance, 2012 Fifth Edition, pages 63 - 65.

<sup>5</sup> American Water Works Association (AWWA), Manual of Water Supply Practices, M1 Principles of Water Rates, Fees, and Charges, 2012 Fifth Edition, page 146. The demand factor or relative potential of the size of service or connection is derived based on the nominal size of the cross-sectional area of the connection. The relative flow potential for various size pipes is dependent on the diameter raised to the 2.63 power.

## 2.4 Equivalent ¾-inch Water Meters

The projected number of equivalent water meters, by size, was based on data from the City's utility billing system as of July 2017. The number of meters in each size category, shown in Table 2-2, are multiplied by ¾-inch Meter Equivalency Factors, shown in Table 2-3, to obtain the number of ¾-inch Meters. Projections for FY18 through FY24 are shown in the table below.

**Table 2-5. Equivalent ¾-inch Water Meters by Customer Class and Size**

Customer Class and Size		Projected						
		FY18	FY19	FY20	FY21	FY22	FY23	FY24
Potable	<u>¾-inch Eq Mtr</u>							
¾-inch	1.0	17,384	17,384	17,384	17,384	17,384	17,384	17,384
1.0-inch	1.6	157,814	158,054	158,294	158,534	158,774	159,014	159,254
1.5-inch	2.0	16,518	16,562	16,606	16,650	16,694	16,738	16,782
2.0-inch	4.0	14,832	14,832	14,832	14,832	14,832	14,832	14,832
3.0-inch	6.4	883	883	883	883	883	883	883
4.0-inch	10.0	6,710	6,710	6,710	6,710	6,710	6,710	6,710
6.0-inch	20.0	4,140	4,140	4,140	4,140	4,140	4,140	4,140
8.0-inch	96.0	19,104	19,104	19,104	19,104	19,104	19,104	19,104
10.0-inch	152.0	1,368	1,368	1,368	1,368	1,368	1,368	1,368
12.0-inch	200.0	600	600	600	600	600	600	600
Totals		239,354	239,638	239,922	240,206	240,490	240,774	241,058
Irrigation	<u>¾-inch Eq Mtr</u>							
¾-inch	1.0	92	92	92	92	92	92	92
1.0-inch	1.6	1,715	1,715	1,715	1,715	1,715	1,715	1,715
1.5-inch	2.0	1,394	1,394	1,394	1,394	1,394	1,394	1,394
2.0-inch	4.0	6,748	6,756	6,764	6,772	6,780	6,788	6,796
3.0-inch	6.4	173	173	173	173	173	173	173
4.0-inch	10.0	1,150	1,150	1,150	1,150	1,150	1,150	1,150
6.0-inch	20.0	460	460	460	460	460	460	460
8.0-inch	96.0	480	480	480	480	480	480	480
10.0-inch	152.0	0	0	0	0	0	0	0
12.0-inch	200.0	0	0	0	0	0	0	0
Totals		12,212	12,220	12,228	12,236	12,244	12,252	12,260
Summary								
Potable		239,354	239,638	239,922	240,206	240,490	240,774	241,058
Irrigation		12,212	12,220	12,228	12,236	12,244	12,252	12,260
Total		251,566	251,858	252,150	252,442	252,734	253,026	253,318



## 2.5 Private Fire Protection Connections and Equivalent Connections

The projected number of Public fire hydrants and Private Fire Protection connections and equivalent connections, by size, are shown in the table below. The number of equivalent connections is calculated by multiplying the Demand Factors, shown in Table 2-3, times the number of connections, to obtain the number of equivalent connections. Projections for FY18 through FY24 are shown in the table below.

**Table 2-6. Public Fire Hydrants and Private Fire Protection Connections**

Connection Type	Demand Factor	July	Projected [1]						
		FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
<b>Public Fire Protection</b>									
Fire Hydrants	111.3	13,332	13,372	13,412	13,452	13,492	13,532	13,572	13,612
Equivalent Connections		1,483,997	1,488,450	1,492,902	1,497,355	1,501,807	1,506,259	1,510,712	1,515,164
<b>Private Fire Protection Service</b>									
Fire Hydrants		637	642	644	646	648	650	652	654
<b>Fire Service Connections</b>									
1.0-inch		1	1	1	1	1	1	1	1
1.5-inch		3	3	3	3	3	3	3	3
2.0-inch		202	202	202	202	202	202	202	202
2.5-inch		2	2	2	2	2	2	2	2
4.0-inch		611	613	615	617	619	621	623	625
6.0-inch		1,007	1,009	1,011	1,013	1,015	1,017	1,019	1,021
8.0-inch		706	708	710	712	714	716	718	720
10.0-inch		74	74	74	74	74	74	74	74
12.0-inch		20	20	20	20	20	20	20	20
Totals		3,263	3,274	3,282	3,290	3,298	3,306	3,314	3,322
<b>Equivalent Connections</b>									
Fire Hydrant	111.3	70,905	71,462	71,684	71,907	72,129	72,352	72,575	72,797
<b>Fire Service Connections</b>									
1.0-inch	38.3	38	38	38	38	38	38	38	38
1.5-inch	38.3	115	115	115	115	115	115	115	115
2.0-inch	38.3	7,741	7,741	7,741	7,741	7,741	7,741	7,741	7,741
2.5-inch	38.3	77	77	77	77	77	77	77	77
4.0-inch	38.3	23,413	23,490	23,566	23,643	23,720	23,796	23,873	23,950
6.0-inch	111.3	112,090	112,313	112,535	112,758	112,981	113,203	113,426	113,648
8.0-inch	237.2	167,468	167,942	168,417	168,891	169,365	169,840	170,314	170,789
10.0-inch	426.6	31,567	31,567	31,567	31,567	31,567	31,567	31,567	31,567
12.0-inch	689.0	13,781	13,781	13,781	13,781	13,781	13,781	13,781	13,781
Totals		427,194	428,524	429,521	430,517	431,513	432,510	433,506	434,502
<b>Summary</b>									
Public Equivalent Connections			1,488,450	1,492,902	1,497,355	1,501,807	1,506,259	1,510,712	1,515,164
Private Equivalent Connections			428,524	429,521	430,517	431,513	432,510	433,506	434,502
Total			1,916,974	1,922,423	1,927,872	1,933,320	1,938,769	1,944,218	1,949,667
1 The number of new connections per year are listed below. All values provided by the City.									
			<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
Public Fire Hydrants			40	40	40	40	40	40	40
Private									
Fire Hydrants			5	5	5	5	5	5	5
Less than 3.0-inch			0	0	0	0	0	0	0
4.0-inch			2	2	2	2	2	2	2
6.0-inch			2	2	2	2	2	2	2
8.0-inch			2	2	2	2	2	2	2
10.0-inch			0	0	0	0	0	0	0
12.0-inch			0	0	0	0	0	0	0
2 Demand factors are based on the nominal connection size raised to the 2.63 power as explained in the AWWA M1 Manual. All Fire Hydrants are assumed to have a 6.0-inch connection.									

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## Section 3

# Financial Plan and Revenue Requirements

Revenue from rates must be sufficient to meet the following financial planning criteria:

1. Provide funds for operating, capital and debt service expenditures;
2. Maintain annual fund balances that meet annual target fund balances;
3. Meet debt service coverage requirements;
4. Meet the goals of the policies that are in the City's Financial Management Plan;
5. Satisfy City Council rate increase goals; and
6. Meet legal requirements.

### 3.1 Capital Improvement Program Expenditures

As part of the FY 2020-2024 Rate Plan, cash financing of capital improvements (Pay-Go) from the Water Enterprise Fund is proposed for the on-going capital budget to provide necessary replacements, rehabilitation and improvements to water facilities (wells, pumps, water mains, fire hydrants, etc.), account for inventory and comply with regulatory mandates. No additional debt financing (revenue bonds, state loans, etc.) is anticipated.

The benefits of a proactive asset management program include:

- Prolonging asset life and improving decisions about asset rehabilitation, repair, and replacement
- Meeting consumer demands with a focus on system sustainability
- Setting rates based on sound operational and financial planning
- Budgeting focused on critical activities for sustained performance
- Meeting customer service expectations and regulatory requirements
- Improving responses to emergencies
- Improving the security and safety of assets
- Reducing overall costs for both operations and capital expenditures

Between FY20 and FY24 (five fiscal years), total projected CIP expenditures of approximately \$145.5 million are planned to be cash funded through rates. Expenditures for FY19-23 are based on the adopted FY19-FY23 budget. Expenditures for FY24 are from Water Division long term capital improvement program projections. These planned expenditures, by project category, are summarized in the pair of tables and figure below.

Table 3-1. Projected CIP Expenditures, FY18 - FY24									
Project Category	Actual	Budget	Projected					Totals	
	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY20 - FY24	
Main Renewal	\$10.0	\$8.9	\$8.8	\$10.0	\$13.0	\$14.0	\$17.0	\$62.8	43%
Well Construction	0.7	3.6	3.6	3.6	3.6	3.6	5.0	19.4	13%
Water Well Development	0.0	0.4	0.4	0.4	0.4	0.4	0.8	2.4	2%
Well Rehabilitation	0.3	1.4	1.4	3.0	4.0	4.0	4.5	16.9	12%
Pump Rehabilitation	0.0	0.1	0.1	0.5	0.5	0.5	0.8	2.4	2%
DPU Admin & Mtce Facility	0.0	4.0	22.2	3.0	0.0	0.0	0.0	25.2	17%
SCADA System Improvements	0.2	3.4	0.5	0.5	0.5	0.5	1.0	3.0	2%
City Recharge Basins	0.0	1.0	1.5	1.5	1.5	1.5	2.0	8.0	5%
Master Planning	0.6	0.7	0.7	0.7	0.0	0.0	0.0	1.4	1%
Water Facilities Security Improvement	0.0	0.3	0.3	0.3	0.3	0.3	0.5	1.7	1%
All Other Water CIP	2.3	8.2	0.7	0.4	0.4	0.4	0.4	2.3	2%
<b>Total Expenditures</b>	<b>\$14.2</b>	<b>\$32.0</b>	<b>\$40.2</b>	<b>\$23.9</b>	<b>\$24.2</b>	<b>\$25.2</b>	<b>\$32.0</b>	<b>\$145.5</b>	<b>100%</b>

Project Category	Actual	Budget	Projected					Totals	
	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY20 - FY24	
Main Renewal	\$10.0	\$8.9	\$8.8	\$10.0	\$13.0	\$14.0	\$17.0	\$62.8	43%
Water Wells and Pumps	1.0	5.5	5.5	7.5	8.5	8.5	11.1	\$41.1	28%
DPU Admin & Mtce Facility	0.0	4.0	22.2	3.0	0.0	0.0	0.0	\$25.2	17%
SCADA, Recharge Basins, All Other	3.2	13.6	3.7	3.4	2.7	2.7	3.9	\$16.4	11%
<b>Total Expenditures</b>	<b>\$14.2</b>	<b>\$32.0</b>	<b>\$40.2</b>	<b>\$23.9</b>	<b>\$24.2</b>	<b>\$25.2</b>	<b>\$32.0</b>	<b>\$145.5</b>	<b>100%</b>

