

February 2015



Prepared for  
City of Fresno, California

# Water Utility Financial Plan and Rates Study

Submitted by

**MUNICIPAL FINANCIAL SERVICES**



**FINAL**  
**Water Utility Financial Plan and Rates Study**

---

Prepared for  
City of Fresno, California  
February 2015



Henderson, Nevada 89052

This Page Intentionally Blank

# Table of Contents

List of Figures .....	v
List of Tables .....	v
List of Abbreviations .....	vi
Executive Summary .....	ES-1
Projected Capital Improvement Program Expenditures and Funding.....	ES-2
Revenue Required from Water Rates and Charges .....	ES-3
Projected Cash Flow and Debt Service Coverage.....	ES-3
Recommended Water Rates.....	ES-4
1. Introduction.....	1-1
1.1 Organization of the Report .....	1-1
1.2 Rate-Making Objectives .....	1-1
1.3 Overview of Utility Rate Setting Process .....	1-2
1.4 Fresno Water Utility.....	1-3
1.5 Current Water Rates and Charges .....	1-3
2. User Characteristics .....	2-1
2.1 Water Deliveries .....	2-1
2.2 Water Meter Equivalency Factors and Demand Factors .....	2-3
2.3 Water Meters.....	2-4
2.4 Private Fire Protection Connections.....	2-5
3. Financial Plan and Revenue Requirements .....	3-1
3.1 Projected Expenditures.....	3-1
3.1.1 Operation and Maintenance .....	3-1
3.1.2 Capital Improvement Program .....	3-1
3.2 Annual Revenue Required from Rates and Charges .....	3-4
3.3 Projected Cash Flow, Fund Balances and Debt Service Coverage .....	3-5
3.4 Target Fund Balances, Debt Service Coverage and Cash Flow .....	3-5
3.4.1 Enterprise Fund Target Balance .....	3-5
3.4.2 Debt Service Coverage Ratio.....	3-5
3.4.3 Cash Flow .....	3-6
4. Cost of Service Analysis .....	4-1
4.1 Base – Extra Capacity Cost Allocation .....	4-1
4.2 Cost Allocation to Functional Categories.....	4-2
4.3 Allocation of Fire Protection Costs .....	4-3
4.4 Allocation of Base and Extra Capacity Costs.....	4-3
4.4.1 Base, Maximum Day and Maximum Hour Allocation Factors .....	4-3
4.4.2 Base Cost Allocations .....	4-4
4.4.3 Maximum Day Cost Allocations.....	4-4

- 4.4.4 Maximum Hour Cost Allocations ..... 4-5
- 5. Rate Analysis ..... 5-1
  - 5.1 Quantity Rates ..... 5-1
    - 5.1.1 Meter Service Charges ..... 5-2
    - 5.1.2 Private Fire Protection Charges..... 5-4
- 6. Revenues, Rates and Customer Bills ..... 6-1
  - 6.1 Projected Revenue from Water Rates and Charges ..... 6-1
  - 6.2 Recommended Water Rates and Charges ..... 6-2
  - 6.3 Impact on Single Family Residential Monthly Bills ..... 6-3
    - 6.3.1 Monthly Bills at Selected Levels of Water Use..... 6-3
    - 6.3.2 Historical and Projected Single Family Monthly Bills..... 6-3
  - 6.4 Impact on Nonresidential Monthly Bills..... 6-4
- 7. Limitations ..... 7-1
- Appendix A: Projected Metered Water Use by Customer Class.....A
- Appendix B: Projected Revenues and Expenditures..... B
- Appendix C: Water “Plant in Service Factors” and Allocation of Costs..... C

## List of Figures

Figure ES-1. Cash Flow, Debt Service Coverage and % Increase in Single Family Bills, FY15 – FY19 ...	ES-3
Figure 1-1. Overview of Rate Setting Analytical Steps.....	1-2
Figure 2-1. Projected Metered Water Use by Customer Class.....	2-1
Figure 2-2. Water Use by Month .....	2-2
Figure 2-3. Peak Day Water Use .....	2-2
Figure 3-1. Projected Capital Expenditures, FY15 – FY19.....	3-3
Figure 3-2. Projected Operating and Capital (Pay-go) Expenditures and Debt Service, FY15 – FY19 .....	3-3
Figure 3-3. Projected Meter Service, Private Fire Protection and Quantity Charges, FY15 – FY19 .....	3-4
Figure 3-4. Cash Flow, Fund Balance and Debt Service Coverage, FY15 – FY19.....	3-6
Figure 6-1. Historical and Projected Single Family Monthly Bills.....	6-3

## List of Tables

Table ES-1. Current and Recommended Water Rates and Charges, FY15 – FY19 .....	ES-4
Table 2-1. Water Meter Equivalency and Private Fire Protection Connection Demand Factors .....	2-3
Table 2-2. Water Meters by Customer Class and Size .....	2-4
Table 2-3. Public Fire Hydrants and Private Fire Protection Connections.....	2-5
Table 3-1. FY16 – FY19 Cash Flow.....	3-5
Table 4-1. Cost Allocation to Functional Categories .....	4-2
Table 4-2. Allocation of Fire Protection Costs .....	4-3
Table 4-3. Factors for Development of Quantity Rates .....	4-3
Table 4-4. Base Cost Allocations.....	4-4
Table 4-5. Maximum Day Cost Allocations.....	4-4
Table 4-6. Maximum Hour Cost Allocations .....	4-5
Table 5-1. Uniform Quantity Rates.....	5-1
Table 5-2. Unit Costs for Development of Meter Service Charges .....	5-2
Table 5-3. Meter Service Charges.....	5-3
Table 5-4. Private Fire Protection Charges.....	5-4
Table 6-1. Revenue from Projected Charges .....	6-1
Table 6-2. Current and Recommended Water Rates and Charges, FY 15 – FY 19 .....	6-2
Table 6-3. Single Family Residential Monthly Bills, Current vs Projected .....	6-3
Table 6-4. Nonresidential Monthly Bills, Current vs Projected.....	6-4

## List of Abbreviations

---

AF	acre feet (equal to 325,851 gallons)
AWWA	American Water Works Association
CIP	Capital Improvement Program
City	City of Fresno
DFA	Division of Financial Assistance
DSC	debt service coverage
DWR	Department of Water Resources
FY	Fiscal year (July 1 to June 30)
FY15	July 1, 2014 to June 30, 2015
gpd	gallons per day
HCF	Hundred Cubic Feet (equal to ~ 748.1 gallons)
mgd	million gallons per day
O&M	Operation and maintenance
NESWTF	Northeast Surface Water Treatment Facility
SESWTF	Southeast Surface Water Treatment Facility
SRF	State Revolving Fund
SWRCB	State Water Resources Control Board

# Executive Summary

The City's Administration ("Administration") retained a rate consultant to complete the City's "Final Water Utility Financial Plan and Rates Study" dated February 2015 ("2015 Final Study"), which includes a five-year schedule of rates, fees, and charges to recover the Water Division's five-year forecast of capital, operations and maintenance expenditures. In developing a five-year schedule of rates, fees, and charges, the City must comply with the California Constitution by establishing rates, fees, and charges that recover the actual costs associated with the level, quality, and quantity of service delivered to individual users of the system. Accordingly, the City's proposed five-year rate structure is based on common and well-established cost-of-service principles that promote equity among system users, whereby individual users of the system pay rates, fees and charges directly proportional to the level, quality, and quantity of service.

On July 31, 2014, the City Council rescinded the Department of Public Utilities' Water Division's ("Water Division's") the schedule of rates, fees, and charges to finance the recommended capital plan. City Council had approved the rates, fees, and charges in August 2013, and they became effective in September 2013. The rates, fees, and charges approved by City Council in August 2013 were based on rates, fees, and charges published in the Final Water Utility Financial Plan and Rates Study ("2013 Final Study") dated August 2013.

Upon rescinding the Water Division's rate plan, City Council directed the Administration to initiate a series of community forums to foster and undertake serious discussions related to all aspects of a future proposed capital plan, including regional water issues, the scope of proposed projects, alternatives for financing capital costs, alternatives to the City's current policy on water, and an evaluation of subsidy options for low income ratepayers. The community forums were held during September – November 2014. City staff was also directed to prepare findings and a summary of the discussions from the community forums.

As a supplement to the City's process to raise awareness about water challenges, solutions and financing, the City held a Water Utility Financing Summit on October 20, 2014. The full-day summit included approximately 15 invited stakeholders along with water rate experts to provide industry-wide subject matter expertise.

On November 20, 2014, the Administration presented its findings and a summary of public input from the community forums. Upon receiving and considering the Administration's recommended capital and rate plans on November 20, 2014, City Council authorized the Administration to initiate the Proposition 218 notification and protest processes for the proposed rates, fees, and charges for public water service provided by the City of Fresno. The Public Hearing date was set for February 5, 2015. Upon the direction of City Council, the Administration proceeded with a Proposition 218 process which was more comprehensive than prescribed by the California Constitution and Government Code. The rates, fees, and charges presented in the Proposition 218 notification were based on rates, fees, and charges published in the Draft Water Utility Financial Plan and Rates Study ("2014 Draft Study") dated December 22, 2014.

The five-year rate plan presented in the 2014 Draft Study was calculated assuming the City would receive a \$50 million low-interest loan from the State's Drinking Water State Revolving Fund (2% interest rate for a 20 year term), based on an application submitted by the Administration in June 2014. The Administration has been in constant communication with the State Water Resources Control Board

(SWRCB), Division of Financial Assistance (DFA), since June 2014 to determine the level of State financing available for the recommended capital plan.

On Tuesday, February 17, 2015, the Administration received a letter from DFA staff describing the State Revolving Fund (SRF) loan deemed to be appropriate for the City of Fresno for the construction of the Southeast Surface Water Treatment Facility (\$186.4 million, 1.663% interest for a 30 year term). Accordingly, the Administration has updated the financial rate model to reflect the SRF loan principal, interest, and terms described in the DFA letter. Based on the updated financial rate model, the Administration recommended that the City Council adopt a rate plan that results in lower monthly water bill costs than the rate plan presented to the community during the Proposition 218 protest process. The Administration has consulted with the City Attorney, and the City Attorney has advised that Council may adopt a rate plan incorporating lower rates than those noticed during the Proposition 218 process.

## Projected Capital Improvement Program Expenditures and Funding

The revised capital investment plan totals \$429 million over a five-year period. The revised capital investment plan includes the following categories of projects:

**Intentional Groundwater Recharge Facilities = \$6.4 million.** The City plans to coordinate its recharge endeavors with the Fresno Irrigation District and the Fresno Metropolitan Flood Control District to increase the number and effectiveness of recharge facilities in the community. These efforts will require the acquisition of property to construct recharge basins that will reduce the continuing decline of the groundwater aquifer, which is mandated by the recently enacted Sustainable Groundwater Management Act.

**Raw Water Supply Facilities = \$98.4 million.** This project calls for the installation of 18 miles of pipeline that will be used to supply surface water allocations from the Kings River and Friant/Kern Canal to the existing 30 mgd Northeast Surface Water Treatment Facility (NESWTF) and the proposed new 80 mgd Southeast Surface Water Treatment Facility (SESWWF). The original rate plan called for constructing improvements to an existing open canal to the SESWTF, but concerns from the State Water Resources Control Board related to potential contamination and environmental impacts resulted in this recommended change.

**Surface Water Treatment Facilities = \$186.4 million.** This project is a 54-mgd mgd surface water treatment facility, which will allow the City to more effectively use its existing surface water allocations and entitlements from Millerton Lake and Pine Flat Reservoir. This facility will allow the City to mitigate the impacts associated with existing groundwater contamination, decades of aquifer overdrafting, and compliance with the recently enacted Sustainable Groundwater Management Act. The initial facility will be constructed with a permitted capacity of 54 mgd, and the City will petition the State to allow the facility to be re-rated to 80 mgd through a one-year performance demonstration testing procedure.

**Finished Water Distribution Pipelines = \$55.4 million.** These facilities will connect the treated water produced at the Surface Water Treatment Facility to the existing water distribution system.

**Pipeline and Well Rehabilitation and Replacement = \$82.5 million.** Historically, the City has not fully funded a capital replacement program. The funding is needed to begin the process of replacing existing pipelines, wells, etc., some of which are more than 80 years old. The current pipeline replacement schedule is over 400 years, and the proposed funding will reduce that to approximately 200 years. The industry standard is 90 years.

## Revenue Required from Water Rates and Charges

Water rates and charges were developed to generate sufficient revenues to cover operating and maintenance costs as well as needed capital costs while supporting debt service obligations and meeting target reserve levels. The approximate amount of revenues required from water rates and charges for the four-year period, FY16 through FY19, is \$359,500,000. Revenues during the same period based on current (2010) water rates and charges would be approximately \$217,000,000.

## Projected Cash Flow and Debt Service Coverage

Annual expenditures, revenues and cash flow (represented by the ending balance for the enterprise fund) are shown in the figure below. Also shown at the bottom line of the figure are the annual values of the debt service coverage ratio and percent increase in the average monthly bills for a single family customers with a 1-inch meter connection and 18 hundred cubic feet (approximately 13,500 gallons per month or 443 gallons per day) of water consumption.

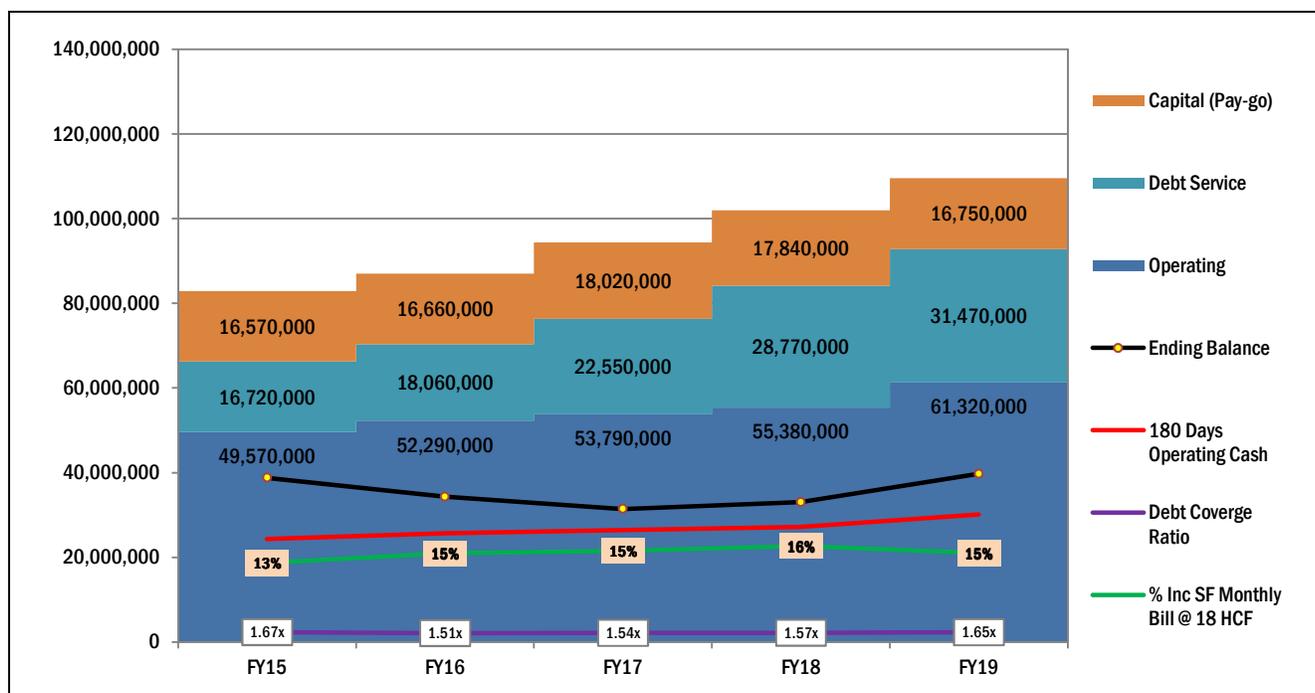


Figure ES-1. Cash Flow, Debt Service Coverage and % Increase in Single Family Bills, FY15 - FY19

## Recommended Water Rates

Recommended rates, fees and charges are shown in the table below. The effective date for FY15 is March 30, 2015; the effective date for subsequent fiscal years is July 1.

Table ES-1. Current and Recommended Water Rates and Charges, FY15 – FY19											
Item	effective dates >						FY15	FY16	FY17	FY18	FY19
	Current	FY15	FY16	FY17	FY18	FY19					
<b>Quantity Rates, \$/HCF</b>											
Single Family	\$0.610	\$0.92	\$1.09	\$1.28	\$1.50	\$1.74	51%	18%	17%	17%	16%
All Others	\$0.745	\$0.92	\$1.09	\$1.28	\$1.50	\$1.74	23%	18%	17%	17%	16%
<b>Meter Charges, \$/month</b>											
<b>Domestic</b>											
¾-inch	\$10.03	\$8.50	\$9.30	\$10.50	\$11.90	\$13.50	-15%	9%	13%	13%	13%
1.0-inch	\$13.51	\$11.20	\$12.30	\$13.80	\$15.80	\$17.90	-17%	10%	12%	14%	13%
1.5-inch	\$18.89	\$13.00	\$14.40	\$16.10	\$18.40	\$20.80	-31%	11%	12%	14%	13%
2.0-inch	\$27.09	\$22.10	\$24.40	\$27.30	\$31.30	\$35.30	-18%	10%	12%	15%	13%
3.0-inch	\$45.07	\$33.00	\$36.40	\$40.80	\$46.70	\$52.80	-27%	10%	12%	14%	13%
4.0-inch	\$63.03	\$50.00	\$55.00	\$62.00	\$70.00	\$79.00	-21%	10%	13%	13%	13%
6.0-inch	\$99.01	\$95.00	\$105.00	\$118.00	\$135.00	\$152.00	-4%	11%	12%	14%	13%
8.0-inch	\$152.96	\$441.00	\$487.00	\$545.00	\$624.00	\$705.00	188%	10%	12%	14%	13%
10.0-inch	\$179.83	\$696.00	\$768.00	\$860.00	\$984.00	\$1,113.00	287%	10%	12%	14%	13%
12.0-inch	na	\$914.00	\$1,009.00	\$1,131.00	\$1,293.00	\$1,462.00	na	10%	12%	14%	13%
<b>Irrigation</b>											
¾-inch	\$10.03	\$6.70	\$7.40	\$8.30	\$9.50	\$10.70	-33%	10%	12%	14%	13%
1.0-inch	\$13.51	\$8.40	\$9.30	\$10.40	\$11.80	\$13.40	-38%	11%	12%	13%	14%
1.5-inch	\$18.89	\$9.50	\$10.50	\$11.70	\$13.40	\$15.20	-50%	11%	11%	15%	13%
2.0-inch	\$27.09	\$15.10	\$16.70	\$18.70	\$21.30	\$24.10	-44%	11%	12%	14%	13%
3.0-inch	\$45.07	\$21.80	\$24.10	\$27.00	\$30.80	\$34.90	-52%	11%	12%	14%	13%
4.0-inch	\$63.03	\$32.00	\$36.00	\$40.00	\$46.00	\$51.00	-49%	13%	11%	15%	11%
6.0-inch	\$99.01	\$60.00	\$66.00	\$74.00	\$85.00	\$96.00	-39%	10%	12%	15%	13%
8.0-inch	\$152.96	\$273.00	\$301.00	\$337.00	\$386.00	\$436.00	78%	10%	12%	15%	13%
10.0-inch	\$179.83	\$429.00	\$474.00	\$531.00	\$607.00	\$687.00	139%	10%	12%	14%	13%
12.0-inch	na	\$564.00	\$622.00	\$697.00	\$797.00	\$901.00	na	10%	12%	14%	13%
<b>Private Fire Protection</b>											
<b>Service Charges, \$/month</b>											
Fire Hydrants	\$23.94	\$28.80	\$31.70	\$35.40	\$40.40	\$45.60	20%	10%	12%	14%	13%
<b>Fire Service Connections</b>											
1.0-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70	-59%	10%	12%	14%	13%
1.5-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70	-59%	10%	12%	14%	13%
2.0-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70	-59%	10%	12%	14%	13%
2.5-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70	-59%	10%	12%	14%	13%
4.0-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70	-59%	10%	12%	14%	13%
6.0-inch	\$35.94	\$28.80	\$31.70	\$35.40	\$40.40	\$45.60	-20%	10%	12%	14%	13%
8.0-inch	\$47.92	\$62.00	\$68.00	\$76.00	\$87.00	\$98.00	29%	10%	12%	14%	13%
10.0-inch	\$59.90	\$111.00	\$122.00	\$136.00	\$155.00	\$175.00	85%	10%	11%	14%	13%
12.0-inch	\$71.88	\$178.00	\$196.00	\$219.00	\$250.00	\$283.00	148%	10%	12%	14%	13%

## 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 discusses the water use characteristics of customers. The number, type and size of connections and water consumption projected for FY15 – FY19 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 principal and interest payments, debt coverage requirements, 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).

**Conservation signal.** Reward customers for efficient water use and discourage its waste.

**Administrative efficiency and cost of implementation.** Enable 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 other 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.

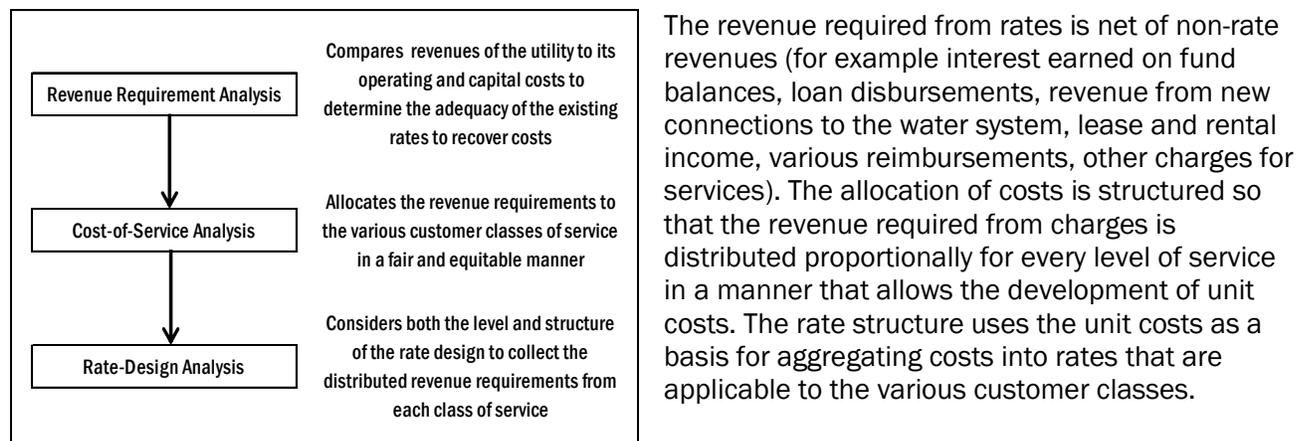


Figure 1-1. Overview of Rate Setting Analytical Steps

Information and data for the development of water rates and preparation of this report comes from a number of 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 2014-15 Adopted Budget (FY15 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.



Revenue and expenditure data shown in the FY15 Budget for the Water Enterprise were significantly changed as a result of the City’s decision to decrease water rates and charges to those shown in its Master Fee Schedule Amendment #483 as of July 2009 and its Master Fee Schedule Amendment #487 which assigned a quantity charge of \$0.61 to Single Family Residential accounts effective March 1, 2010.

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

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 500,000 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). Peak water deliveries are much higher, topping 200 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 Current Water Rates and Charges

The City's current water meter service rates (called a "Standby Charge" in the Master Fee Schedule),

Quantity Rates, \$/HCF			
<i>Single Family</i>	\$0.61	<i>All Others</i>	\$0.745
Monthly Charges			
<i>Meter Connections</i>		<i>Private Fire Service Connections</i>	
¾-inch	\$10.03	Fire Hydrants	\$23.94
1.0-inch	\$13.51	1.0-inch	\$23.94
1.5-inch	\$18.89	1.5-inch	\$23.94
2.0-inch	\$27.09	2.0-inch	\$23.94
3.0-inch	\$45.07	3.0-inch	\$23.94
4.0-inch	\$63.03	4.0-inch	\$23.94
6.0-inch	\$99.01	6.0-inch	\$35.94
8.0-inch	\$152.96	8.0-inch	\$47.92
10.0-inch	\$179.83	10.0-inch	\$59.90
12.0-inch	no rate	12.0-inch	\$71.88

water use rates (called a "Quantity Charge" in the Master Fee Schedule), and private fire protection service rates (called "Fire Hydrant, on private property" and "Fire Protection Automatic Sprinkler Service" in the Master Fee Schedule) are shown in the adjacent sidebar.