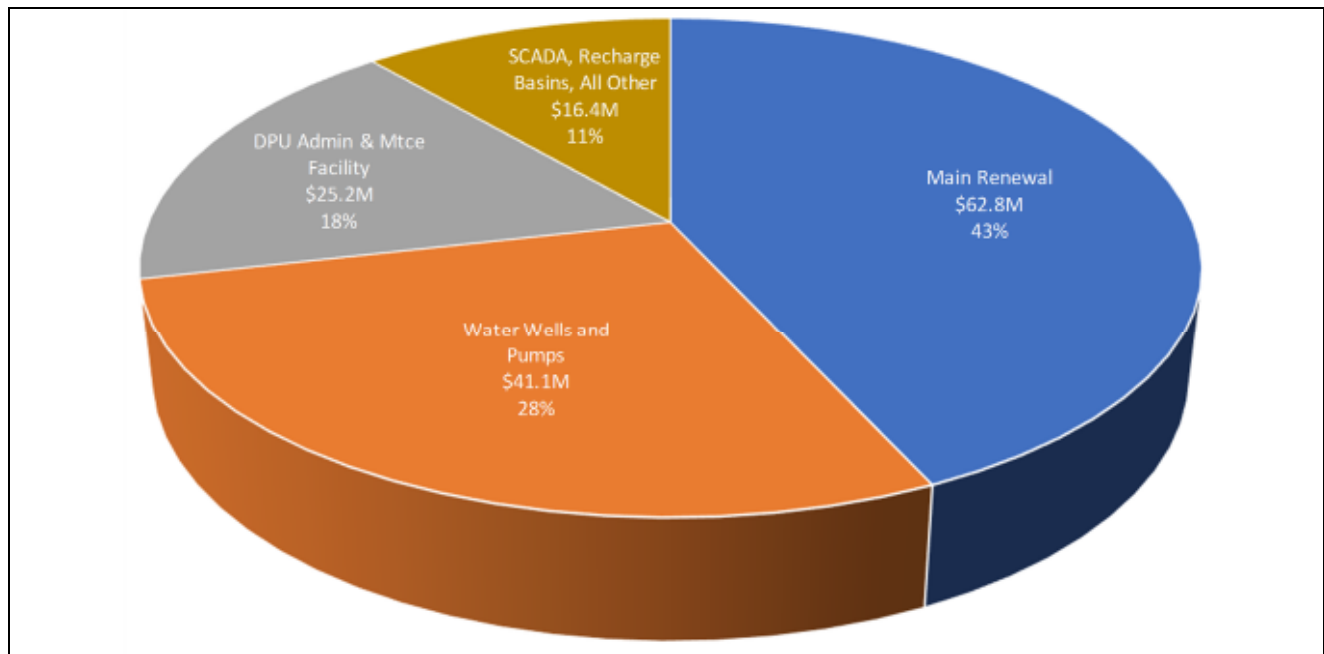


Figure 3-1. Projected Annual CIP Expenditures and Funding Source, FY20 - FY24

## 3.2 Operation and Maintenance and Other Expenditures

O&M expenditures include the cost of employee services, pumping power and chemicals, source of water supply, and interdepartmental charges.<sup>6</sup> These costs are a normal obligation of the system and are met from operating revenues as they are incurred. They enable the City to provide water supply and distribution services that meet all current State and Federal quality mandates and satisfy demands of residential, commercial, industrial, municipal, and institutional customers.

Debt service expenditures are for principal and interest payments on low interest loans from the State of California and revenue bonds. As of FY20, the City will have approximately \$188,975,000 principal outstanding for its 2010 Water Revenue Bonds (A-1 and A-2). As of FY20, the City will have approximately \$378,541,000 principal outstanding for its low interest loans from the State of California. Annual debt service (principal and interest payments) and principal outstanding for each debt obligation for FY18 – FY24 are shown in detail in Table C-1 in Appendix C.

CIP expenditures shown in the previous section are to be funded with cash.

Projected expenditures for FY18 – FY24 are summarized in the table below and shown in detail in Table C-1 in Appendix C.

Category	Actual	Budget	Projected				
	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Operating							
Employee Services	\$13.9	\$16.3	\$17.9	\$18.6	\$19.4	\$20.1	\$20.9
Pumping Power and Chemicals	11.5	16.1	17.6	18.2	18.7	19.3	19.8
Source of Supply	12.1	9.3	9.6	9.9	10.2	10.5	10.8
Recharge Basins	1.0	1.0	1.0	1.0	1.1	1.1	1.1
Interdepartment charges	5.7	5.8	6.0	6.1	6.3	6.5	6.7
<u>All Other</u>	<u>13.1</u>	<u>16.1</u>	<u>16.5</u>	<u>16.9</u>	<u>17.4</u>	<u>17.9</u>	<u>18.5</u>
Total Operating Costs	57.4	64.6	68.6	70.8	73.1	75.4	77.8
Total Debt Service	21.8	22.5	31.5	30.0	30.0	30.0	30.0
CIP (cash)	14.2	32.0	40.2	23.9	24.2	25.2	32.0
Total Expenditures	\$93.4	\$119.1	\$140.3	\$124.7	\$127.2	\$130.6	\$139.8

<sup>6</sup> FY18 values are from the accounting trail balance. FY19 values are from the City of Fresno Mayor's Adopted Fiscal Year 2019 Budget. Values for FY20 – FY24 are based on projections from FY19.

### 3.3 Revenue Required from Rates

The approximate amount of revenues required from rates (water charges) for the five-year period, FY20 through FY24, is \$621.1 million. Another \$43.5 million in revenues is projected from other sources. Expenditures during the same period are projected to be approximately \$662.6 million and transfers out of the fund approximately \$30.8 million. The operating fund balance is projected to decline from approximately \$69.1 to \$40.3 million during the five-year period. The minimum ending fund balance in FY24 is \$38.9 million.

Cash flow for FY19 includes a transfer of \$16.6 million to the Solid Waste fund as a short-term loan. The loan terms are 2.25 percent interest and 10 payments over five years beginning January 1, 2019. The interest rate is slightly higher than the interest rate for monies deposited in the City's pooled reserves.

The loan is paid by FY24 and does not impact the rate increase recommendations. The Water fund earns interest of approximately \$1.0 million for making the loan.

Projected revenue required from treatment charges for FY20 – FY24 are summarized in the table below. Revenues from water charges for FY18 and FY19 using the adopted rates are shown for comparison.

Detailed revenues, expenditures and transfers are shown in Table C-1 in Appendix C.

**Table 3-3. Projected FY18 – FY24 Cash Flow**

	Actual	Budget	Projected Five-Year Plan					FY20 -
	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY24
<b>REVENUES</b>								
Water Charges	\$104.5	\$111.7	\$110.2	\$117.3	\$123.9	\$130.9	\$138.8	\$621.1
Other Charges for Services	3.3	3.3	3.4	3.5	3.6	3.7	3.7	17.9
All Other	3.0	4.7	9.8	4.3	4.4	4.4	2.7	25.6
<b>Total Revenues</b>	<b>110.9</b>	<b>119.7</b>	<b>123.5</b>	<b>125.1</b>	<b>131.9</b>	<b>139.0</b>	<b>145.1</b>	<b>664.6</b>
<b>EXPENDITURES</b>								
Operating Expenditures	\$57.4	\$64.6	\$68.6	\$70.8	\$73.1	\$75.4	\$77.8	\$365.7
Debt Service	21.8	22.5	31.5	30.0	30.0	30.0	30.0	151.4
Capital Expenditures (cash)	14.2	32.0	40.2	23.9	24.2	25.2	32.0	145.5
<b>Total Expenditures</b>	<b>93.4</b>	<b>119.1</b>	<b>140.3</b>	<b>124.7</b>	<b>127.2</b>	<b>130.6</b>	<b>139.8</b>	<b>662.6</b>
<b>NET TRANSFERS</b>								
	\$0.0	(\$21.1)	(\$7.0)	(\$7.0)	(\$5.7)	(\$7.4)	(\$3.7)	(\$30.8)
Operating Fund Ending Balance, June 30	\$88.5	\$69.1	\$45.3	\$38.8	\$37.7	\$38.7	\$40.3	
<i>Minimum Balance</i>	<i>\$28.7</i>	<i>\$32.3</i>	<i>\$34.3</i>	<i>\$35.4</i>	<i>\$36.5</i>	<i>\$37.7</i>	<i>\$38.9</i>	
<i>Days Cash</i>	<i>563</i>	<i>390</i>	<i>241</i>	<i>200</i>	<i>188</i>	<i>187</i>	<i>189</i>	
Debt Service Coverage Ratio	2.46x	2.45x	1.74x	1.82x	1.96x	2.12x	2.25x	
<i>Minimum Coverage Ratio</i>	<i>1.60x</i>	<i>1.60x</i>	<i>1.60x</i>	<i>1.60x</i>	<i>1.60x</i>	<i>1.60x</i>	<i>1.60x</i>	

### 3.4 Enterprise Fund Minimum Balance

A minimum fund balance (reserves) was developed for the enterprise fund. The fund balance should provide for levels of working capital that will enable the City to adjust to unexpected changes in the timing of accounts receivable from ratepayers, payments for unexpected increases in O&M expenses or other fluctuations in cash flow. The minimum fund balance developed by City staff is based on 180 days of annual operating expenditures. In FY20, 180 days of cash is estimated to equal approximately \$38.9 million. Cash flow for FY18 – FY24 is summarized in the figure below and shown in detail in Table C-1 in Appendix C.

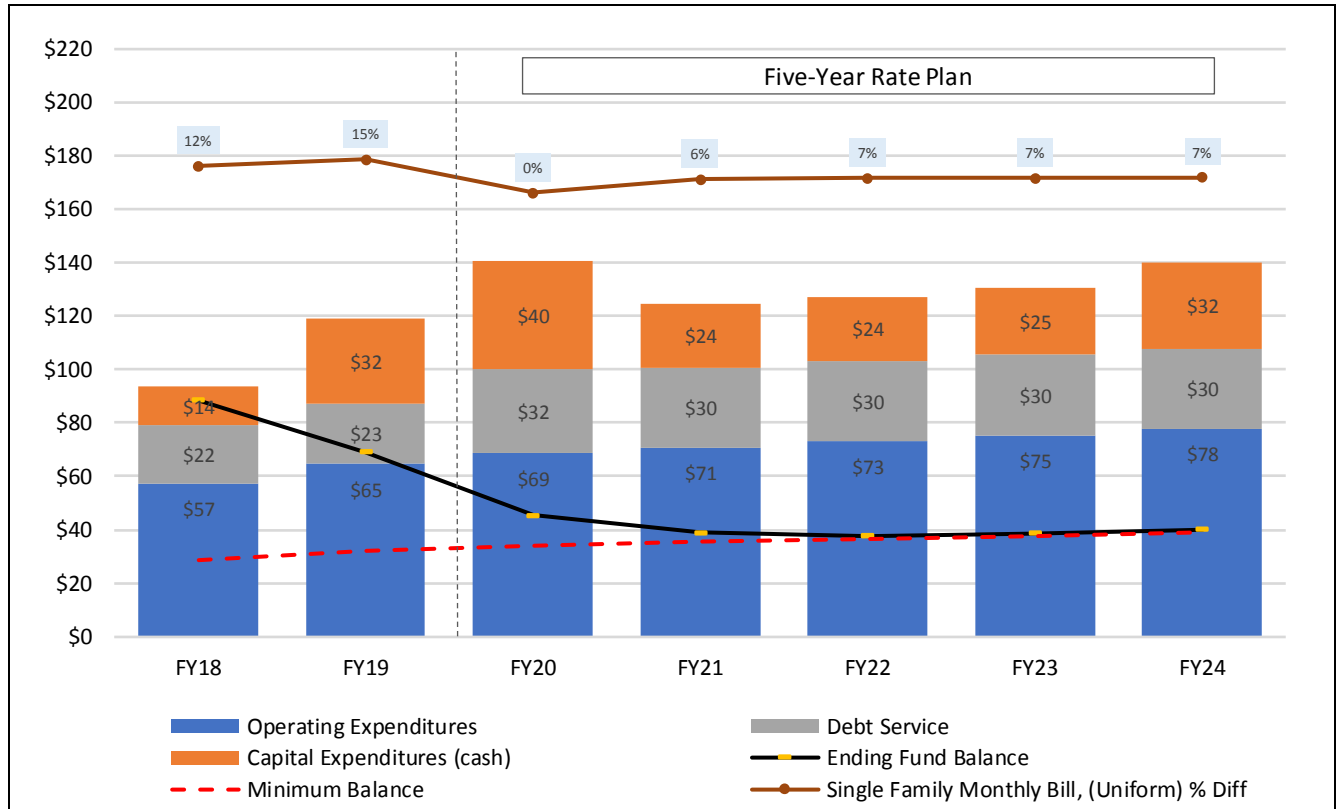
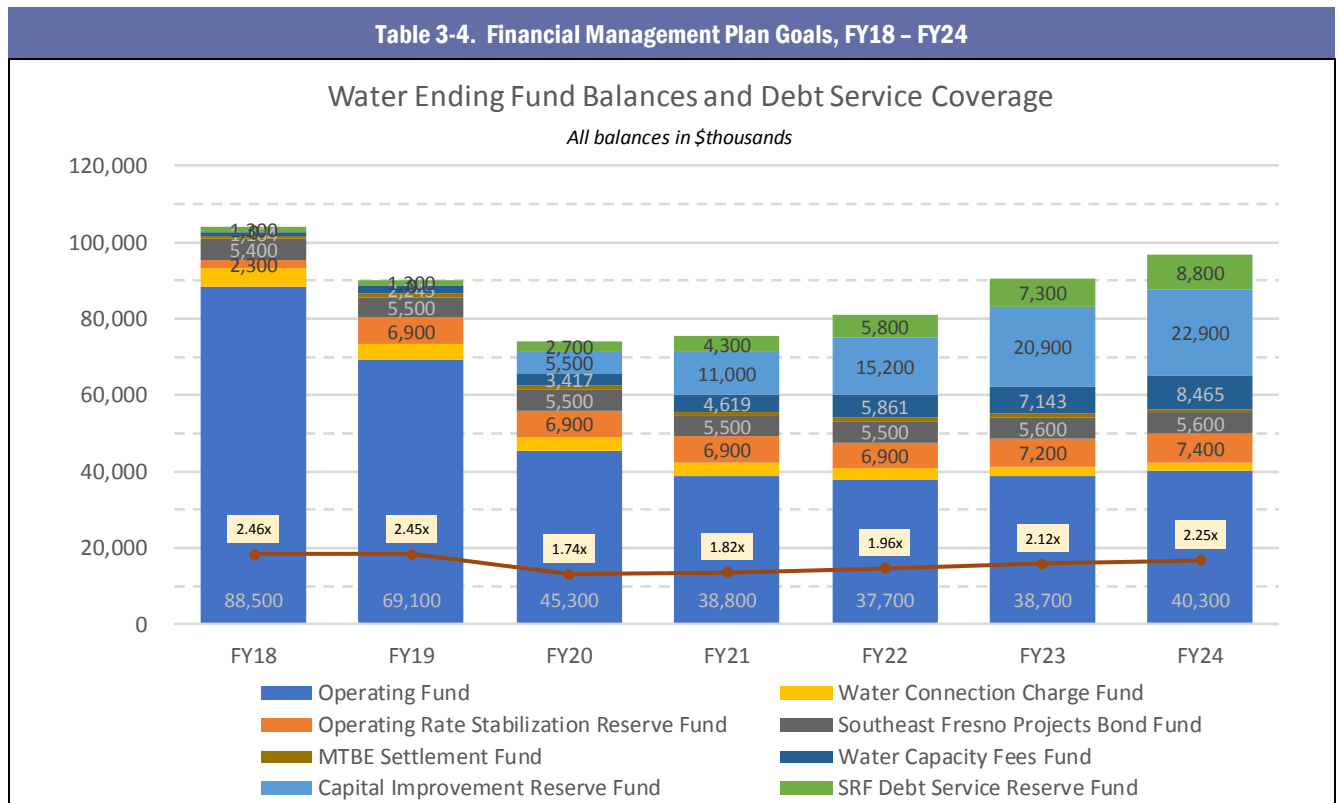


Figure 3-2. Projected Operating and Capital (Cash) Expenditures and Debt Service, FY18 – FY24

### 3.5 Water System Financial Management Plan Goals

The purpose of the Financial Management Plan is to outline the strategic financial management plan and guiding principles for the City of Fresno’s water, wastewater and solid waste utility funds. The strategic financial management plan is intended to establish basic guidance for fiscal management. The goals of the fiscal management policies are categorized in the Financial Management Plan into the categories of general financial; asset management; debt management; rates, fees and charges; customer care; and annual budget process.

Measures of attainment of balances for each goal are listed in the table below for FY18 – FY24 and shown in detail in Table C-1 in Appendix C.





## Section 4

# Cost of Service Analysis

The total amount of revenue required from water rates and charges (costs) is allocated between amounts to be recovered from meter service, private fire protection and quantity charges. Allocation is accomplished by the development of factors that allocate costs among six functional cost categories. The functional cost categories and the allocations are based on principles and methodology found in the American Water Works Association Manual of Water Supply Practices, *M1 Principles of Water Rates, Fees, and Charges* (M1 Manual). The use of these industry standard principles and methods ensures that revenue requirements are equitably recovered from classes of customers in proportion to the cost of serving those customers.

The general cost of service process includes the following steps:

1. Identification of annual revenue requirements by function;
2. Allocation of functional costs to cost components (which may include annual water usage, customer meters and bills, and fire protection);
3. Development of units of service by customer class for each cost component;
4. Development of unit costs of service for each cost component; and
5. Distribution of costs to customer classes.

Annual revenues required from water rates and charges were identified in Section 3. Development of units of service by customer class for each cost component was presented in Section 2. Allocation of functional costs to cost components, development of unit costs of service, and distribution of costs to customer classes is presented in this section.

## 4.1 Capacity Cost Allocation

Allocation of functional costs to cost components is performed using principles and methodology found in the AWWA M1 Manual. Using these principles and methods, costs are separated into four cost components. Each component is described below.

1. Usage costs – costs that tend to vary with the total quantity of water used;
2. Fire protection costs – costs that apply solely to the fire protection function; these costs include those directly related to public fire hydrants and related branches and mains; and private fire protection costs;
3. Customer costs – costs associated with serving customers, irrespective of the amount or rate of water use; and
4. Meter costs – costs associated with serving customers that change as a function of meter size.

## 4.2 Cost Allocation to Functional Categories

Cost allocation of most operating, debt service, and capital expenditures and other revenues (that are not revenues from meter, private fire protection or quantity charges) are based on the allocation of the replacement cost of water assets in service (Plant in Service assets). Allocation of the replacement cost of assets is shown in Table D-1 in Appendix D. The allocation of Plant in Service assets results in Plant in Service and other factors that are used to allocate most operating, debt service, and capital expenditures and other revenues among the functional cost components.

Some operating expenditures and other revenues are allocated exclusively to one functional cost component based on the direct association between the cost category and its related function. For example, the cost category “Fixed UB&C ID Charges” (Fixed Utility Billing & Collection Interdepartmental Charges) is allocated solely to the “Account and Customer” function because these costs may be equitably allocated among all customers regardless of the amount of water use or meter size.

The basis for allocation of operating, debt service, and capital expenditures and other revenues is shown in Table D-2 in Appendix D.

## 4.3 Unit Costs

Revenue required from rates is allocated to functional cost categories as shown in Table D-3 in Appendix D and is merged with units of service shown in Section 2 to calculate unit costs of service. Unit costs calculations are summarized in the table below.

Tables showing detailed calculations are included in Appendix D: Uniform Water Quantity Charges (Table D-4), Private Well Water Quantity Charges (Table D-5), unit costs for Meter charges (D-6), Meter charges (Table D-7), allocations between public protection and private fire protection (Table D-8), and Private Fire Protection charges (Table D-9).

The allocations of fire protection costs between parcels with meter connections and parcels without meter connections are shown in Table D-8. The allocation is based on data from Fire Department incident reports. Fire protections costs allocated to parcels without meter connections will be recovered from non-rate revenues.

**Table 4-1. Unit Costs**

		FY20	FY21	FY22	FY23	FY24
<b>Uniform Water Quantity Charges</b>						
Rate, \$/HCF (rounded up to nearest \$0.01)	<i>from Table D-4</i>	\$1.83	\$1.94	\$2.08	\$2.23	\$2.39
<b>Meter Charge Unit Costs</b>						
Fire Protection (Public)						
Unit Cost, \$/eq-mtr/mo	<i>from Table D-6</i>	\$2.31	\$2.43	\$2.56	\$2.70	\$2.86
Meters/Services						
Unit Cost, \$/eq-mtr/mo	<i>from Table D-6</i>	\$4.90	\$5.14	\$5.42	\$5.72	\$6.06
Customers/Accts						
Unit Cost, \$/acct/mo	<i>from Table D-6</i>	\$5.13	\$5.38	\$5.68	\$5.99	\$6.34
<b>Private Fire Protection Charge Unit Costs</b>						
Fire Protection (Private)						
Unit Cost, \$/mtr/mo	<i>from Table D-9</i>	\$0.37	\$0.39	\$0.41	\$0.43	\$0.46
Total Revenue Requirements	<i>from Table D-3</i>	\$111,692	\$117,277	\$123,844	\$130,780	\$138,626

## Section 5

# Water Quantity, Meter and Private Fire Protection Charges and Proposition 218 Notice

Distribution of costs to functional categories described in the preceding section is followed by the calculation of water quantity charges, meter charges and private fire protection charges. Tables showing detailed calculations are included in Appendix D: Water Use Charges (Table D-4), Private Well Water Quantity Charges (Table D-5), unit costs for Meter charges (D-6), Meter charges (Table D-7), allocations between public protection and private fire protection (Table D-8), and Private Fire Protection charges (Table D-9).

## 5.1 Water Quantity Charges and Meter Charges

Approximately 72 percent of annual revenue requirements are to be recovered from water quantity (use) charges based on allocations to the “Water Use” function. The method of calculating each of the charges in the rate structure is summarized below.

### 5.1.1 Uniform Water Quantity Charges

The calculation involves dividing the Water Use cost allocations by the projected annual amount of water use. The rate structure in the current five-year rate plan is a uniform rate structure.

### 5.1.2 Private Wells Water Quantity Charges

Private wells with water meters that are used for irrigation or commercial purposes are required to pay a Water Quantity Charge. The Private Wells Water Quantity Charge recovers the City’s costs associated with recharging the groundwater aquifer used for the City’s water supply. Development of the Private Wells Water Quantity Charge involves calculating the costs associated with recharging the groundwater aquifer as a percentage of total costs allocated to water quantity charges.

### 5.1.3 Meter Service Charges

Approximately 26 percent of annual revenue requirements are to be recovered from meter charges based on allocations to the “Fire Protection”, “Meters/Services” and “Customer/Account” functions. Note that the Fire Protection functional cost category allocation to meter charges includes only the portion for public fire protection; the portion for private fire protection is recovered from a separate charge (described in the next subsection).