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).

This Page Intentionally Blank.

## 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 Water Deliveries

Water delivery data through January 2015 was evaluated to determine recent water conservation trends. For FY15, a year in which increased water rates and charges are projected to be in effect for approximately three months, average monthly Single Family water use is projected to be 21 HCF. For FY16, the projection is approximately 19 HCF. For FY17, FY18 and FY19, the projections are 17.5 HCF, 17.0 HCF and 16.5 HCF.

For nonresidential accounts, projected water use for FY15 – FY19 is based on conservation of 6 percent during FY15 and 2 percent per year thereafter. For irrigation accounts, projected water use for FY15 – FY19 is based on conservation of 10 percent during FY15 and 2 percent per year thereafter.

Water use projections for Single Family, Nonresidential and Irrigation customer classes are summarized in Table A-1 of Appendix A and in Figure 2-1.

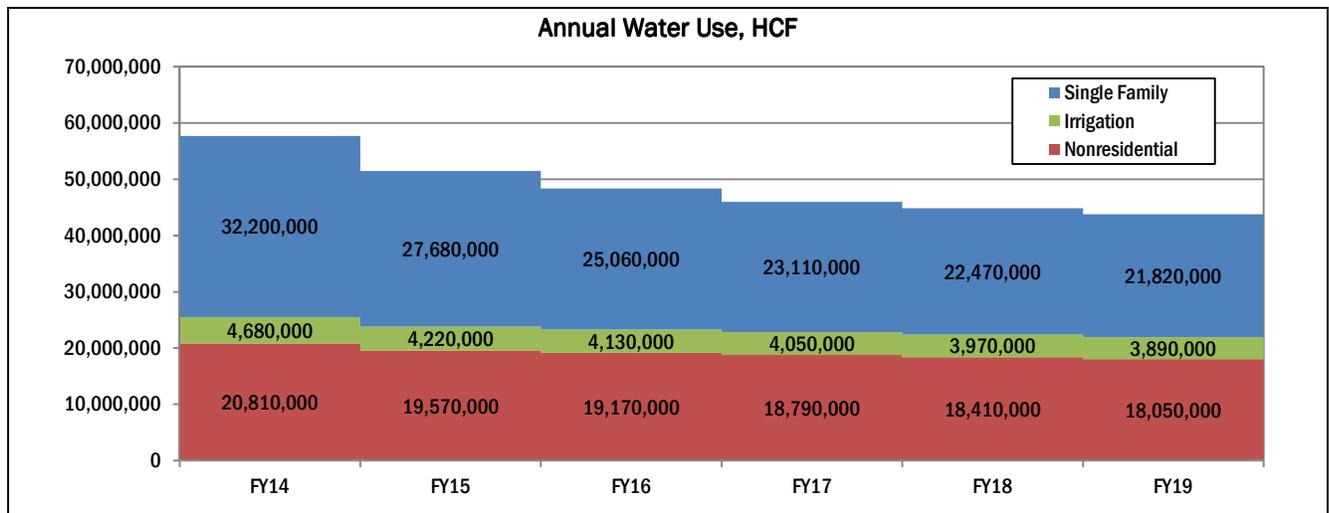


Figure 2-1. Projected Metered Water Use by Customer Class

Monthly water use during FY14 and water use during a peak day on July 1, 2014 (Tuesday) for each customer class are shown in the pair of tables below.

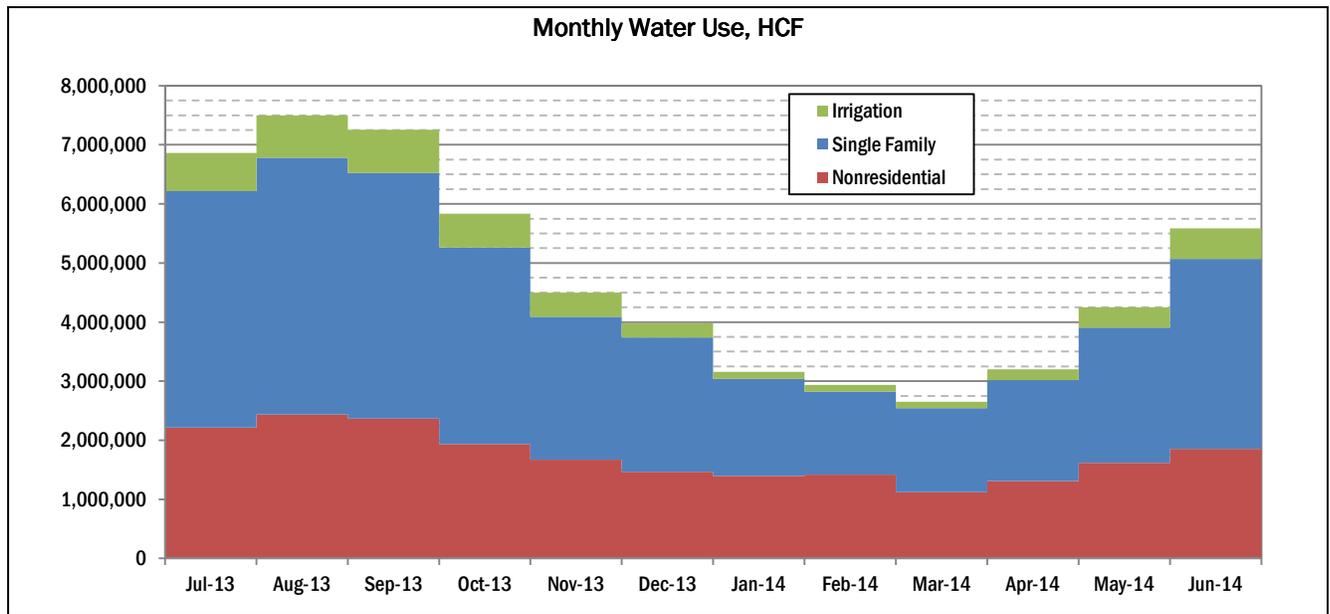


Figure 2-2. Water Use by Month

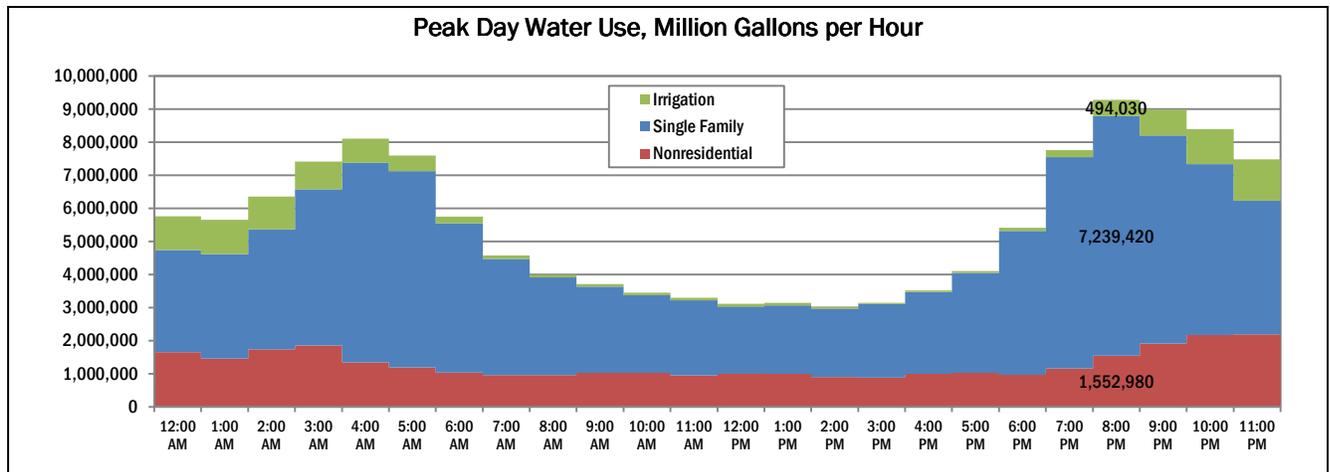


Figure 2-3. Peak Day Water Use

## 2.2 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>1</sup>

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>2</sup>

**Table 2-1. Water Meter Equivalency and Private Fire Protection Connection Demand Factors**

Meter Size	Meter Types	AWWA Standard	Max Flow Rate	¾-inch 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>1</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>2</sup> American Water Works Association (AWWA), Manual of Water Supply Practices, M1 Principles of Water Rates, Fees, and Charges, 2012 Sixth 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.

## 2.3 Water Meters

The projected number of water meters, by size, was based on data from the City's utility billing system as of July 2014. Values from the utility billing system and projections for FY14 through FY19 are shown in the table below. The projected annual growth in accounts is conservatively estimated at less than one percent per year and occurs only in the 1-inch meter customers.

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

Customer Class and Size	July	Projected [1]				
	FY14	FY15	FY16	FY17	FY18	FY19
<b>Single Family</b>						
¾-inch	12,614	12,614	12,614	12,614	12,614	12,614
1.0-inch	92,174	92,274	92,374	92,474	92,574	92,674
1.5-inch	4,802	4,802	4,802	4,802	4,802	4,802
2.0-inch	134	134	134	134	134	134
3.0-inch	0	0	0	0	0	0
4.0-inch	1	1	1	1	1	1
6.0-inch						
<b>Totals</b>	<b>109,725</b>	<b>109,825</b>	<b>109,925</b>	<b>110,025</b>	<b>110,125</b>	<b>110,225</b>
<b>Nonresidential</b>						
¾-inch	4,544	4,544	4,544	4,544	4,544	4,544
1.0-inch	3,817	3,822	3,827	3,832	3,837	3,842
1.5-inch	3,047	3,047	3,047	3,047	3,047	3,047
2.0-inch	3,418	3,418	3,418	3,418	3,418	3,418
3.0-inch	138	138	138	138	138	138
4.0-inch	672	672	672	672	672	672
6.0-inch	384	384	384	384	384	384
<b>Totals</b>	<b>16,020</b>	<b>16,025</b>	<b>16,030</b>	<b>16,035</b>	<b>16,040</b>	<b>16,045</b>
<b>Irrigation</b>						
¾-inch	102	102	102	102	102	102
1.0-inch	956	966	976	986	996	1,006
1.5-inch	612	612	612	612	612	612
2.0-inch	1,533	1,533	1,533	1,533	1,533	1,533
3.0-inch	29	29	29	29	29	29
4.0-inch	105	105	105	105	105	105
6.0-inch	22	22	22	22	22	22
<b>Totals</b>	<b>3,359</b>	<b>3,369</b>	<b>3,379</b>	<b>3,389</b>	<b>3,399</b>	<b>3,409</b>
<b>Summary</b>						
Single Family	109,725	109,825	109,925	110,025	110,125	110,225
Nonresidential	16,020	16,025	16,030	16,035	16,040	16,045
Irrigation	3,359	3,369	3,379	3,389	3,399	3,409
<b>Total</b>	<b>129,104</b>	<b>129,219</b>	<b>129,334</b>	<b>129,449</b>	<b>129,564</b>	<b>129,679</b>
1 The number of new accounts per year are listed below. All new accounts are assigned the meter size shown. All values provided by the City.						
	<u>Meter</u>	<u>FY15</u>	<u>FY16</u>	<u>FY17</u>	<u>FY18</u>	<u>FY19</u>
Single Family	1.0-inch	100	100	100	100	100
Nonresidential	1.0-inch	5	5	5	5	5
Irrigation	1.0-inch	10	10	10	10	10
<b>Total</b>		<b>115</b>	<b>115</b>	<b>115</b>	<b>115</b>	<b>115</b>

## 2.4 Private Fire Protection Connections

The projected number of Public fire hydrants and Private Fire Protection connections, by size, are shown in the table below. The number of connections was based on data from the City's utility billing system as of July 2014.