Unit costs are used to develop meter charges for each customer class. There are some important assumptions made in the calculation of meter service charges that change the meter service charge structure for each customer class. Those assumptions are listed below:

- Single Family Residential and Nonresidential meter service charges include the “Fire Protection”, “Meters/Services” and “Customer/Account” functional cost categories;
- Irrigation meter service charges include the “Meters/Services” and “Customer/Account” functional cost categories and exclude the “Fire Protection” functional cost category;
- Travel meter charges are assigned the 3-inch meter rated capacity and pay the Single Family Residential and Nonresidential meter service charges for a 3-inch meter.<sup>7</sup>

## 5.2 Private Fire Protection Charges

Approximately 2 percent of annual revenue requirements are to be recovered from private fire protection connections based on allocations to the “Fire Protection” function. Note that the Fire Protection functional cost category allocation to private fire protection charges includes only the portion for private fire protection; the portion for public fire protection is recovered from a separate charge (described in the previous subsection).

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<sup>7</sup> Travel meters are portable meters and are sometimes referred to as “hydrant” meters (because they are connected to fire hydrants) or “construction” meters (because they are frequently used at construction sites).

### 5.3 Proposition 218 Notice

Recommended rates and charges for FY20 – FY24 are shown in the table below. The effective dates are July 1 of each fiscal year. July 1 is the beginning of the fiscal year. There is no rate increase projected for July 1, 2019 (FY20).

Table 5-1. Rates and Charges for Proposition 218 Notice												
Item	effective date >	no increase					FY19	Recommended				
	7/1/2018	7/1/2020	7/1/2021	7/1/2022	7/1/2023	FY20		FY21	FY22	FY23	FY24	
	Adopted	Recommended						Recommended				
	FY19	FY20	FY21	FY22	FY23	FY24	FY19	FY20	FY21	FY22	FY23	FY24
<b>Water Quantity Charges, \$/HCF</b>												
Potable Water Meters	\$1.74	\$1.74	\$1.94	\$2.08	\$2.23	\$2.39	16%	0%	11%	7%	7%	7%
Private Wells	\$0.218	\$0.218	\$0.26	\$0.27	\$0.28	\$0.29	0%	0%	19%	4%	4%	4%
<b>Meter Charges, \$/month</b>												
<b>All x/Irrigation</b>												
¾-inch	\$13.50	\$13.50	\$13.00	\$13.70	\$14.50	\$15.30	13%	0%	-4%	5%	6%	6%
1.0-inch	\$17.90	\$17.90	\$17.50	\$18.50	\$19.50	\$20.70	13%	0%	-2%	6%	5%	6%
1.5-inch	\$20.80	\$20.80	\$20.60	\$21.70	\$22.90	\$24.20	13%	0%	-1%	5%	6%	6%
2.0-inch	\$35.30	\$35.30	\$35.70	\$37.70	\$39.70	\$42.10	13%	0%	1%	6%	5%	6%
3.0-inch	\$52.80	\$52.80	\$54.00	\$57.00	\$60.00	\$64.00	13%	0%	2%	6%	5%	7%
4.0-inch	\$79.00	\$79.00	\$82.00	\$86.00	\$91.00	\$96.00	13%	0%	4%	5%	6%	5%
6.0-inch	\$152.00	\$152.00	\$157.00	\$166.00	\$175.00	\$185.00	13%	0%	3%	6%	5%	6%
8.0-inch	\$705.00	\$705.00	\$732.00	\$773.00	\$815.00	\$863.00	13%	0%	4%	6%	5%	6%
10.0-inch	\$1,113.00	\$1,113.00	\$1,156.00	\$1,220.00	\$1,287.00	\$1,362.00	13%	0%	4%	6%	5%	6%
12.0-inch	\$1,462.00	\$1,462.00	\$1,520.00	\$1,603.00	\$1,691.00	\$1,790.00	13%	0%	4%	5%	5%	6%
<b>Irrigation</b>												
¾-inch	\$10.70	\$10.70	\$10.60	\$11.10	\$11.80	\$12.40	13%	0%	-1%	5%	6%	5%
1.0-inch	\$13.40	\$13.40	\$13.70	\$14.40	\$15.20	\$16.10	14%	0%	2%	5%	6%	6%
1.5-inch	\$15.20	\$15.20	\$15.70	\$16.60	\$17.50	\$18.50	13%	0%	3%	6%	5%	6%
2.0-inch	\$24.10	\$24.10	\$26.00	\$27.40	\$28.90	\$30.60	13%	0%	8%	5%	5%	6%
3.0-inch	\$34.90	\$34.90	\$38.30	\$40.40	\$42.60	\$45.10	13%	0%	10%	5%	5%	6%
4.0-inch	\$51.00	\$51.00	\$57.00	\$60.00	\$64.00	\$67.00	11%	0%	12%	5%	7%	5%
6.0-inch	\$96.00	\$96.00	\$109.00	\$115.00	\$121.00	\$128.00	13%	0%	14%	6%	5%	6%
8.0-inch	\$436.00	\$436.00	\$499.00	\$527.00	\$556.00	\$588.00	13%	0%	14%	6%	6%	6%
10.0-inch	\$687.00	\$687.00	\$787.00	\$830.00	\$876.00	\$927.00	13%	0%	15%	5%	6%	6%
12.0-inch	\$901.00	\$901.00	\$1,034.00	\$1,091.00	\$1,150.00	\$1,218.00	13%	0%	15%	6%	5%	6%
<b>Private Fire Protection Charges, \$/month</b>												
<b>Fire Service Connections</b>												
1.0-inch	\$15.70	\$15.70	\$14.90	\$15.70	\$16.50	\$17.50	13%	0%	-5%	5%	5%	6%
1.5-inch	\$15.70	\$15.70	\$14.90	\$15.70	\$16.50	\$17.50	13%	0%	-5%	5%	5%	6%
2.0-inch	\$15.70	\$15.70	\$14.90	\$15.70	\$16.50	\$17.50	13%	0%	-5%	5%	5%	6%
3.0-inch	\$15.70	\$15.70	\$14.90	\$15.70	\$16.50	\$17.50	13%	0%	-5%	5%	5%	6%
4.0-inch	\$15.70	\$15.70	\$14.90	\$15.70	\$16.50	\$17.50	13%	0%	-5%	5%	5%	6%
6.0-inch	\$45.60	\$45.60	\$43.30	\$45.60	\$48.00	\$50.70	13%	0%	-5%	5%	5%	6%
8.0-inch	\$98.00	\$98.00	\$93.00	\$97.00	\$103.00	\$108.00	13%	0%	-5%	4%	6%	5%
10.0-inch	\$175.00	\$175.00	\$166.00	\$175.00	\$184.00	\$195.00	13%	0%	-5%	5%	5%	6%
12.0-inch	\$283.00	\$283.00	\$268.00	\$282.00	\$297.00	\$314.00	13%	0%	-5%	5%	5%	6%

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## Section 6

# Impact of Rate Plan on Customer Bills

The impact on customers is summarized in terms of annual changes in revenue required from each rate or charge and annual changes in monthly bills.

### 6.1 Projected Revenue from Water Charges

The total amount of revenue projected from water charges (for a full fiscal year), by type of charge, is summarized in Table 6-1. Note that the revenues shown for FY19 are developed using FY19 rates adopted by the City Council as part of the 2015 Rate Plan.

Revenues for FY20 are projected to decrease because of the combination of no rate increases and projected reduction in water use.

Revenue projections shown in this table will change because actual growth in the number, size and type of new connections, and projected water use, will be different from assumptions used in the development of projected rates and charges.

Note also that in FY21, compared to FY19, the cost of service analysis results in an approximate two percent shift in cost recovery from costs related to meters, connections and accounts (meter charges) to quantity-related costs.

**Table 6-1. Revenue from Projected Rates and Charges**

	Estimated	Projected Based on New Rate Plan				
	FY19	FY20	FY21	FY22	FY23	FY24
Revenue (in \$ thousands)						
Quantity Rates	\$78,066	\$76,531	\$84,076	\$88,784	\$93,756	\$99,381
Potable Meter Service Charges	\$30,630	\$30,668	\$30,233	\$31,974	\$33,760	\$35,837
Irrigation Meter Service Charges	\$934	\$935	\$999	\$1,053	\$1,112	\$1,177
Private Fire Connection Charges	\$2,114	\$2,114	\$2,011	\$2,122	\$2,240	\$2,373
Total	\$111,744	\$110,247	\$117,318	\$123,932	\$130,868	\$138,768
Annual \$ Change		-\$1,497	\$7,071	\$6,614	\$6,935	\$7,900
Annual % Change		-1%	6%	6%	6%	6%
Revenue (percent of total)						
Quantity	69.9%	69.4%	71.7%	71.6%	71.6%	71.6%
Meter	28.2%	28.7%	26.6%	26.6%	26.6%	26.7%
Private Fire	1.9%	1.9%	1.7%	1.7%	1.7%	1.7%
Total	100%	100%	100%	100%	100%	100%

## 6.2 Impact on Monthly Bills

Projected monthly bills for accounts with a 1-inch meter connection using 16 HCF per month are shown in the figure below for FY18 – FY24. Most Single Family accounts have a 1-inch connection and the average monthly water use for the Single Family customer class is projected to be approximately 16 HCF.

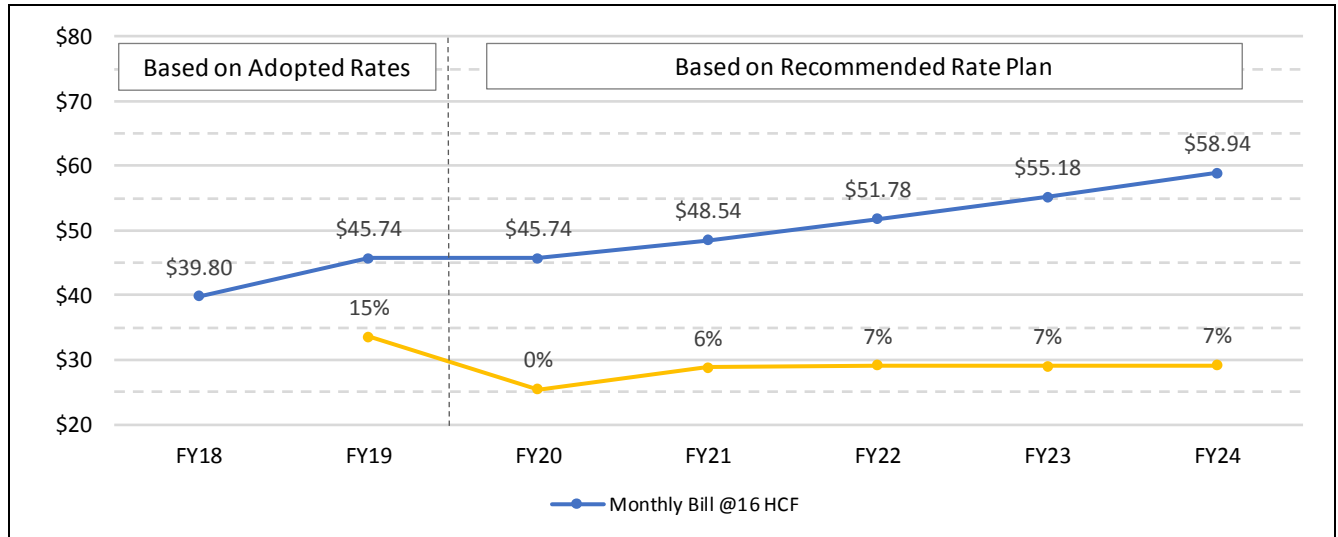


Figure 6-1. Projected Monthly Bills @ 16 HCF/month

The impact on monthly bills for accounts with higher water use is nearly the same – on a percentage basis – as for the average Single Family customer. As shown in the figure below, for monthly bills based on 50 HCF per month water use, the absolute bill is higher but the percentage increase in bills is approximately the same as for water use of 16 HCF per month.

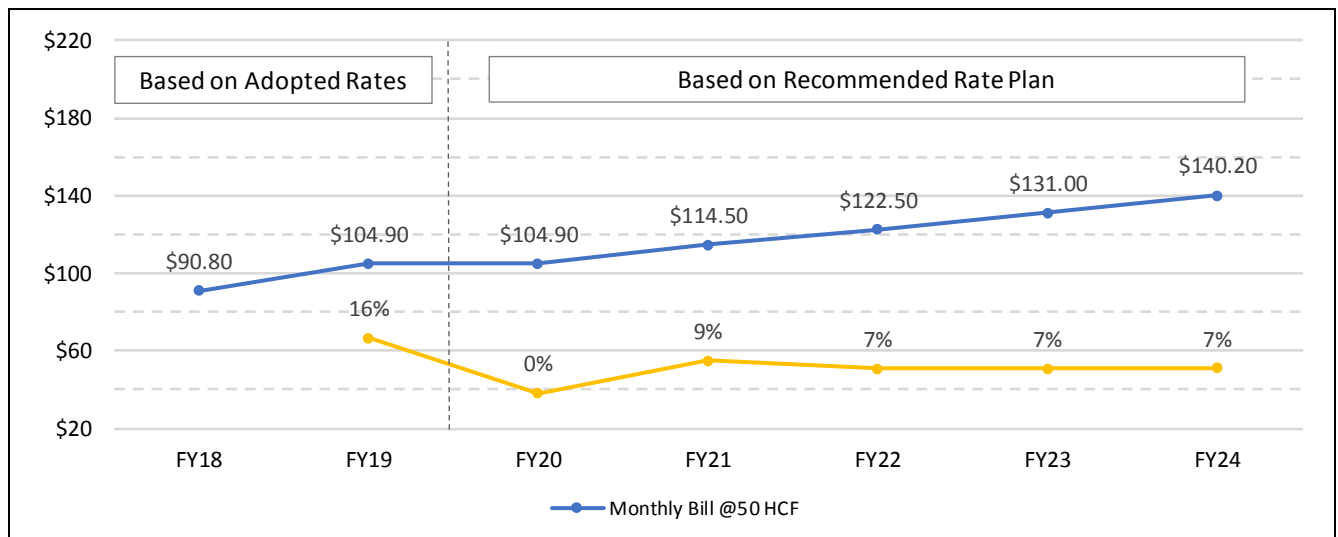


Figure 6-2. Projected Monthly Bills @ 50 HCF/month





## Section 7

# Limitations

This document was prepared solely for City of Fresno in accordance with professional standards at the time the services were performed and in accordance with the contract between City of Fresno and Municipal Financial Services dated June 27, 2016. This document is governed by the specific scope of work authorized by City of Fresno; it is not intended to be relied upon by any other party. We have relied on information or instructions provided by City of Fresno and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

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## Appendix A: Master Fee Schedule #539

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**CITY OF FRESNO  
MASTER FEE SCHEDULE**

**PUBLIC UTILITIES DEPARTMENT**

**WATER RATES\*\***

**Fee Description & Unit/Time \***

**Current**

**Amnd**

**Water, Metered Service Rate** total charge shall be monthly meter service charge plus quantity charge based on usage. 522

Water Meter Service Charge, (meter size per month):

Domestic

3/4-inch or smaller	13.50
1-inch	17.90
1-1/2-inch	20.80
2-inch	35.30
3-inch	52.80
4-inch	79.00
6-inch	152.00
8-inch	705.00
10-inch	1,113.00
12-inch	1,462.00

Irrigation\*\*\*

3/4-inch or smaller	10.70
1-inch	13.40
1-1/2-inch	15.20
2-inch	24.10
3-inch	34.90
4-inch	51.00
6-inch	96.00
8-inch	436.00
10-inch	687.00
12-inch	901.00

**Water Quantity Charge:**

All Customer Classes

Each 100 Cubic Feet (HCF)	1.74
1,000 gallons	2.33

**Water Affordability Credit for Income - Qualified**

Single Family Residential Accounts Only, \$/Month Up to \$5.00

522

\* Rates effective 7/1/16

\*\* Rates shall be adjusted annually by staff to reflect the rates in effect as per Res. No. 2015-36

\*\*\*These charges were previously charged at the Domestic service rate.

**CITY OF FRESNO  
MASTER FEE SCHEDULE**

**PUBLIC UTILITIES DEPARTMENT**

**WATER RATES\*\***

**Fee Description & Unit/Time \*\*\***

**Current**

**Amnd**

**Water Quantity Charge (continued):**

Wells, private (used for irrigation or commercial purposes when required to be metered)

Each HCF	0.218	
1,000 gallons	0.290	

Water drawn from a fire hydrant / Minimum per month	29.97	
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**Backflow Prevention, Program Fee**

Per assembly/per month	2.00	540
		Effective 1/1/2018

**Private Fire Protection Charges, \$/Month**

Private Hydrants	45.60	522
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Fire Service Connections\*\*\*\*

1-inch	15.70	
1-1/2-inch	15.70	
2-inch	15.70	
2-1/2 and 3-inch	15.70	
4-inch	15.70	
6-inch	45.60	
8-inch	98.00	
10-inch	175.00	
12-inch	283.00	

**Irrigation of City-Owned Property, Not Metered**

100 square feet	0.24	
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**Penalties**

Fire hydrant, unauthorized use / first violation	500.00	464
Each violation after first violation	1,000.00	

\*\* Rates shall be adjusted annually by staff to reflect the rates in effect as per Res. No. 2015-36

\*\*\* Rates effective 7/1/16

\*\*\*\* These charges were previously a part of the Fire Protection Automatic Sprinkler Service charges.

## Appendix B: Water Use Tables

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Table B-1  
Projected Water Use, HCF

Customer Class	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
<b>Potable Water</b>									
Commercial	6,091,230	6,366,043	6,824,398	6,346,690	6,283,223	6,220,391	6,158,187	6,096,605	6,035,639
Schools	793,811	856,418	918,080	853,814	845,276	836,823	828,455	820,170	811,969
Industrial	2,466,588	2,393,050	2,565,349	2,385,775	2,361,917	2,338,298	2,314,915	2,291,766	2,268,848
Municipal	626,688	663,277	711,033	661,261	654,648	648,102	641,621	635,205	628,853
Multi-Residential	7,438,868	7,816,256	8,379,026	7,792,494	7,714,569	7,637,423	7,561,049	7,485,439	7,410,584
Single Family Residential	22,456,793	23,494,511	26,254,070	23,133,674	22,468,853	22,048,082	21,635,153	21,229,923	21,044,822
<b>Total</b>	<b>39,873,978</b>	<b>41,589,554</b>	<b>45,651,956</b>	<b>41,173,707</b>	<b>40,328,486</b>	<b>39,729,118</b>	<b>39,139,380</b>	<b>38,559,108</b>	<b>38,200,715</b>
<b>Irrigation Water</b>									
Commercial	1,293,433	1,470,736	1,772,237	1,648,180	1,631,699	1,615,382	1,599,228	1,583,236	1,567,403
Schools	667,312	805,826	971,021	815,657	807,501	799,426	791,431	783,517	775,682
Industrial	546	11,732	14,137	12,440	12,316	12,193	12,071	11,950	11,831
Municipal	817,750	975,005	1,174,881	986,900	977,031	967,261	957,588	948,012	938,532
Multi-Residential	196,733	228,802	275,706	217,808	215,630	213,474	211,339	209,226	207,133
Single Family Residential	10,679	10,819	13,037	10,690	10,584	10,478	10,373	10,269	10,167
<b>Total</b>	<b>2,986,454</b>	<b>3,502,920</b>	<b>4,221,019</b>	<b>3,691,676</b>	<b>3,654,760</b>	<b>3,618,212</b>	<b>3,582,030</b>	<b>3,546,210</b>	<b>3,510,748</b>
<b>Total Water Use</b>	<b>42,860,432</b>	<b>45,092,474</b>	<b>49,872,974</b>	<b>44,865,384</b>	<b>43,983,246</b>	<b>43,347,331</b>	<b>42,721,410</b>	<b>42,105,317</b>	<b>41,711,462</b>
<b>Total Water Use, Average mgd</b>	<b>87.6</b>	<b>92.4</b>	<b>102.2</b>	<b>91.9</b>	<b>89.9</b>	<b>88.8</b>	<b>87.6</b>	<b>86.3</b>	<b>85.3</b>
<b>Summary</b>									
Potable	39,873,978	41,589,554	45,651,956	41,173,707	40,328,486	39,729,118	39,139,380	38,559,108	38,200,715
Irrigation	2,986,454	3,502,920	4,221,019	3,691,676	3,654,760	3,618,212	3,582,030	3,546,210	3,510,748
<b>Total</b>	<b>42,860,432</b>	<b>45,092,474</b>	<b>49,872,974</b>	<b>44,865,384</b>	<b>43,983,246</b>	<b>43,347,331</b>	<b>42,721,410</b>	<b>42,105,317</b>	<b>41,711,462</b>
<b>Total Percent Change</b>			<b>10.6%</b>	<b>-10.0%</b>	<b>-2.0%</b>	<b>-1.4%</b>	<b>-1.4%</b>	<b>-1.4%</b>	<b>-0.9%</b>

Notes:

1 Single Family Residential water use for FY18 onward is based on the following assumptions:

	<u>FY16</u>	<u>FY17</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
HCF >	22,456,793	23,494,511							
number of meters >	114,198	115,014	115,164	115,314	115,464	115,614	115,764	115,914	116,064
average monthly HCF/meter >	16.4	17.0							
average monthly gpd/meter >	403	419							
estimated percent conservation >			-11.6%	12.0%	3.0%	2.0%	2.0%	2.0%	1.0%
projected avg. monthly HCF/meter >			19.0	16.7	16.2	15.9	15.6	15.3	15.1
projected avg. monthly gpd/meter >			467	411	399	391	383	375	372

2 Nonresidential water use for FY18 onward is based on the following conservation estimates applied to actual FY17 water use:

	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
Commercial	-7.2%	7.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Schools	-7.2%	7.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Industrial	-7.2%	7.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Municipal	-7.2%	7.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Multi-Residential	-7.2%	7.0%	1.0%	1.0%	1.0%	1.0%	1.0%

3 Irrigation water use for FY18 onward is based on the following conservation estimates applied to actual FY17 water use:

	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
Commercial	-20.5%	7.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Schools	-20.5%	16.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Industrial	-20.5%	12.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Municipal	-20.5%	16.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Multi-Residential	-20.5%	21.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Single Family Residential	-20.5%	18.0%	1.0%	1.0%	1.0%	1.0%	1.0%

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## Appendix C: Cash Flow Table

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Table C-1  
Cash Flow

<b>BEGINNING FUND BALANCES</b>		<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
Operating Fund *	40101	71,007	89,517	69,079	45,338	38,808	37,720	38,670
Water Connection Charge Fund	40103	4,897	4,553	4,200	3,836	3,458	3,063	2,661
Operating Rate Stabilization Reserve Fund	40107	2,312	2,339	6,865	6,892	6,920	6,947	7,175
DBCP Recovery Fund	40110	3,606	2,766	1,383	0	0	0	0
Southeast Fresno Projects Bond Fund	40116	7,345	5,427	5,457	5,487	5,517	5,547	5,577
Copper River Ranch Water Infr. Fund	40168	233	612	0	0	0	0	0
MTBE Settlement Fund	40189	910	910	910	910	910	910	910
TCP Settlement Fund	40197	993	0	0	0	0	0	0
Water Capacity Fees Funds	40202	0	1,104	2,245	3,417	4,619	5,861	7,143
Capital Improvements Reserve Fund	not existing	0	0	0	5,500	11,000	15,200	20,900
SRF Debt Service Reserve Fund	Bank/40534	1,280	1,280	1,280	2,743	4,264	5,786	7,308
<b>Total Beginning Fund Balances</b>		<b>92,584</b>	<b>108,507</b>	<b>91,419</b>	<b>74,122</b>	<b>75,495</b>	<b>81,035</b>	<b>90,345</b>

\* The FY19 Beginning Fund Balance reflects carryovers and any adjustments from FY18.