**Table 2-3. Public Fire Hydrants and Private Fire Protection Connections**

Connection Type	Demand Factor	July FY14	Projected [1]				
			FY15	FY16	FY17	FY18	FY19
<b>Public Fire Protection</b>							
Fire Hydrants	111.3	13,139	13,179	13,219	13,259	13,299	13,339
Equivalent Connections		1,462,514	1,466,967	1,471,419	1,475,872	1,480,324	1,484,776
<b>Private Fire Protection Service</b>							
Fire Hydrants		721	726	728	730	732	734
<b>Fire Service Connections</b>							
1.0-inch		1	1	1	1	1	1
1.5-inch		2	2	2	2	2	2
2.0-inch		195	195	195	195	195	195
2.5-inch		2	2	2	2	2	2
4.0-inch		599	601	603	605	607	609
6.0-inch		988	990	992	994	996	998
8.0-inch		640	642	644	646	648	650
10.0-inch		72	72	72	72	72	72
12.0-inch		18	18	18	18	18	18
Totals		3,238	3,249	3,257	3,265	3,273	3,281
<b>Equivalent Connections</b>							
Fire Hydrant	111.3	80,255	80,812	81,034	81,257	81,480	81,702
<b>Fire Service Connections</b>							
1.0-inch	38.3	38	38	38	38	38	38
1.5-inch	38.3	77	77	77	77	77	77
2.0-inch	38.3	7,472	7,472	7,472	7,472	7,472	7,472
2.5-inch	38.3	77	77	77	77	77	77
4.0-inch	38.3	22,953	23,030	23,107	23,183	23,260	23,336
6.0-inch	111.3	109,975	110,198	110,420	110,643	110,866	111,088
8.0-inch	237.2	151,812	152,287	152,761	153,235	153,710	154,184
10.0-inch	426.6	30,714	30,714	30,714	30,714	30,714	30,714
12.0-inch	689.0	12,403	12,403	12,403	12,403	12,403	12,403
Totals		415,776	417,106	418,103	419,099	420,095	421,092
<b>Summary</b>							
Public Equivalent Connections			1,466,967	1,471,419	1,475,872	1,480,324	1,484,776
Private Equivalent Connections			417,106	418,103	419,099	420,095	421,092
Total			1,884,073	1,889,522	1,894,971	1,900,419	1,905,868
<b>1 The number of new connections per year are listed below. All values provided by the City.</b>							
			<u>FY15</u>	<u>FY16</u>	<u>FY17</u>	<u>FY18</u>	<u>FY19</u>
Public Fire Hydrants			40	40	40	40	40
Private							
Fire Hydrants			5	5	5	5	5
Less than 3.0-inch			0	0	0	0	0
4.0-inch			2	2	2	2	2
6.0-inch			2	2	2	2	2
8.0-inch			2	2	2	2	2
10.0-inch			0	0	0	0	0
12.0-inch			0	0	0	0	0

This Page Intentionally Blank.

## 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. Satisfy City Council rate increase goals; and
5. Meet legal requirements.

### 3.1 Projected Expenditures

The City provided a summary of annual operating and capital expenditures (pay-as-you-go and debt funded) and current and projected debt service payments. The data provided by the City is shown in Table B-1 in Appendix B. Total projected expenditures from FY15 – FY19 are projected to be approximately \$475,700,000. Approximately 57% of total expenditures (\$272,300,000) are for operations; the remaining is for pay-go capital expenditures (\$85,800,000) and debt service (\$117,600,000).

#### 3.1.1 Operation and Maintenance

O&M expenditures include the cost of operating and maintaining water supply, treatment, storage, recharge and distribution facilities and administering a water conservation program. O&M expenditures also include the costs of providing technical services such as water quality testing services and other administrative costs of the water system such as meter reading and billings. These costs are a normal obligation of the system, and are met from operating revenues as they are incurred. They enable the City to deliver water that meets all current State and Federal quality mandates and to satisfy water supply needs for fire protection and customer domestic and irrigation demands.

#### 3.1.2 Capital Improvement Program

The revised capital investment plan totals \$429 million over a five-year period. The revised capital investment plan includes the following categories of projects:

**Intentional Groundwater Recharge Facilities = \$6.4 million.** The City plans to coordinate its recharge endeavors with the Fresno Irrigation District and the Fresno Metropolitan Flood Control District to increase the number and effectiveness of recharge facilities in the community. These efforts will require the acquisition of property to construct recharge basins that will reduce the continuing decline of the groundwater aquifer, which is mandated by the recently enacted Sustainable Groundwater Management Act.

**Raw Water Supply Facilities = \$98.4 million.** This project calls for the installation of 18 miles of pipeline that will be used to supply surface water allocations from the Kings River and Friant/Kern Canal to the existing 30 mgd Northeast Surface Water Treatment Facility (NESWTF) and the proposed new 80 mgd Southeast Surface Water Treatment Facility (SESWTF). The original rate plan called for constructing

improvements to an existing open canal to the SESWTF, but concerns from the State Water Resources Control Board related to potential contamination and environmental impacts resulted in this recommended change.

**Surface Water Treatment Facilities = \$186.4 million.** This project is a 54-mgd mgd surface water treatment facility, which will allow the City to more effectively use its existing surface water allocations and entitlements from Millerton Lake and Pine Flat Reservoir. This facility will allow the City to mitigate the impacts associated with existing groundwater contamination, decades of aquifer overdrafting, and compliance with the recently enacted Sustainable Groundwater Management Act. The initial facility will be constructed with a permitted capacity of 54 mgd, and the City will petition the State to allow the facility to be re-rated to 80 mgd through a one-year performance demonstration testing procedure.

**Finished Water Distribution Pipelines = \$55.4 million.** These facilities will connect the treated water produced at the Surface Water Treatment Facility to the existing water distribution system.

**Pipeline and Well Rehabilitation and Replacement = \$82.5 million.** Historically, the City has not fully funded a capital replacement program. The funding is needed to begin the process of replacing existing pipelines, wells, etc., some of which are more than 80 years old. The current pipeline replacement schedule is over 400 years, and the proposed funding will reduce that to approximately 200 years. The industry standard is 90 years.

The CIP is to be financed with a combination of pay-as-you-go (cash or pay-go) financing and debt financing. The CIP funding sources include the following:

**“Pay-go” financing.** Cash financing of capital improvements is the direct, non-debt financing of Water System financed project costs. It is anticipated that cash financing will consist of revenues from the Water Enterprise Fund including customer service revenues, interest earnings, reimbursements, resources from prior year and other miscellaneous revenues.

**Debt Financing.** These consist of revenue bonds, low-interest and no-interest loans that are limited obligations of the City payable from revenues of the Water System after payment of operations and maintenance expenditures. The improvements to the Water System are anticipated to be debt funded through a series of bond sales and loans from the State of California State Revolving Fund.

Approximately 80% (\$343 million) of the \$429 million is projected to be funded by debt financing. The remaining expenditures are financed from “pay-go” revenues. Projected CIP expenditures funded by new debt financing and rates (pay-go) are shown in the figure below.

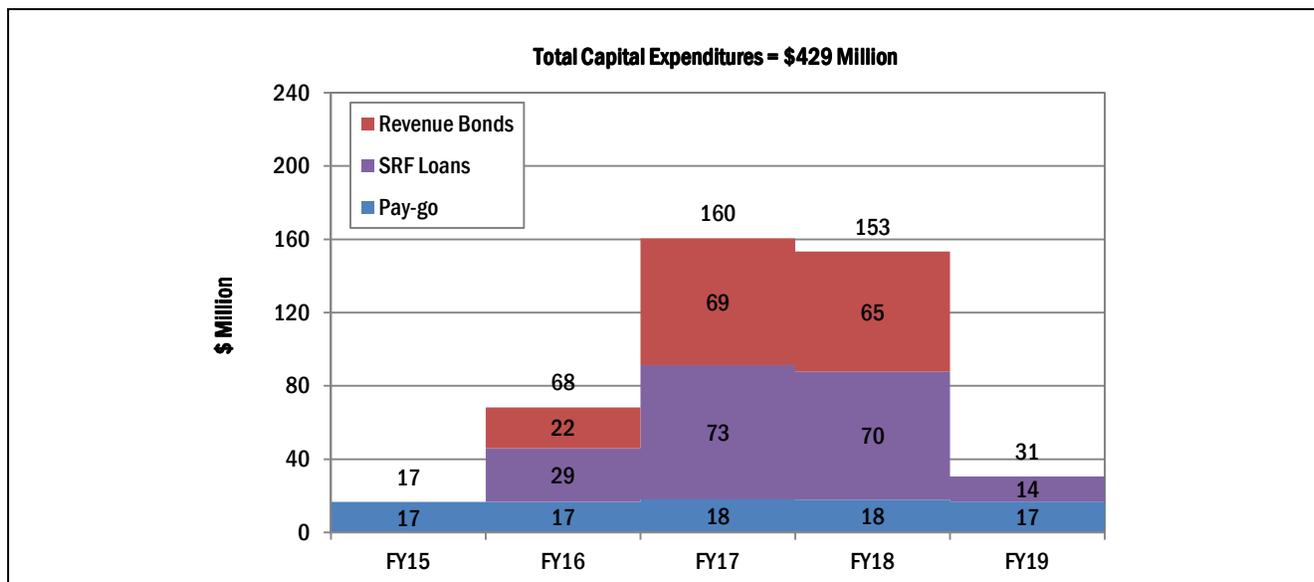


Figure 3-1. Projected Capital Expenditures, FY15 – FY19

The Division will continue to pursue grant and zero interest loan opportunities, but for purposes of this study, no revenues were assumed from these sources.

A summary of FY15 – FY19 annual operating expenditures, capital expenditures (pay-go) and debt service payments are shown in the figure below.

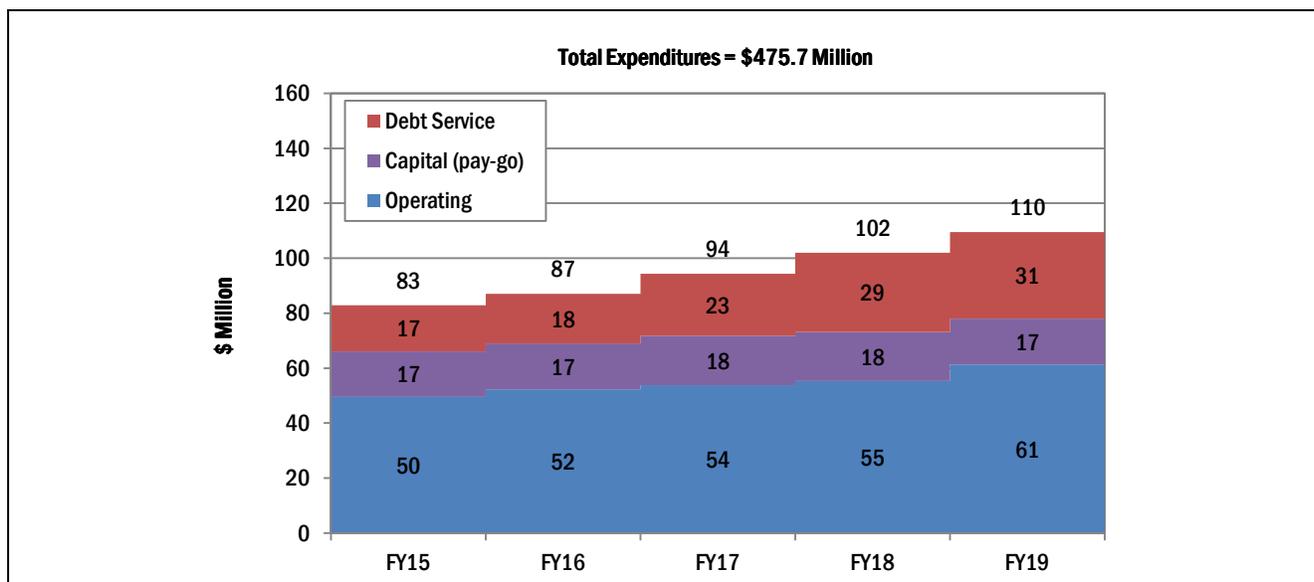


Figure 3-2. Projected Operating and Capital (Pay-go) Expenditures and Debt Service, FY15 – FY19

### 3.2 Annual Revenue Required from Rates and Charges

Projected expenditures may be funded from the use of the current fund balance; revenues from meter service charges, private fire protection charges, quantity charges; and other operating and nonoperating revenues. Revenues from meter service charges, private fire protection charges and quantity charges generate approximately 91% of all revenue for meeting the expenditures listed in the previous section.