<b>REVENUES</b>		<b>ANNUAL INTEREST RATES &gt;</b>		<b>0.5%</b>	<b>0.5%</b>	<b>0.5%</b>	<b>0.5%</b>	<b>0.5%</b>	<b>0.5%</b>
<u>Operating Revenues</u>		<u>Fund</u>	<u>Acct</u>						
Water Charges	40101	34401	104,528	111,744	110,247	117,318	123,932	130,868	138,768
Backflow Prevention Program Charges	40101	34401	190	190	190	190	190	190	190
Fire Protection Non-rate revenue						54	57	61	64
Sale of Water Yard	40101				3,443				
Other Charges for Services	40101	various	3,158	3,140	3,223	3,309	3,398	3,489	3,489
Interest Income--Fund 40101	40101	36101	1,055	915	895	746	771	848	848
Interest Income--Fund 40107	40107	36101	26	27	27	27	28	28	28
Federal Reimbursement - BABS	40101	33118	1,978	1,978	1,978				
Solid Waste Loan Reimbursement	40101	33118	0	1,764	3,529	3,529	3,529	3,529	1,764
<b>Subtotal Operating Revenues</b>			<b>110,935</b>	<b>119,758</b>	<b>123,533</b>	<b>125,174</b>	<b>131,905</b>	<b>139,012</b>	<b>145,152</b>
Subtotal Capital Revenues			5,819	4,903	5,003	3,720	3,830	3,950	4,070
<u>Capital Revenues</u>		<b>ANNUAL REVENUE INCREASES &gt;</b>		<b>3.0%</b>	<b>3.0%</b>	<b>3.0%</b>	<b>3.0%</b>	<b>3.0%</b>	<b>3.0%</b>
Water Capacity Fees			1,404	1,450	1,490	1,530	1,580	1,630	1,680
Water Connection Charges			1,978	2,040	2,100	2,160	2,220	2,290	2,360
DBCP Recovery Fund			840	1,383	1,383				
Southeast Fresno Projects Bond Fund			82	30	30	30	30	30	30
Copper River Ranch Water Infr. Fund			1,515	0	0	0	0	0	0
<b>Subtotal Capital Revenues</b>			<b>5,819</b>	<b>4,903</b>	<b>5,003</b>	<b>3,720</b>	<b>3,830</b>	<b>3,950</b>	<b>4,070</b>
<b>TOTAL REVENUES</b>			<b>116,754</b>	<b>124,661</b>	<b>128,536</b>	<b>128,894</b>	<b>135,735</b>	<b>142,962</b>	<b>149,222</b>

Table C-1  
Cash Flow

EXPENSES		<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
<i>Annual Percent Changes</i>								
<b>Operating &amp; Maintenance</b>	<i>Acct</i>							
Labor and Benefits	51000	13,943	16,261	16,911	17,588	18,291	19,023	19,784
Pumping Power	51000	9,421	10,659	10,979	11,309	11,648	11,997	12,357
Source of Supply-FWA	53000	1,569	1,339	1,379	1,421	1,463	1,507	1,553
Source of Supply-FID	54000	2,918	3,253	3,370	3,485	3,590	3,697	3,808
Source of Supply-CVP Water Deliveries	54101	7,627	4,672	4,812	4,956	5,105	5,258	5,416
Specialty Chemicals (Water Treatment)	55000	2,099	5,490	5,654	5,824	5,999	6,179	6,364
Fleet Services & Maintenance	56000	1,559	1,611	1,659	1,709	1,760	1,813	1,867
Fixed General Fund ID Charges	57000	2,141	1,841	1,896	1,953	2,012	2,072	2,134
Fixed UB&C ID Charges	58000	1,433	1,965	2,024	2,085	2,147	2,212	2,278
Fire Hydrant Insp and Mtc (Fire Dept)	59000	649	630	649	668	689	709	731
Fixed DPU Administration ID Charges	59000	2,142	1,983	2,043	2,104	2,167	2,232	2,299
Additional SE SWTF O&M Costs		0	0	2,031	2,092	2,155	2,219	2,219
Recharge Basins Operating and Maintenance		952	980	1,010	1,040	1,071	1,103	1,136
All Other Operating and Maintenance		10,709	13,687	14,097	14,520	14,956	15,404	15,867
Other Loan Payments (Non-debt service)		198	198	30	0	0	0	0
Trustee Fees		11	16	16	16	16	16	16
<b>Subtotal Operating &amp; Maintenance</b>		57,369	64,584	68,561	70,769	73,068	75,442	77,829
<b>Debt Service</b>								
2003 Water Remediation Bonds		1,376	1,379	1,379				
2010 Water Revenue Bonds A-1		6,412	6,406	6,412	7,858	7,861	7,858	7,861
2010 Water Revenue Bonds A-2		6,097	6,097	6,097	4,119	4,119	4,119	4,119
SDWSRF Loan Repayment (CL2 Buildings)		122	122	122	122	122	122	122
2012 SDWSRF Loan (Enterprise Canal)		78	78	78	78	78	78	78
SRF Residential Meter Retrofit		2,570	2,570	2,570	2,570	2,570	2,570	2,570
SRF SESWTF		2,936	3,098	7,912	7,912	7,912	7,912	7,912
SRF FK/NESWTF Pipeline		362	373	980	980	980	980	980
SRF Kings River Pipeline		873	874	2,299	2,299	2,299	2,299	2,299
SRF Regional Transmission Mains		936	1,305	3,435	3,435	3,435	3,435	3,435
SRF NEWTF Clear Well		21	224	224	591	591	591	591
<b>Subtotal Debt Service</b>		21,784	22,526	31,509	29,965	29,968	29,965	29,968
<b>Capital Improvements, Pay As You Go</b>								
CIP		14,245	31,960	40,215	23,920	24,208	25,205	31,990
<b>Subtotal Capital Improvements</b>		14,245	31,960	40,215	23,920	24,208	25,205	31,990
<b>TOTAL EXPENSES</b>		93,398	119,070	140,285	124,655	127,243	130,612	139,787
<b>Capital Improvements, Other</b>								
Water Connection Charge Fund		2,323	2,393	2,464	2,538	2,614	2,693	2,774
Southeast Fresno Projects Bond Fund		2,000	0	0	0	0	0	0
Copper River Ranch Water Infr. Fund		1,136	612	0	0	0	0	0
TCP Settlement Fund		993	0	0	0	0	0	0
<b>REVENUES LESS EXPENSES (EXCLUDING DEBT FUNDED CIP)</b>		23,356	5,591	(11,748)	4,239	8,492	12,350	9,435
<b>TRANSFERS</b>								
Transfer from Op Fund to Solid Waste Fund			16,600					
Transfer from Op Fund to Op Rate Stabl Fund			4,500	0	0	0	200	200
Transfer from Op Fund to Cap Imprv Rsrv Fund				5,500	5,500	4,200	5,700	2,000
Transfer from Op Fund to SRF Debt Svc Rsrv				1,463	1,522	1,522	1,522	1,522
<b>ENDING FUND BALANCES</b>								
Operating Fund		88,517	69,079	45,338	38,808	37,720	38,670	40,285
Water Connection Charge Fund		4,553	4,200	3,836	3,458	3,063	2,661	2,247
Operating Rate Stabilization Reserve Fund		2,339	6,865	6,892	6,920	6,947	7,175	7,403
DBCP Recovery Fund		2,766	1,383	0	0	0	0	0
Southeast Fresno Projects Bond Fund		5,427	5,457	5,487	5,517	5,547	5,577	5,607
Copper River Ranch Water Infr. Fund		612	0	0	0	0	0	0
MTBE Settlement Fund		910	910	910	910	910	910	910
TCP Settlement Fund		0	0	0	0	0	0	0
Water Capacity Fees Funds		1,104	2,245	3,417	4,619	5,861	7,143	8,465
Capital Improvements Reserve Fund		0	0	5,500	11,000	15,200	20,900	22,900
SRF Debt Service Reserve Fund		1,280	1,280	2,743	4,264	5,786	7,308	8,830
<b>Total Ending Fund Balances</b>		107,507	91,419	74,122	75,495	81,035	90,345	96,648

Table C-1  
Cash Flow

			<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>
<b>Operating Reserves</b>									
Total Operating O&M	separate	§ I-A	57,369	64,584	68,561	70,769	73,068	75,442	77,829
Operating Fund Ending Balance	debt resrv	<u>Minimum</u>	88,517	69,079	45,338	38,808	37,720	38,670	40,285
Ending Balance as a Percent of O&M		=>50%	154%	107%	66%	55%	52%	51%	52%
Ending Balance as Days of O&M Expenditures		180	563	390	241	200	188	187	189
Minimum Ending Balance			28,700	32,300	34,300	35,400	36,500	37,700	38,900
<b>Operating Rate Stabilization Reserve</b>									
Operating Rate Stabilization Reserve		§ IV-F	2,339	6,865	6,892	6,920	6,947	7,175	7,403
Operating Revenues		<u>Minimum</u>	110,935	119,758	123,533	125,174	131,905	139,012	145,152
Reserve as a Percent of Operating Revenues		=>5%	2%	6%	6%	6%	5%	5%	5%
Minimum Ending Balance			5,500	6,000	6,200	6,300	6,600	7,000	7,300
<b>Capital Improvements Reserve</b>									
Net Total Capital Assets		§ II-A	617,025	945,684	1,015,198	1,022,255	1,029,582	1,037,907	1,053,017
Capital Improvements Reserve		<u>Minimum</u>	0	0	5,500	11,000	15,200	20,900	22,900
Reserve as a Percent of Net Total Capital Assets		=>2%	0%	0%	1%	1%	1%	2.0%	2.2%
Minimum Ending Balance			12,300	18,900	20,300	20,400	20,600	20,800	21,100
<b>Debt Service Coverage Ratio</b>									
Net Revenues									
Operating Revenues			110,935	119,758	123,533	125,174	131,905	139,012	145,152
Operating O&M			<u>57,369</u>	<u>64,584</u>	<u>68,561</u>	<u>70,769</u>	<u>73,068</u>	<u>75,442</u>	<u>77,829</u>
Net Revenues			53,566	55,174	54,972	54,405	58,837	63,570	67,323
Debt Service			21,784	22,526	31,509	29,965	29,968	29,965	29,968
Coverage Ratio									
Net Revenues		§ III-A	53,566	55,174	54,972	54,405	58,837	63,570	67,323
Debt Service		<u>Minimum</u>	21,784	22,526	31,509	29,965	29,968	29,965	29,968
Coverage Ratio		1.60x	2.46x	2.45x	1.74x	1.82x	1.96x	2.12x	2.25x
<b>Debt Service as a Percent of Revenue</b>									
Debt Service		§ III-C	21,784	22,526	31,509	29,965	29,968	29,965	29,968
Operating Revenues		<u>Minimum</u>	110,935	119,758	123,533	125,174	131,905	139,012	145,152
Debt Service as a Percent of Revenue		<=35%	20%	19%	26%	24%	23%	22%	21%
<b>Cash Financing of Capital</b>									
Capital Expenditures - Total	7-Year	§ IV-E	14,245	31,960	40,215	23,920	24,208	25,205	31,990
Capital Expenditures - Cash Funded	<u>§ Weighted</u>	<u>Minimum</u>	14,245	31,960	40,215	23,920	24,208	25,205	31,990
Cash Financing of Capital	100%	=>30%	100%	100%	100%	100%	100%	100%	100%

Table C-1  
Cash Flow

<b>Debt Burden to Asset Value</b>	<u>FY17</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>FY23</u>	<u>FY24</u>	
Principal Portion Outstanding									
2003 Water Remediation Bonds	3,735	2,555	1,310						
2010 Water Revenue Bonds A-1	41,115	36,830	32,345	27,635	21,245	14,520	7,455		
2010 Water Revenue Bonds A-2	91,340	91,340	91,340	91,340	91,340	91,340	87,250	82,990	
Prop 82 Loan Repayment									
SDWSRF Loan Repayment (CL2 Buildings)	1,540	1,453	1,364	1,272	1,179	1,084	986	886	
SDWSRF Loan Repayment (Enterprise Canal)	985	929	872	814	754	693	631	567	
SRF Residential Meter Retrofit	33,414	30,843	28,273	25,703	23,132	20,562	17,992	15,422	
SRF SESWTF	0	0	186,289	181,450	176,530	171,528	166,443	161,274	
SRF FK/NESWTF Pipeline	0	0	23,283	22,673	22,052	21,422	20,781	20,130	
SRF Kings River Pipeline	0	0	54,617	53,184	51,729	50,250	48,747	47,221	
SRF Regional Transmission Mains	0	0	81,585	79,445	77,270	75,061	72,817	70,536	
SRF NEWTF Clear Well	0	0	0	14,000	13,633	13,260	12,881	12,495	
Debt Burden	0	172,129	163,950	501,279	497,516	478,864	459,720	435,983	411,522
Total Capital Assets, Net									
CAFR FY17									
Capital Assets, w/o CIP	575,244	824,287	838,532	1,184,071	1,270,465	1,294,402	1,318,609	1,343,814	
Construction in Progress (CIP)-Cash Funding	249,042	14,245	31,960	40,215	23,920	24,208	25,205	31,990	
Construction in Progress (CIP)-SRF Funding		0	313,579	46,180	16				
Accumulated Depreciation	<b>§ III-B</b> <u>Maximum</u>	(204,627)	(221,507)	(238,387)	(255,267)	(272,147)	(289,027)	(305,907)	(322,787)
Total Capital Assets, Net		619,659	617,025	945,684	1,015,198	1,022,255	1,029,582	1,037,907	1,053,017
Debt Burden to Asset Value Ratio	<=50%	28%	27%	53%	49%	47%	45%	42%	39%

\* "Total Capital Assets, Net" for FY17 are from the "Statement of Net Position Proprietary Funds" on page 54 of the 2017 CAFR (Comprehensive Annual Financial Report).

Values for FY18 and onward are increased to account for construction in progress and accumulated depreciation.

Projected accumulated depreciation is based on annual depreciation from

the "Statement of Revenues, Expenses and Changes in Fund Net Position" on page 58 of the 2017 CAFR.



## **Appendix D: Water “Plant in Service Factors”, Allocation of Costs and Unit Cost Tables**

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Table D-1  
Plant in Service Allocation

Plant Assets [1]	Valuation, Dollars	Useful Life, Years	Capital Recovery Expense [2] Dollars	Cost Allocation, Dollars				Basis of Allocation [3,4,5]			
				Water Usage (QTY)	Fire Protection (FP)	Meters and Service Laterals (MTR)	Account and Customer (CUS)	(QTY)	(FP)	(MTR)	(CUS)
Land	30,210,000		1,208,400	0	0	0	1,208,400	0	0	0	100
Water Rights	15,660,000		626,400	626,400	0	0	0	100	0	0	0
Well Sites	216,360,000	50	10,071,601	9,870,169	201,432	0	0	98	2.0	0	0
Leaky Acres Recharge	4,067,294	50	189,333	185,547	3,787	0	0	98	2.0	0	0
Buildings/Structures	0	50	0	0	0	0	0	0	0	0	100
Friant Kern/Kings Pipe	92,395,669	55	4,179,171	4,095,587	83,583	0	0	98	2.0	0	0
NESWTF	34,795,037	55	1,573,823	1,432,179	31,476	0	110,168	91	2.0	0	7.0
SESWTF	182,248,986	55	8,243,348	7,501,447	164,867	0	577,034	91	2.0	0	7.0
Tank 1 & 2	0	55	0	0	0	0	0	100	0.0	0	0
Tank 3	25,981,004	50	1,209,421	1,209,421	0	0	0	100	0.0	0	0
Tank 4	24,116,285	50	1,122,618	1,122,618	0	0	0	100	0.0	0	0
Service Meters	89,804,987	25	5,748,593	0	739,556	4,606,636	402,402	0	12.9	80.1	7.0
Irrigation Meters	0	25	0	0	0	0	0	0	12.9	80.1	7.0
Single Family Meters	0	25	0	0	0	0	0	0	12.9	80.1	7.0
Service Laterals	843,137,270	55	38,136,146	0	4,906,214	30,560,402	2,669,530	0	12.9	80.1	7.0
W/H Physical Inventory	1,877,913	50	87,417	0	11,246	70,052	6,119	0	12.9	80.1	7.0
Hydrants	32,923,289	50	1,532,586	0	1,532,586	0	0	0	100	0.0	0.0
Valves	33,050,456	50	1,538,505	0	197,929	1,232,881	107,695	0	12.9	80.1	7.0
Sample Points	0	20	0	0	0	0	0	0	0	0	100
Regional Transmission	75,900,000	55	3,433,051	3,364,390	68,661	0	0	98	2	0	0
Transmission Lines	778,180,000	55	35,198,048	34,494,087	703,961	0	0	98	2	0	0
Distribution Lines 8"	891,370,000	55	40,317,773	39,511,417	806,355	0	0	98	2	0	0
Distribution Lines LT 8"	0	55	0	0	0	0	0	98	2	0	0
Blowoffs	1,777,500	50	82,743	82,743	0	0	0	100	0	0	0
SCADA	8,492,976	10	1,047,107	1,047,107	0	0	0	100	0	0	0
Furniture	15,206	15	1,368	1,368	0	0	0	100	0	0	0
Tools & Equipment	577,602	10	71,213	71,213	0	0	0	100	0	0	0
<b>Total</b>	<b>3,382,941,475</b>		<b>155,618,667</b>	<b>104,615,694</b>	<b>9,451,654</b>	<b>36,469,970</b>	<b>5,081,348</b>				
<b>Percent of Total</b>				<b>67.2%</b>	<b>6.1%</b>	<b>23.4%</b>	<b>3.3%</b>				

Notes:

- The list of Plant Assets, valuations and useful lives was provided by the City
- The Capital Recovery Expense calculated using an interest rate of > 4.0%
- Fire Protection allocation for Wells Sites and Water Treatment Plants is based on the volume of water used for public and private fire protection
- Fire Protection allocation for other costs categories is calculated as shown below

$$\text{Fire Demand} = 1,020 x^{1/2} (1 - 0.01x^{1/2}); \text{ where } x = \text{population in thousands}$$

population in thousands = 630 for Fresno Service Area

$$\text{Fire Demand} = 19,176 \text{ gpm}$$

Maximum Day Demand = Peak day during July 2017  
172.0 mgd

$$\text{Maximum Day Demand} = 119,444 \text{ gpm}$$

$$\text{Fire Protection Allocation} = 19,176 / (19,176 + 119,444)$$

$$\text{Fire Protection Allocation} = 13.8\%$$

Table D-2  
Development of Cost Allocations

Item (values in thousand dollars)	Benchmark Fiscal Year	<u>Quantity</u>	<u>Meter Charges and</u>			Basis of Allocation [1]
		<u>Charges</u>	<u>Private Fire Protection Charges</u>			
		Water Use (QTY)	Fire Protection (FP)	Meters & Service Laterals (MTR)	Account and Customer (CUS)	
<b>Expenditures</b>						
Labor and Benefits	17,588	11,824	1,068	4,122	574	Plant In Service
Pumping Power	11,309	11,309	0	0	0	Supply Demand
Source of Supply-FWA	1,421	1,421	0	0	0	Supply Demand
Source of Supply-FID	3,485	3,485	0	0	0	Supply Demand
Source of Supply-CVP Water Deliveries	4,956	4,956	0	0	0	Supply Demand
Specialty Chemicals (Water Treatment)	5,824	5,824	0	0	0	Supply Demand
Fleet Services & Maintenance	1,709	0	317	1,222	170	Distribution Operations
Fixed General Fund ID Charges	1,953	0	362	1,397	195	Distribution Operations
Fixed UB&C ID Charges	2,085	0	0	0	2,085	Customer
Fire Hydrant Insp/Mtc	668	0	668	0	0	Fire Protection
Fixed DPU Admin ID Charges	2,104	0	0	0	2,104	Customer
SE SWTF O&M	2,092	1,837	166	0	89	Treatment Operations
Recharge Basin O&M	1,040	1,040	0	0	0	Supply Demand
All Other O&M	14,520	0	2,691	10,383	1,447	Distribution Operations
Trustee Fees	16	0	0	0	16	Customer
Debt Service	29,965	26,310	2,377	0	1,278	System Assets
Cash Funded CIP	23,920	21,003	1,898	0	1,020	System Assets
<b>Revenues (ex/Rate Revenues)</b>						
Backflow Prevention Program Charges	(190)	0	0	-190	0	Meter
Other Charges for Services	(3,309)	-2,225	-201	-776	-108	Plant In Service
Interest Income--Fund 40101	(746)	-502	-45	-175	-24	Plant In Service
Federal Reimbursement - BABS	0	0	0	0	0	Plant In Service
Transfers from Rate Stab Fund	0	0	0	0	0	Plant In Service
Expenditures less Revenues	120,409	86,281	9,300	15,983	8,845	
Percent by Category		72%	8%	13%	7%	
Percent by Charge Type		71.7%		28.3%		

Notes:

1 Allocations for each category are listed below.

	<u>(QTY)</u>	<u>(FP)</u>	<u>(MTR)</u>	<u>(CUS)</u>
System Assets	88%	8%	0%	4%
Plant In Service	67%	6%	23%	3%
Supply Demand	100%	0%	0%	0%
Treatment Operations	88%	8%	0%	4%
Distribution Operations	0%	19%	72%	10%
Fire Protection	0%	100%	0%	0%
Meter	0%	0%	100%	0%
Customer Service	0%	0%	0%	100%