The revenue projection for FY15 used in this study is based on the sum of actual revenues for July 2014 through January 2015 plus estimates of revenues for the remaining five months.

Revenue required from rates and charges for FY15 – FY19 are shown in the table below. Revenues from rates and charges for FY14 are shown for comparison using a hypothetical scenario of actual water consumption and number of meters and connections paying the current (2008 and 2010 Single Family quantity charge) rates.

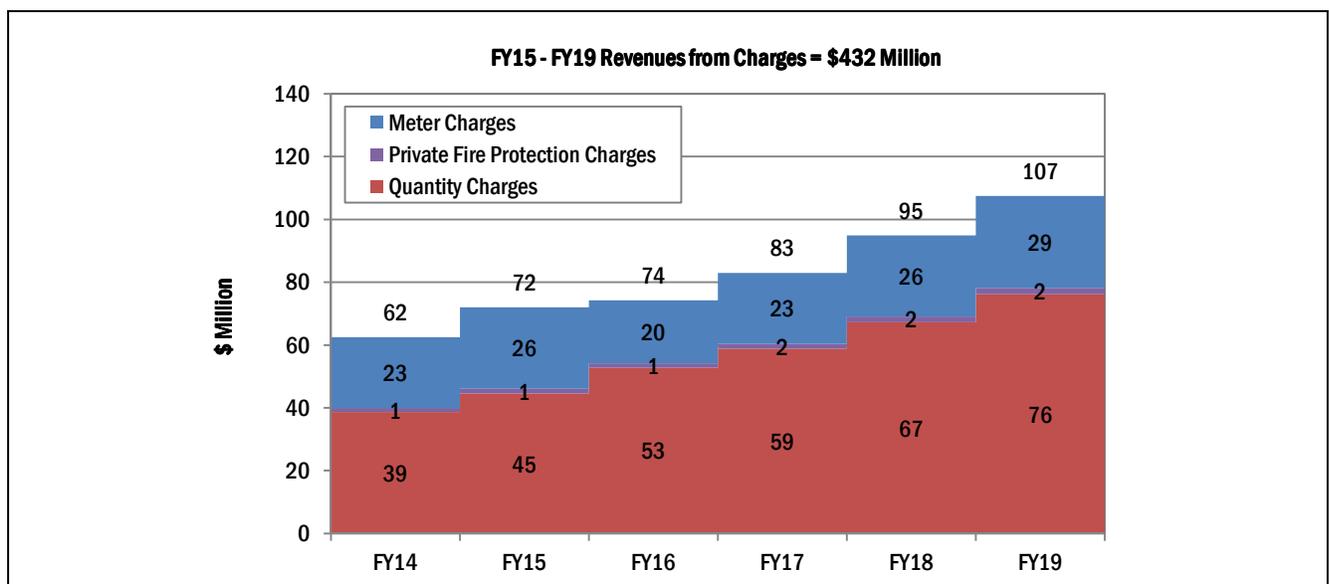


Figure 3-3. Projected Meter Service, Private Fire Protection and Quantity Charges, FY15 – FY19

### 3.3 Projected Cash Flow, Fund Balances and Debt Service Coverage

Revenues, expenditures and the beginning and ending fund balances for FY16 – FY19 are summarized in the table below. The debt service coverage ratio at the end of the four-year period is also shown.

Table 3-1. FY16 – FY19 Cash Flow		
<b>Beginning Cash, July 1, 2015</b>	<b>\$38,770,000</b>	
Revenues		
Private Fire Protection, Meter, and Quantity Charges	359,540,000	91%
Other Operating	22,170,000	6%
Non-operating/Transfers	12,140,000	3%
<b>Total Revenues</b>	<b>393,850,000</b>	<b>100%</b>
Expenditures		
Operating	222,780,000	57%
Debt Service	100,840,000	26%
Capital (pay-go)	69,270,000	18%
<b>Total Expenditures</b>	<b>392,890,000</b>	<b>100%</b>
Net Revenues	960,000	
<b>Ending Cash, June 30, 2019</b>	<b>\$39,730,000</b>	
<b>June 30, 2019 Debt Service Coverage Ratio</b>	<b>1.65x</b>	

### 3.4 Target Fund Balances, Debt Service Coverage and Cash Flow

Cash flow must be sufficient to provide funds for operating, capital and debt service expenditures; maintain annual fund reserves that meet annual target fund balances; and achieve debt service coverage requirements. The recommended rate increase scenario is discussed in the following sections.

#### 3.4.1 Enterprise Fund Target Balance

A target 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 accounts receivable from ratepayers and pay for unexpected increases in O&M expenses and emergency capital expenditures. The target fund balance developed by City staff is based on 180 days of annual operating expenditures. Credit rating agencies consider a target fund balance of 180 days of annual operating expenditures to be a strength when preparing their rating rationale. In FY19, 180 days of cash is estimated to equal approximately \$30 million.

#### 3.4.2 Debt Service Coverage Ratio

The City has multiple debt service obligations and multiple proposed debt service obligations starting in 2016. The loan agreement for each debt service obligation contains representations and warranties, covenants and default remedy provisions.

Water enterprise revenue bonds, for example, are secured by a lien upon and from, the revenues of the water enterprise. Commonly, an operating history of the enterprise or feasibility studies are used to determine that such revenues are sufficient to pay projected operation and maintenance expenses of the enterprise, debt service associated with the bonds and an additional amount known as coverage. Issuers of public enterprise revenue bonds generally covenant in the bond resolution or indenture to establish rates and charges for the products or services provided by the enterprise in a manner sufficient to provide revenues to pay such amounts and to provide coverage.

Section 5.12 of the City’s 2003 Series A Water System Revenue Refunding Bonds Indenture states, "The City will fix, prescribe and collect rates, fees and charges for the Water System Service which are reasonable and fair and which will be at least sufficient to yield during each Fiscal Year (a) Net Current Revenues equal to at least one hundred percent (100%) of the estimated Debt Service for such Fiscal Year and (b) Net Revenues equal to at least one hundred and twenty-five percent (125%) of the estimated Debt Service for such Fiscal Year. The City may make adjustments from time to time in such rates, fees and charges and may make such classification thereof as it deems necessary, but shall not reduce the rates, fees and charges then in effect unless the Net Current Revenues and the Net Revenues from such reduced rates, fees and charges will at all times be sufficient to meet the requirements of this section."

By Policy, the minimum debt service coverage ratio target used for development of water rates and charges shown in this study is 1.40.

### 3.4.3 Cash Flow

Annual expenditures, revenues and cash flow, and the ending balance for the enterprise fund, are shown in the figure below. Also shown at the bottom line of the figure are the annual values of the debt service coverage ratio.

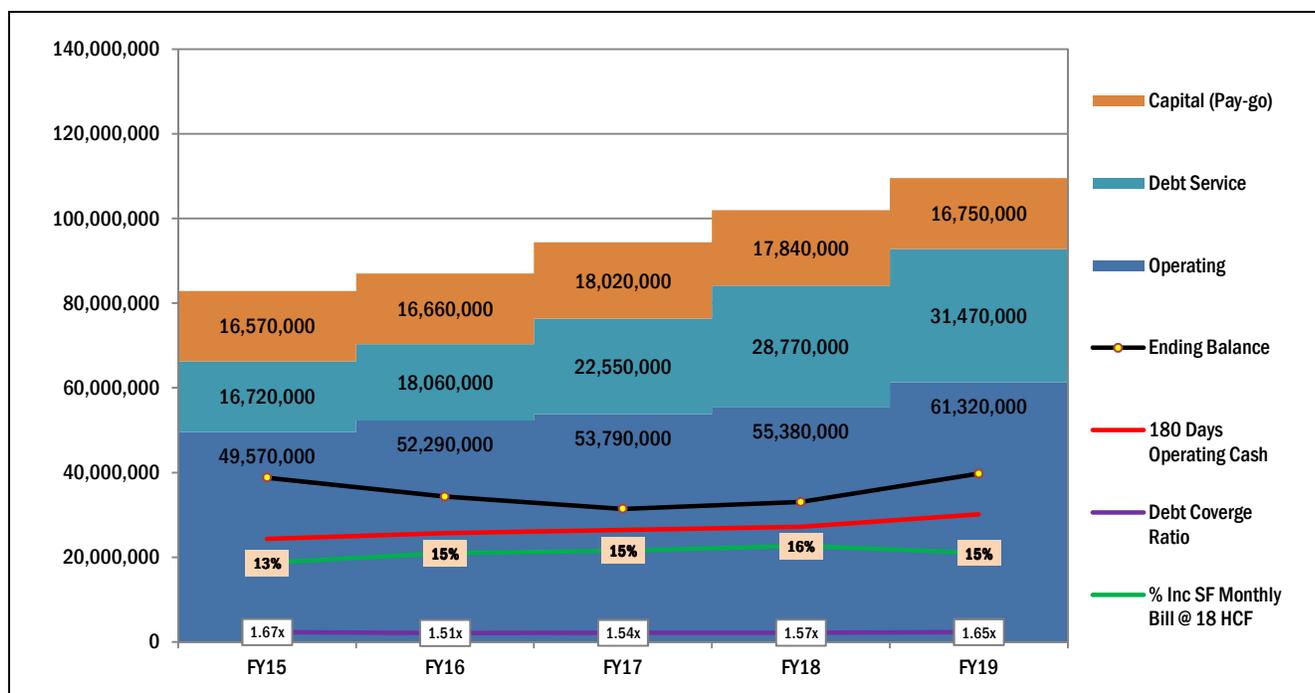


Figure 3-4. Cash Flow, Fund Balance and Debt Service Coverage, FY15 – FY19

## 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 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*. 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, peak water demand, 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 Base – Extra Capacity Cost Allocation

Allocation of functional costs to cost components is performed using the “base-extra capacity” method. Using this method, costs are separated into cost components. Each component is described below.<sup>3</sup>

1. Base costs – costs that tend to vary with the total quantity of water used plus those O&M expenses and capital costs associated with service to customer under average demand conditions;
2. Extra-capacity costs – costs associated with meeting peak demand rate of use requirements in excess of average (base) use and include O&M expenses and capital costs for system capacity beyond that required average rate of use; these costs are subdivided into costs necessary to meet maximum-day extra demand and maximum-hour demand in excess of maximum-day demand;
3. Customer costs – costs associated with serving customers, irrespective of the amount or rate of water use; these costs are subdivided into costs for meter reading and billing, customer accounting and collection, and financial reporting; and maintenance and capital costs related to customer meters and services;
4. Fire protection – 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.

---

<sup>3</sup> A more complete discussion of function cost categories as they apply to the base-extra capacity method may be found in the AWWA, Manual of Water Supply Practices, M1 Principles of Water Rates, Fees, and Charges, 2012 Sixth Edition, page 62.

## 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 C-1 in Appendix C. The allocation of Plant in Service assets results in Plant in Service 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 “UB&C ID Charges” is allocated solely to the “Billing and Collecting” function because these costs may be equitably allocated among all customers regardless of the amount of water use or meter size.

Other operating expenditures and other revenues not allocated using the Plant in Service factors or directly allocated are allocated using a subset of the Plant in Service factors that reflect the specific association between a cost category and its related functions. For example, the cost category “Pumping Power” is allocated only among the “Base”, “Maximum Day” and “Maximum Hour” functions because the costs are related to the level of water use irrespective of meter size.

Allocation of operating, debt service, and capital expenditures and other revenues is shown in Table C-2 in Appendix C.

The allocation of annual revenue requirements to functional cost components is summarized in the table below.

**Table 4-1. Cost Allocation to Functional Categories**

	Revenue Requirements	Quantity Charges			Meter and Private Fire Protection Charges		
		Base (BAS)	Extra Capacity		Fire Protection (FP)	Meters and Service Laterals (MTR)	Billing and Collecting (CUS)
			Maximum Day (XMD)	Maximum Hour (XMH)			
FY15	\$67,000,000	\$30,846,699 46.0%	\$5,541,879 8.3%	\$11,174,512 16.7%	\$5,834,065 8.7%	\$7,611,644 11.4%	\$5,991,201 8.9%
FY16	\$74,000,000	\$34,069,488 46.0%	\$6,120,881 8.3%	\$12,341,999 16.7%	\$6,443,594 8.7%	\$8,406,891 11.4%	\$6,617,148 8.9%
FY17	\$83,000,000	\$38,213,075 46.0%	\$6,865,313 8.3%	\$13,843,053 16.7%	\$7,227,274 8.7%	\$9,429,350 11.4%	\$7,421,936 8.9%
FY18	\$95,000,000	\$43,737,857 46.0%	\$7,857,888 8.3%	\$15,844,458 16.7%	\$8,272,181 8.7%	\$10,792,630 11.4%	\$8,494,987 8.9%
FY19	\$107,500,000	\$49,492,838 46.0%	\$8,891,820 8.3%	\$17,929,255 16.7%	\$9,360,626 8.7%	\$12,212,713 11.4%	\$9,612,748 8.9%

### 4.3 Allocation of Fire Protection Costs

The annual revenue requirements allocated to Fire Protection are split between public protection and private fire protection. The allocation is based on the units of service (equivalent connections) for fire protection presented in Section 2. Allocation of annual revenue requirements between public protection and private fire protection are shown in the table below.

Table 4-2. Allocation of Fire Protection Costs					
Item	FY15	FY16	FY17	FY18	FY19
<b>Equivalent Connections</b>					
Public	1,466,967	1,471,419	1,475,872	1,480,324	1,484,776
Private	417,106	418,103	419,099	420,095	421,092
<b>Total</b>	<b>1,884,073</b>	<b>1,889,522</b>	<b>1,894,971</b>	<b>1,900,419</b>	<b>1,905,868</b>
<b>% of Total Equivalent Connections</b>					
Public	78%	78%	78%	78%	78%
Private	22%	22%	22%	22%	22%
<b>Revenue Requirement</b>					
Public	\$4,542,487	\$5,017,792	\$5,628,862	\$6,443,582	\$7,292,445
Private	\$1,291,577	\$1,425,802	\$1,598,412	\$1,828,599	\$2,068,182
<b>Total</b>	<b>\$5,834,065</b>	<b>\$6,443,594</b>	<b>\$7,227,274</b>	<b>\$8,272,181</b>	<b>\$9,360,626</b>

### 4.4 Allocation of Base and Extra Capacity Costs

Allocation of annual revenue requirements for the “Base”, “Maximum Day” and “Maximum Hour” functions to the three customer classes is described in this subsection.

#### 4.4.1 Base, Maximum Day and Maximum Hour Allocation Factors

Allocation of annual revenue requirements for the “Base”, “Maximum Day” and “Maximum Hour” functions is based on water use characteristics for each customer class presented in Section 2. Water use characteristics for each customer class for annual consumption are used to develop factors for allocation of “Base” costs. Water use characteristics for each customer class for maximum day consumption are used to develop factors for allocation of “Maximum Day” costs. Water use characteristics for each customer class for coincidental maximum hour consumption are used to develop factors for allocation of “Maximum Hour” costs. The factors are summarized in the table below.

Table 4-3. Factors for Development of Quantity Rates			
Customer Category	FY2014-15	Maximum Day, 07/01/14	
	Annual MGD	Day MGD	Hour, 8:00PM MGD
<b>Consumption</b>			
Single Family	56,724,221	92,066,650	173,746,080
Nonresidential	40,100,707	31,114,390	37,271,520
Irrigation	8,639,975	9,968,070	11,856,720
<b>Total Consumption</b>	<b>105,464,903</b>	<b>133,149,110</b>	<b>222,874,320</b>
<b>Factors for Development of Quantity Rates</b>			
Single Family	<b>0.538</b>	<b>0.691</b>	<b>0.780</b>
Nonresidential	<b>0.380</b>	<b>0.234</b>	<b>0.167</b>
Irrigation	<b>0.082</b>	<b>0.075</b>	<b>0.053</b>

### 4.4.2 Base Cost Allocations

Water use characteristics for each customer class for annual consumption are used to develop factors for allocation of “Base” costs. The allocation of “Base” costs among customer classes is shown in the table below.

**Table 4-4. Base Cost Allocations**

Item	FY15	FY16	FY17	FY18	FY19
<b>Revenue Requirements</b>					
Base Allocations	\$30,846,699	\$34,069,488	\$38,213,075	\$43,737,857	\$49,492,838
<b>Allocations</b>					
<b>Single Family</b>					
Allocation - All Classes	\$30,846,699	\$34,069,488	\$38,213,075	\$43,737,857	\$49,492,838
Allocation Factor	0.538	0.538	0.538	0.538	0.538
Allocation Dollars	\$16,590,875	\$18,324,249	\$20,552,874	\$23,524,374	\$26,619,687
<b>Nonresidential</b>					
Allocation - All Classes	\$30,846,699	\$34,069,488	\$38,213,075	\$43,737,857	\$49,492,838
Allocation Factor	0.380	0.380	0.380	0.380	0.380
Allocation Dollars	\$11,728,778	\$12,954,173	\$14,529,680	\$16,630,357	\$18,818,562
<b>Irrigation</b>					
Allocation - All Classes	\$30,846,699	\$34,069,488	\$38,213,075	\$43,737,857	\$49,492,838
Allocation Factor	0.082	0.082	0.082	0.082	0.082
Allocation Dollars	\$2,527,047	\$2,791,066	\$3,130,520	\$3,583,126	\$4,054,590

### 4.4.3 Maximum Day Cost Allocations

Water use characteristics for each customer class for annual consumption are used to develop factors for allocation of “Maximum Day” costs. The allocation of “Maximum Day” costs among customer classes is shown in the table below.

**Table 4-5. Maximum Day Cost Allocations**

Item	FY15	FY16	FY17	FY18	FY19
<b>Revenue Requirements</b>					
Maximum Day Allocations	\$5,541,879	\$6,120,881	\$6,865,313	\$7,857,888	\$8,891,820
<b>Allocations</b>					
<b>Single Family</b>					
Allocation - All Classes	\$5,541,879	\$6,120,881	\$6,865,313	\$7,857,888	\$8,891,820
Allocation Factor	0.691	0.691	0.691	0.691	0.691
Allocation Dollars	\$3,831,961	\$4,232,315	\$4,747,056	\$5,433,378	\$6,148,296
<b>Nonresidential</b>					
Allocation - All Classes	\$5,541,879	\$6,120,881	\$6,865,313	\$7,857,888	\$8,891,820
Allocation Factor	0.234	0.234	0.234	0.234	0.234
Allocation Dollars	\$1,295,031	\$1,430,332	\$1,604,292	\$1,836,237	\$2,077,848
<b>Irrigation</b>					
Allocation - All Classes	\$5,541,879	\$6,120,881	\$6,865,313	\$7,857,888	\$8,891,820
Allocation Factor	0.075	0.075	0.075	0.075	0.075
Allocation Dollars	\$414,887	\$458,233	\$513,965	\$588,273	\$665,677

### 4.4.4 Maximum Hour Cost Allocations

Water use characteristics for each customer class for annual consumption are used to develop factors for allocation of “Maximum Hour” costs. The allocation of “Maximum Hour” costs among customer classes is shown in the table below.

Table 4-6. Maximum Hour Cost Allocations					
Item	FY15	FY16	FY17	FY18	FY19
<b>Revenue Requirements</b>					
Maximum Hour Allocations	\$11,174,512	\$12,341,999	\$13,843,053	\$15,844,458	\$17,929,255
<b>Allocations</b>					
<b>Single Family</b>					
Allocation - All Classes	\$11,174,512	\$12,341,999	\$13,843,053	\$15,844,458	\$17,929,255
Allocation Factor	0.780	0.780	0.780	0.780	0.780
Allocation Dollars	\$8,711,312	\$9,621,449	\$10,791,625	\$12,351,860	\$13,977,105
<b>Nonresidential</b>					
Allocation - All Classes	\$11,174,512	\$12,341,999	\$13,843,053	\$15,844,458	\$17,929,255
Allocation Factor	0.167	0.167	0.167	0.167	0.167
Allocation Dollars	\$1,868,726	\$2,063,966	\$2,314,989	\$2,649,686	\$2,998,329
<b>Irrigation</b>					
Allocation - All Classes	\$11,174,512	\$12,341,999	\$13,843,053	\$15,844,458	\$17,929,255
Allocation Factor	0.053	0.053	0.053	0.053	0.053
Allocation Dollars	\$594,474	\$656,584	\$736,438	\$842,911	\$953,821

This Page Intentionally Blank.

## Section 5

# Rate Analysis

Distribution of costs to functional categories and customer classes shown in the preceding section is followed by the calculation of rates and charges and design of a rates and charges structure.

### 5.1 Quantity Rates

Approximately 71 percent of annual revenue requirements are to be recovered from quantity rates based on allocations to the “Base”, “Maximum Day” and “Maximum Hour” functions. The development of a single uniform quantity rate for all customer classes is shown in Table 5-1. The calculation involves adding the costs allocated to the “Base”, “Maximum Day” and “Maximum Hour” functions and dividing by the projected annual amount of water use.

Table 5-1. Uniform Quantity Rates					
Item	FY15	FY16	FY17	FY18	FY19
<b>Allocations by Functional Cost Category</b>					
Base	\$30,846,699	\$34,069,488	\$38,213,075	\$43,737,857	\$49,492,838
Maximum Day	\$5,541,879	\$6,120,881	\$6,865,313	\$7,857,888	\$8,891,820
Maximum Hour	\$11,174,512	\$12,341,999	\$13,843,053	\$15,844,458	\$17,929,255
Total	\$47,563,090	\$52,532,368	\$58,921,440	\$67,440,202	\$76,313,913
<b>Allocations by Customer Class</b>					
Single Family	\$29,134,148	\$32,178,014	\$36,091,556	\$41,309,612	\$46,745,087
Nonresidential	\$14,892,535	\$16,448,471	\$18,448,961	\$21,116,280	\$23,894,738
Irrigation	\$3,536,408	\$3,905,883	\$4,380,923	\$5,014,310	\$5,674,087
Total	\$47,563,090	\$52,532,368	\$58,921,440	\$67,440,202	\$76,313,913
<b>Water Use, HCF</b>					
Single Family	27,675,900	25,062,900	23,105,250	22,465,500	21,824,550
Nonresidential	19,565,243	19,173,938	18,790,459	18,414,650	18,046,357
Irrigation	4,215,467	4,131,158	4,048,535	3,967,564	3,888,213
Total	51,456,610	48,367,996	45,944,244	44,847,714	43,759,120
<b>Uniform Quantity Charges</b>		<i>Current (2010)</i>			
Single Family	<b>\$0.61</b>	<b>\$0.92</b>	<b>\$1.09</b>	<b>\$1.28</b>	<b>\$1.50</b>
Nonresidential	<b>\$0.745</b>	<b>\$0.92</b>	<b>\$1.09</b>	<b>\$1.28</b>	<b>\$1.74</b>

### 5.1.1 Meter Service Charges

Approximately 29 percent of annual revenue requirements are to be recovered from meter charges based on allocations to the “Fire Protection”, “Meters and Laterals” and “Billing and Collection” functions. The development of unit costs for each functional category is shown in the table below. Note that the Fire Protection functional cost category includes only the portion for public fire protection; the portion for private fire protection is recovered from a separate charge (the allocation between public and private fire protection was developed in the previous section).