Table D-3  
Allocation to Functional Categories

All Values in \$thousands			<u>Quantity Charges</u>	<u>Meter Charges and Private Fire Protection Charges</u>		
Fiscal Year	Annual Revenue Required From Rates		Water Use (QTY)	Fire Protection (FP)	Meters & Service Laterals (MTR)	Account and Customer (CUS)
		<i>Percent Allocation &gt;</i>	72%	8%	13%	7%
FY19 EST.	\$111,744	<u>% Change</u>				
FY20	\$111,744	0.0%	\$80,072	\$8,631	\$14,833	\$8,209
FY21	\$117,331	5.0%	\$84,076	\$9,062	\$15,574	\$8,619
FY22	\$123,902	5.6%	\$88,784	\$9,570	\$16,446	\$9,102
FY23	\$130,840	5.6%	\$93,756	\$10,106	\$17,367	\$9,611
FY24	\$138,691	6.0%	\$99,381	\$10,712	\$18,409	\$10,188

Table D-4  
Water Quantity Charge

Item		FY20	FY21	FY22	FY23	FY24
Revenue Allocation (in thousand dollars)						
Water Use	<i>from Table D-3</i>	\$80,072	\$84,076	\$88,784	\$93,756	\$99,381
Total		\$80,072	\$84,076	\$88,784	\$93,756	\$99,381
Annual Water Use (in HCF x 1,000)						
Single Family	<i>from Table 2-1</i>	22,469	22,048	21,635	21,230	21,045
Nonresidential	<i>from Table 2-1</i>	17,860	17,681	17,504	17,329	17,156
Irrigation	<i>from Table 2-1</i>	3,655	3,618	3,582	3,546	3,511
Total		43,983	43,347	42,721	42,105	41,711
Rate, \$/HCF (rounded up to nearest \$0.01)						
		\$1.83	\$1.94	\$2.08	\$2.23	\$2.39

Table D-5  
Private Wells Water Quantity Charge

Costs (in thousand dollars)		FY20	FY21	FY22	FY23	FY24
<b>Source of Supply Costs</b>						
Source of Supply-FWA	<i>from Table C-1</i>	\$1,379	\$1,421	\$1,463	\$1,507	\$1,553
Source of Supply-FID	<i>from Table C-1</i>	\$3,370	\$3,485	\$3,590	\$3,697	\$3,808
Source of Supply-CVP Water Deliveries	<i>from Table C-1</i>	\$4,812	\$4,956	\$5,105	\$5,258	\$5,416
Recharge Basins O&M	<i>from Table C-1</i>	\$1,010	\$1,040	\$1,071	\$1,103	\$1,136
Total Source of Supply Costs		\$10,571	\$10,902	\$11,229	\$11,566	\$11,913
<b>Revenue Required from Water Quantity Charges</b>						
Revenue Requirement Allocation	<i>from Table D-4</i>	\$80,072	\$84,076	\$88,784	\$93,756	\$99,381
<b>Source of Supply Costs as a Percent of Water Quantity Charges Revenue</b>						
Total Source of Supply Costs	<i>from above</i>	\$10,571	\$10,902	\$11,229	\$11,566	\$11,913
Revenue Requirement Allocation	<i>from above</i>	\$80,072	\$84,076	\$88,784	\$93,756	\$99,381
Percent of Water Quantity Charges Revenue		13.2%	13.0%	12.6%	12.3%	12.0%
<b>Private Wells Water Quantity Charge as a Percent of Water Quantity Charges</b>						
Water Quantity Charges	<i>from Table D-4</i>	\$1.83	\$1.94	\$2.08	\$2.23	\$2.39
Percent of Water Quantity Charges Allocated to Private Wells Water Quantity Charges	<i>from above</i>	13.2%	13.0%	12.6%	12.3%	12.0%
Private Wells Water Quantity Charges <i>(roundup to next \$0.01)</i>		\$0.25	\$0.26	\$0.27	\$0.28	\$0.29

Table D-6  
Unit Costs for Development of Meter Charges

Item		FY20	FY21	FY22	FY23	FY24
<b>Revenue Allocation</b>						
(in thousand dollars)						
Fire Protection	<i>from Table D-8</i>	\$6,663	\$6,997	\$7,390	\$7,805	\$8,275
Meters/Services	<i>from Table D-3</i>	\$14,833	\$15,574	\$16,446	\$17,367	\$18,409
Customer/Accts	<i>from Table D-3</i>	\$8,209	\$8,619	\$9,102	\$9,611	\$10,188
Total		\$29,704	\$31,191	\$32,938	\$34,784	\$36,872
<b>Unit Costs</b>						
Fire Protection		\$6,663	\$6,997	\$7,390	\$7,805	\$8,275
Equivalent ¾" meters	<i>from Table 2-5</i>	239,922	240,206	240,490	240,774	241,058
Unit Cost, \$/eq-mtr/mo		\$2.31	\$2.43	\$2.56	\$2.70	\$2.86
Meters/Services		\$14,833	\$15,574	\$16,446	\$17,367	\$18,409
Equivalent ¾" meters	<i>from Table 2-5</i>	252,150	252,442	252,734	253,026	253,318
Unit Cost, \$/eq-mtr/mo		\$4.90	\$5.14	\$5.42	\$5.72	\$6.06
Customers/Accts		\$8,209	\$8,619	\$9,102	\$9,611	\$10,188
Accounts	<i>from Table 2-3</i>	133,278	133,452	133,626	133,800	133,974
Unit Cost, \$/acct/mo		\$5.13	\$5.38	\$5.68	\$5.99	\$6.34



Table D-7  
Meter Charges

Item		FY20	FY21	FY22	FY23	FY24
<b>Unit Costs</b>						
Fire Protection	<i>from Table D-6</i>	\$2.31	\$2.43	\$2.56	\$2.70	\$2.86
Meters/Services	<i>from Table D-6</i>	\$4.90	\$5.14	\$5.42	\$5.72	\$6.06
Customer/Accts	<i>from Table D-6</i>	\$5.13	\$5.38	\$5.68	\$5.99	\$6.34
<b>Meter Charges, \$/month</b>						
All x/Irrigation	<u><i>¾-inch Eq. Mtr.</i></u>					
¾-inch	1.0	\$12.40	\$13.00	\$13.70	\$14.50	\$15.30
1.0-inch	1.6	\$16.70	\$17.50	\$18.50	\$19.50	\$20.70
1.5-inch	2.0	\$19.60	\$20.60	\$21.70	\$22.90	\$24.20
2.0-inch	4.0	\$34.00	\$35.70	\$37.70	\$39.70	\$42.10
3.0-inch	6.4	\$52.00	\$54.00	\$57.00	\$60.00	\$64.00
4.0-inch	10.0	\$78.00	\$82.00	\$86.00	\$91.00	\$96.00
6.0-inch	20.0	\$150.00	\$157.00	\$166.00	\$175.00	\$185.00
8.0-inch	96.0	\$698.00	\$732.00	\$773.00	\$815.00	\$863.00
10.0-inch	152.0	\$1,103.00	\$1,156.00	\$1,220.00	\$1,287.00	\$1,362.00
12.0-inch	200.0	\$1,449.00	\$1,520.00	\$1,603.00	\$1,691.00	\$1,790.00
Irrigation	<u><i>¾-inch Eq. Mtr.</i></u>					
¾-inch	1.0	\$10.10	\$10.60	\$11.10	\$11.80	\$12.40
1.0-inch	1.6	\$13.00	\$13.70	\$14.40	\$15.20	\$16.10
1.5-inch	2.0	\$15.00	\$15.70	\$16.60	\$17.50	\$18.50
2.0-inch	4.0	\$24.80	\$26.00	\$27.40	\$28.90	\$30.60
3.0-inch	6.4	\$36.60	\$38.30	\$40.40	\$42.60	\$45.10
4.0-inch	10.0	\$55.00	\$57.00	\$60.00	\$64.00	\$67.00
6.0-inch	20.0	\$104.00	\$109.00	\$115.00	\$121.00	\$128.00
8.0-inch	96.0	\$476.00	\$499.00	\$527.00	\$556.00	\$588.00
10.0-inch	152.0	\$751.00	\$787.00	\$830.00	\$876.00	\$927.00
12.0-inch	200.0	\$986.00	\$1,034.00	\$1,091.00	\$1,150.00	\$1,218.00

Table D-8  
Allocation of Fire Protection to Public and Private Connections

		FY20	FY21	FY22	FY23	FY24
<b>Equivalent Connections</b>						
Public	<i>from Table 2-6</i>	1,497,355	1,501,807	1,506,259	1,510,712	1,515,164
Private	<i>from Table 2-6</i>	430,517	431,513	432,510	433,506	434,502
Total		1,927,872	1,933,320	1,938,769	1,944,218	1,949,667
<b>Revenue Requirement Allocation (in \$thousands)</b>						
Total	<i>from Table D-3</i>	\$8,631	\$9,062	\$9,570	\$10,106	\$10,712
<b>Percent Allocation to Parcels</b>						
Parcels without meter connections	<i>from Fire Department incident data base</i>	0.6%	0.6%	0.6%	0.6%	0.6%
Parcels with meter connections		99.4%	99.4%	99.4%	99.4%	99.4%
<b>Dollar Allocation to Connections</b>						
Parcels without meter connections		\$52	\$54	\$57	\$61	\$64
Parcels with meter connections		\$8,579	\$9,008	\$9,513	\$10,045	\$10,648
<b>Percent of Total Equivalent Connections</b>						
<b>Percent Allocation (from above)</b>						
Public		78%	78%	78%	78%	78%
Private		22%	22%	22%	22%	22%
<b>Dollar Allocation - Parcels with meter connections</b>						
Public		\$6,663	\$6,997	\$7,390	\$7,805	\$8,275
Private		\$1,916	\$2,011	\$2,122	\$2,240	\$2,373

Table D-9  
Private Fire Protection Charges

Item		FY20	FY21	FY22	FY23	FY24
Revenue Requirement Allocation (in thousand dollars)	<i>from Table D-8</i>	\$1,916	\$2,011	\$2,122	\$2,240	\$2,373
Equivalent Connections (Eq. Conn.)	<i>from Table 2-6</i>	430,517	431,513	432,510	433,506	434,502
Unit Cost per Eq. Conn., \$/month		\$0.37	\$0.39	\$0.41	\$0.43	\$0.46
Rate per Connection, \$/month						
	<u><i>Demand Factor</i></u>					
Fire Hydrants	<i>111.3</i>	\$41.30	\$43.30	\$45.60	\$48.00	\$50.70
Fire Service Connections						
1.0-inch	<i>38.3</i>	\$14.30	\$14.90	\$15.70	\$16.50	\$17.50
1.5-inch	<i>38.3</i>	\$14.30	\$14.90	\$15.70	\$16.50	\$17.50
2.0-inch	<i>38.3</i>	\$14.30	\$14.90	\$15.70	\$16.50	\$17.50
3.0-inch	<i>38.3</i>	\$14.30	\$14.90	\$15.70	\$16.50	\$17.50
4.0-inch	<i>38.3</i>	\$14.30	\$14.90	\$15.70	\$16.50	\$17.50
6.0-inch	<i>111.3</i>	\$41.30	\$43.30	\$45.60	\$48.00	\$50.70
8.0-inch	<i>237.2</i>	\$88.00	\$93.00	\$97.00	\$103.00	\$108.00
10.0-inch	<i>426.6</i>	\$159.00	\$166.00	\$175.00	\$184.00	\$195.00
12.0-inch	<i>689.0</i>	\$256.00	\$268.00	\$282.00	\$297.00	\$314.00

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