**Table 5-2. Unit Costs for Development of Meter Service Charges**

Item	FY15	FY16	FY17	FY18	FY19
<b>Allocations by Functional Cost Category</b>					
Fire Protection Service	\$4,542,487	\$5,017,792	\$5,628,862	\$6,443,582	\$7,292,445
Meters and Laterals	\$7,611,644	\$8,406,891	\$9,429,350	\$10,792,630	\$12,212,713
Billing and Collection	\$5,991,201	\$6,617,148	\$7,421,936	\$8,494,987	\$9,612,748
<b>Unit Costs</b>					
Fire Protection Service	\$4,542,487	\$5,017,792	\$5,628,862	\$6,443,582	\$7,292,445
Equivalent ¾-inch Meters	216,111	216,279	216,447	216,615	216,783
Cost per Equivalent ¾-inch Meters	\$1.75	\$1.93	\$2.17	\$2.48	\$2.80
Meters and Laterals	\$7,611,644	\$8,406,891	\$9,429,350	\$10,792,630	\$12,212,713
Equivalent ¾-inch Meters	226,790	226,974	227,158	227,342	227,526
Cost per Equivalent ¾-inch Meters	\$2.80	\$3.09	\$3.46	\$3.96	\$4.47
Billing and Collection	\$5,991,201	\$6,617,148	\$7,421,936	\$8,494,987	\$9,612,748
Meters	129,219	129,334	129,449	129,564	129,679
Cost per Meter	\$3.86	\$4.26	\$4.78	\$5.46	\$6.18

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 and Nonresidential meter service charges include the “Fire Protection”, “Meters and Laterals” (vary by meter size) and “Billing and Collection” (uniform for each account) functional cost categories;
- Irrigation meter service charges include the “Meters and Laterals” (vary by meter size) and “Billing and Collection” (uniform for each account) functional cost categories and exclude the “Fire Protection” functional cost category (a new assumption not reflected in the current charges);
- Travel meter charges are assigned the 3-inch meter rated capacity.

The development of meter service charges is shown in the table below.

Table 5-3. Meter Service Charges							
Item			FY15	FY16	FY17	FY18	FY19
<b>Unit Costs</b>							
Fire Protection Service			\$1.75	\$1.93	\$2.17	\$2.48	\$2.80
Meters and Laterals			\$2.80	\$3.09	\$3.46	\$3.96	\$4.47
Billing and Collection			\$3.86	\$4.26	\$4.78	\$5.46	\$6.18
<b>Meter Charges, \$/month</b>							
		<i>Current</i>					
All x/Irrigation	<u><i>¾-inch Eq Mtr</i></u>	<u><i>(2010)</i></u>					
¾-inch	1.0	\$10.03	\$8.50	\$9.30	\$10.50	\$11.90	\$13.50
1.0-inch	1.6	\$13.51	\$11.20	\$12.30	\$13.80	\$15.80	\$17.90
1.5-inch	2.0	\$18.89	\$13.00	\$14.40	\$16.10	\$18.40	\$20.80
2.0-inch	4.0	\$27.09	\$22.10	\$24.40	\$27.30	\$31.30	\$35.30
3.0-inch	6.4	\$45.07	\$33.00	\$36.40	\$40.80	\$46.70	\$52.80
4.0-inch	10.0	\$63.03	\$50.00	\$55.00	\$62.00	\$70.00	\$79.00
6.0-inch	20.0	\$99.01	\$95.00	\$105.00	\$118.00	\$135.00	\$152.00
8.0-inch	96.0	\$152.96	\$441.00	\$487.00	\$545.00	\$624.00	\$705.00
10.0-inch	152.0	\$179.83	\$696.00	\$768.00	\$860.00	\$984.00	\$1,113.00
12.0-inch	200.0		\$914.00	\$1,009.00	\$1,131.00	\$1,293.00	\$1,462.00
Irrigation	<u><i>¾-inch Eq Mtr</i></u>						
¾-inch	1.0	\$10.03	\$6.70	\$7.40	\$8.30	\$9.50	\$10.70
1.0-inch	1.6	\$13.51	\$8.40	\$9.30	\$10.40	\$11.80	\$13.40
1.5-inch	2.0	\$18.89	\$9.50	\$10.50	\$11.70	\$13.40	\$15.20
2.0-inch	4.0	\$27.09	\$15.10	\$16.70	\$18.70	\$21.30	\$24.10
3.0-inch	6.4	\$45.07	\$21.80	\$24.10	\$27.00	\$30.80	\$34.90
4.0-inch	10.0	\$63.03	\$32.00	\$36.00	\$40.00	\$46.00	\$51.00
6.0-inch	20.0	\$99.01	\$60.00	\$66.00	\$74.00	\$85.00	\$96.00
8.0-inch	96.0	\$152.96	\$273.00	\$301.00	\$337.00	\$386.00	\$436.00
10.0-inch	152.0	\$179.83	\$429.00	\$474.00	\$531.00	\$607.00	\$687.00
12.0-inch	200.0		\$564.00	\$622.00	\$697.00	\$797.00	\$901.00

### 5.1.2 Private Fire Protection Charges

The development of Private Fire Protection charges is shown in the table below. Note that the Fire Protection functional cost category includes only the portion for private fire protection; the portion for public fire protection is recovered from a separate charge (the allocation between public and private fire protection was developed in the previous section).

**Table 5-4. Private Fire Protection Charges**

Item	Current (2010)	FY15	FY16	FY17	FY18	FY19	
Private Fire Protection Service Allocation		\$1,291,577	\$1,425,802	\$1,598,412	\$1,828,599	\$2,068,182	
Private Fire Service Equivalent Connections		417,106	418,103	419,099	420,095	421,092	
Unit Cost per Equivalent Connection, \$/month		\$0.26	\$0.28	\$0.32	\$0.36	\$0.41	
	<i>Demand</i>	<i>Current</i>					
Rate per Connection, \$/month	<i>Factor</i>	<i>(2010)</i>					
Fire Hydrants	111.3	\$23.94	\$28.80	\$31.70	\$35.40	\$40.40	\$45.60
Fire Service Connections							
1.0-inch	38.3	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70
1.5-inch	38.3	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70
2.0-inch	38.3	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70
2.5-inch	38.3	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70
4.0-inch	38.3	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70
6.0-inch	111.3	\$35.94	\$28.80	\$31.70	\$35.40	\$40.40	\$45.60
8.0-inch	237.2	\$47.92	\$62.00	\$68.00	\$76.00	\$87.00	\$98.00
10.0-inch	426.6	\$59.90	\$111.00	\$122.00	\$136.00	\$155.00	\$175.00
12.0-inch	689.0	\$71.88	\$178.00	\$196.00	\$219.00	\$250.00	\$283.00

## Section 6

# Revenues, Rates and Customer Bills

The impact on customers is summarized in terms of annual changes in revenue required from each customer class, annual changes in water rates and charges, and annual changes in monthly bills.

### 6.1 Projected Revenue from Water Rates and Charges

The total amount of revenue projected from charges (for a full fiscal year), by customer class and type of charge, is summarized in Table 6-1. The revenues shown for FY14 are developed using 2010 rates for the entire fiscal year and revenues shown for FY15 are developed using the recommended rates for the entire fiscal year. Those assumptions underestimate revenues in both fiscal years by approximately the same amount. Note that projected water use for FY15 is substantially less than for FY14.

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

Revenue Category	FY14 using 2010 Rates	FY15 Recommended for 12-months	FY16	FY17	FY18	FY19
<b>All Classes</b>						
Quantity Charges	\$38,640,000	\$47,340,000	\$52,720,000	\$58,810,000	\$67,270,000	\$76,140,000
Meter Charges	\$22,530,000	\$18,240,000	\$20,070,000	\$22,540,000	\$25,800,000	\$29,230,000
Private Fire Protection Service	\$1,300,000	\$1,300,000	\$1,430,000	\$1,600,000	\$1,840,000	\$2,080,000
<b>Total</b>	<b>\$62,470,000</b>	<b>\$66,880,000</b>	<b>\$74,220,000</b>	<b>\$82,950,000</b>	<b>\$94,910,000</b>	<b>\$107,450,000</b>
<b>Annual Change</b>						
Dollar Change		\$4,410,000	\$7,340,000	\$8,730,000	\$11,960,000	\$12,540,000
Percent Change		7%	11%	12%	14%	13%
<b>Rates and Charges</b>						
Quantity Charges	62%	71%	71%	71%	71%	71%
Meter Charges	36%	27%	27%	27%	27%	27%
Private Fire Protection Service	2%	2%	2%	2%	2%	2%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Customer Category</b>						
Single Family	60%	60%	58%	57%	57%	57%
Nonresidential	31%	32%	33%	34%	34%	34%
Irrigation	7%	7%	7%	7%	7%	7%
Private Fire Protection Service	2%	2%	2%	2%	2%	2%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

The cost of service analysis results in a shift in cost recovery to quantity-related costs from those costs related to accounts and meters (meter charges). The shift, which occurs in the first year of implementation of cost of service rates and charges, increases cost recovery from quantity-related costs from 62 percent in FY14 to 71 percent in FY15. All other things being equal, in FY15 the shift will cause the percentage increase in quantity rates to exceed the percentage increase in meter charges.

## 6.2 Recommended Water Rates and Charges

Recommended rates and charges are shown in the table below. The effective date for FY15 is March 30, 2015; the effective date for subsequent fiscal years is July 1.

**Table 6-2. Current and Recommended Water Rates and Charges, FY 15 – FY 19**

Water Rate or Charge	effective >	3/30/2015	7/1/2015	7/1/2016	7/1/2017	7/1/2018					
	Current	FY15	FY16	FY17	FY18	FY19	FY15	FY16	FY17	FY18	FY19
<b>Quantity Rates, \$/HCF</b>											
Single Family	\$0.61	\$0.92	\$1.09	\$1.28	\$1.50	\$1.74	51%	18%	17%	17%	16%
All Others	\$0.745	\$0.92	\$1.09	\$1.28	\$1.50	\$1.74	23%	18%	17%	17%	16%
<b>Meter Charges, \$/month</b>											
<b>All Users x/Irrigation</b>											
¾-inch	\$10.03	\$8.50	\$9.30	\$10.50	\$11.90	\$13.50	-15%	9%	13%	13%	13%
1.0-inch	\$13.51	\$11.20	\$12.30	\$13.80	\$15.80	\$17.90	-17%	10%	12%	14%	13%
1.5-inch	\$18.89	\$13.00	\$14.40	\$16.10	\$18.40	\$20.80	-31%	11%	12%	14%	13%
2.0-inch	\$27.09	\$22.10	\$24.40	\$27.30	\$31.30	\$35.30	-18%	10%	12%	15%	13%
3.0-inch	\$45.07	\$33.00	\$36.40	\$40.80	\$46.70	\$52.80	-27%	10%	12%	14%	13%
4.0-inch	\$63.03	\$50.00	\$55.00	\$62.00	\$70.00	\$79.00	-21%	10%	13%	13%	13%
6.0-inch	\$99.01	\$95.00	\$105.00	\$118.00	\$135.00	\$152.00	-4%	11%	12%	14%	13%
8.0-inch	\$152.96	\$441.00	\$487.00	\$545.00	\$624.00	\$705.00	188%	10%	12%	14%	13%
10.0-inch	\$179.83	\$696.00	\$768.00	\$860.00	\$984.00	\$1,113.00	287%	10%	12%	14%	13%
12.0-inch	na	\$914.00	\$1,009.00	\$1,131.00	\$1,293.00	\$1,462.00		10%	12%	14%	13%
<b>Irrigation</b>											
¾-inch	\$10.03	\$6.70	\$7.40	\$8.30	\$9.50	\$10.70	-33%	10%	12%	14%	13%
1.0-inch	\$13.51	\$8.40	\$9.30	\$10.40	\$11.80	\$13.40	-38%	11%	12%	13%	14%
1.5-inch	\$18.89	\$9.50	\$10.50	\$11.70	\$13.40	\$15.20	-50%	11%	11%	15%	13%
2.0-inch	\$27.09	\$15.10	\$16.70	\$18.70	\$21.30	\$24.10	-44%	11%	12%	14%	13%
3.0-inch	\$45.07	\$21.80	\$24.10	\$27.00	\$30.80	\$34.90	-52%	11%	12%	14%	13%
4.0-inch	\$63.03	\$32.00	\$36.00	\$40.00	\$46.00	\$51.00	-49%	13%	11%	15%	11%
6.0-inch	\$99.01	\$60.00	\$66.00	\$74.00	\$85.00	\$96.00	-39%	10%	12%	15%	13%
8.0-inch	\$152.96	\$273.00	\$301.00	\$337.00	\$386.00	\$436.00	78%	10%	12%	15%	13%
10.0-inch	\$179.83	\$429.00	\$474.00	\$531.00	\$607.00	\$687.00	139%	10%	12%	14%	13%
12.0-inch	na	\$564.00	\$622.00	\$697.00	\$797.00	\$901.00		10%	12%	14%	13%
<b>Private Fire Protection Charges, \$/month</b>											
Fire Hydrants	\$23.94	\$28.80	\$31.70	\$35.40	\$40.40	\$45.60	20%	10%	12%	14%	13%
<b>Fire Service Connections</b>											
1.0-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70	-59%	10%	12%	14%	13%
1.5-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70	-59%	10%	12%	14%	13%
2.0-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70	-59%	10%	12%	14%	13%
2.5-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70	-59%	10%	12%	14%	13%
4.0-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70	-59%	10%	12%	14%	13%
6.0-inch	\$35.94	\$28.80	\$31.70	\$35.40	\$40.40	\$45.60	-20%	10%	12%	14%	13%
8.0-inch	\$47.92	\$62.00	\$68.00	\$76.00	\$87.00	\$98.00	29%	10%	12%	14%	13%
10.0-inch	\$59.90	\$111.00	\$122.00	\$136.00	\$155.00	\$175.00	85%	10%	11%	14%	13%
12.0-inch	\$71.88	\$178.00	\$196.00	\$219.00	\$250.00	\$283.00	148%	10%	12%	14%	13%

### 6.3 Impact on Single Family Residential Monthly Bills

The shift in cost recovery to quantity-related costs from those costs related to accounts and meters (meter charges) will cause customers (regardless of customer class) with relatively low levels of water use to experience lower increases (or even decreases) in their monthly bills compared to customers within the same customer class with average water use. By the same token, the shift in cost recovery to quantity-related costs will cause customers (regardless of customer class) with relatively high levels of water use to experience higher increases in their monthly bills compared to customers within the same customer class with average water use.

#### 6.3.1 Monthly Bills at Selected Levels of Water Use

Monthly bills for a Single Family account with a 1-inch meter at selected levels of water use are compared in the table below using recommended water rates and charges.

HCF	Water Use		Current 2010	Projected					Projected				
	gallons	gpd		FY15	FY16	FY17	FY18	FY19	FY15	FY16	FY17	FY18	FY19
0	0	0	\$13.51	\$11.20	\$12.30	\$13.80	\$15.80	\$17.90	-17%	10%	12%	14%	13%
5	3,700	125	\$16.56	\$15.80	\$17.75	\$20.20	\$23.30	\$26.60	-5%	12%	14%	15%	14%
10	7,500	245	\$19.61	\$20.40	\$23.20	\$26.60	\$30.80	\$35.30	4%	14%	15%	16%	15%
15	11,200	370	\$22.66	\$25.00	\$28.65	\$33.00	\$38.30	\$44.00	10%	15%	15%	16%	15%
<b>18</b>	<b>13,500</b>	<b>445</b>	<b>\$24.49</b>	<b>\$27.76</b>	<b>\$31.92</b>	<b>\$36.84</b>	<b>\$42.80</b>	<b>\$49.22</b>	<b>13%</b>	<b>15%</b>	<b>15%</b>	<b>16%</b>	<b>15%</b>
20	15,000	490	\$25.71	\$29.60	\$34.10	\$39.40	\$45.80	\$52.70	15%	15%	16%	16%	15%
30	22,400	740	\$31.81	\$38.80	\$45.00	\$52.20	\$60.80	\$70.10	22%	16%	16%	16%	15%
40	29,900	980	\$37.91	\$48.00	\$55.90	\$65.00	\$75.80	\$87.50	27%	16%	16%	17%	15%
50	37,400	1,230	\$44.01	\$57.20	\$66.80	\$77.80	\$90.80	\$104.90	30%	17%	16%	17%	16%

#### 6.3.2 Historical and Projected Single Family Monthly Bills

Projected monthly bills for single family accounts with a metered connection (a 1-inch meter with 18 HCF/month average annual use) and historic monthly bills for an unmetered connection (with an 8000 sq. ft. lot) and metered connections are compared in the figure below. Historic monthly bills for metered connections are based on rates adopted during March 2010. Monthly bills based on rates adopted during August 2013 (but now rescinded) are also shown.

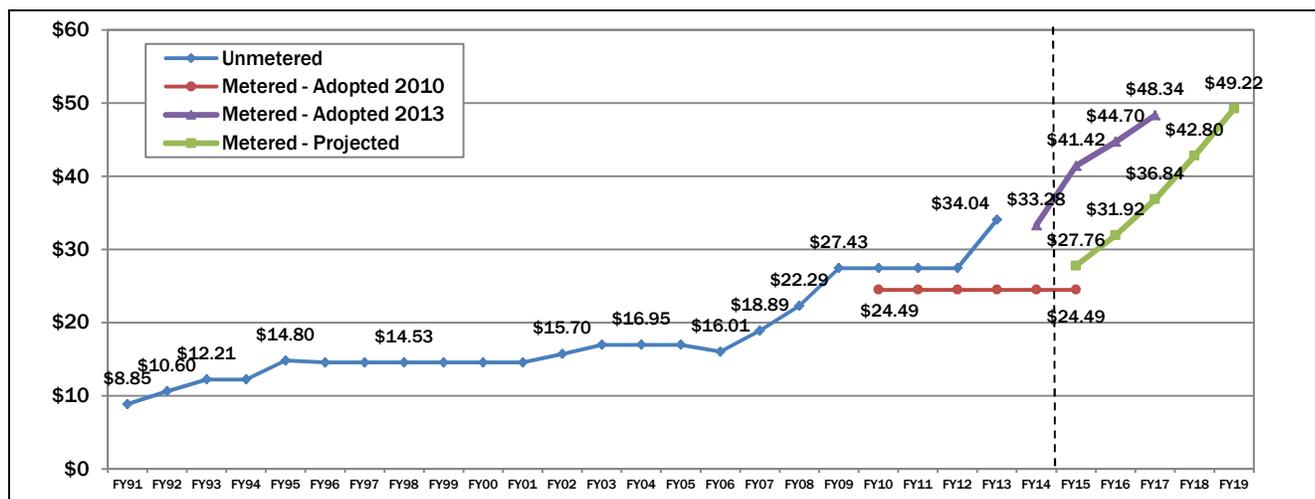


Figure 6-1. Historical and Projected Single Family Monthly Bills

## 6.4 Impact on Nonresidential Monthly Bills

Monthly bills for a Nonresidential account with a 1-inch meter at selected levels of water use are compared in the table below using recommended water rates and charges.

Table 6-4. Nonresidential Monthly Bills, Current vs Projected													
HCF	Water Use		Current 2010	Projected					Projected				
	gallons	gpd		FY15	FY16	FY17	FY18	FY19	FY15	FY16	FY17	FY18	FY19
0	0	0	\$13.51	\$11.20	\$12.30	\$13.80	\$15.80	\$17.90	-17%	10%	12%	14%	13%
10	7,500	245	\$20.96	\$20.40	\$23.20	\$26.60	\$30.80	\$35.30	-3%	14%	15%	16%	15%
20	15,000	490	\$28.41	\$29.60	\$34.10	\$39.40	\$45.80	\$52.70	4%	15%	16%	16%	15%
30	22,400	740	\$35.86	\$38.80	\$45.00	\$52.20	\$60.80	\$70.10	8%	16%	16%	16%	15%
<b>40</b>	<b>29,900</b>	<b>985</b>	<b>\$40.33</b>	<b>\$44.32</b>	<b>\$51.54</b>	<b>\$59.88</b>	<b>\$69.80</b>	<b>\$80.54</b>	<b>10%</b>	<b>16%</b>	<b>16%</b>	<b>17%</b>	<b>15%</b>
50	37,400	1,230	\$43.31	\$48.00	\$55.90	\$65.00	\$75.80	\$87.50	11%	16%	16%	17%	15%
70	52,400	1,720	\$58.21	\$66.40	\$77.70	\$90.60	\$105.80	\$122.30	14%	17%	17%	17%	16%
90	67,300	2,210	\$73.11	\$84.80	\$99.50	\$116.20	\$135.80	\$157.10	16%	17%	17%	17%	16%
100	74,800	2,460	\$88.01	\$103.20	\$121.30	\$141.80	\$165.80	\$191.90	17%	18%	17%	17%	16%



## 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 August 20, 2014. 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.

This Page Intentionally Blank.

## Appendix A: Projected Metered Water Use by Customer Class

---

This Page Intentionally Blank.



This Page Intentionally Blank.

## Appendix B: Projected Revenues and Expenditures

---

This Page Intentionally Blank.

Table B-1  
 Projected Expenditures, Revenues and Cash Flow

	FY15	FY16	FY17	FY18	FY19	Totals FY15-FY19
<b>Operating Revenues</b>						
Fire Service, Meter and Quantity Charges	66,890,000	74,230,000	82,960,000	94,900,000	107,450,000	431,590,000
<i>Adjustment for mid-year rate changes</i>	<i>5,160,000</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	
Backflow Prevention Program Charges	286,000	288,900	291,800	294,700	297,600	1,459,000
Other Charges for Services	3,025,400	3,038,800	3,135,600	3,235,700	3,270,900	15,706,400
Interest Income--Enterprise Fund	141,500	100,000	101,000	102,000	103,000	547,500
Federal Reimbursement - BABS	1,978,300	1,978,300	1,978,300	1,978,300	1,978,300	9,891,500
Transfers from Rate Stabilization Fund	0	0	0	0	0	0
<b>Total Operating Revenues</b>	<b>77,481,200</b>	<b>79,636,000</b>	<b>88,466,700</b>	<b>100,510,700</b>	<b>113,099,800</b>	<b>459,194,400</b>
<b>Operating Expenditures</b>						
Labor and Benefits	14,481,300	14,770,900	15,066,300	15,367,600	15,518,300	75,204,400
Pumping Power	10,378,400	10,689,800	11,010,500	11,340,800	10,340,800	53,760,300
Source of Supply	5,732,700	7,004,000	7,141,600	7,335,100	7,355,800	34,569,200
Chemicals	2,462,600	2,536,500	2,612,600	2,691,000	2,771,700	13,074,400
Fleet Services & Maintenance	2,813,200	2,897,600	2,984,500	3,074,000	3,166,200	14,935,500
Reimbursement of Overhead	1,591,600	1,639,300	1,688,500	1,739,200	1,791,400	8,450,000
UB&C ID Charges	1,757,800	1,810,500	1,864,800	1,920,700	1,978,300	9,332,100
Fire Hydrant Inspection and Maintenance	619,000	637,600	656,700	676,400	696,700	3,286,400
DPU Admin	673,700	693,900	714,700	736,100	758,200	3,576,600
Additional SE SWTF O&M Costs	0	0	0	0	6,000,000	6,000,000
All Other O&M	8,859,300	9,134,300	9,417,300	9,708,500	9,998,100	47,117,500
Additional Operating Expenses	0	281,100	435,000	589,100	743,300	2,048,500
<b>Total Operating Expenditures</b>	<b>49,369,600</b>	<b>52,095,500</b>	<b>53,592,500</b>	<b>55,178,500</b>	<b>61,118,800</b>	<b>271,354,900</b>
Other Loan Payments (Non-debt service)	197,700	197,700	197,700	197,700	197,700	988,500
<b>Total Expenditures</b>	<b>49,567,300</b>	<b>52,293,200</b>	<b>53,790,200</b>	<b>55,376,200</b>	<b>61,316,500</b>	<b>272,343,400</b>
<b>Net Operating Revenues</b>	<b>27,913,900</b>	<b>27,342,800</b>	<b>34,676,500</b>	<b>45,134,500</b>	<b>51,783,300</b>	<b>186,851,000</b>
<b>Debt Service</b>						
2003 Water Remediation Bonds	1,374,400	1,374,400	1,374,400	1,374,400	1,374,400	6,872,000
2010 Water Revenue Bonds A-1	6,412,000	6,434,000	6,410,600	6,411,600	6,434,000	32,102,200
2010 Water Revenue Bonds A-2	6,097,300	6,097,300	6,097,300	6,097,300	6,097,300	30,486,500
Prop 82 Loan Repayment	120,000	120,000	0	0	0	240,000
SDWSRF Loan Repayment (CL2 Buildings)	122,000	122,000	122,000	122,000	122,000	610,000
SDWSRF Loan Repayment (Enterprise Canal)	78,000	78,000	78,000	78,000	78,000	390,000
SRF Loan for Residential Meter Retrofit	2,570,200	2,570,200	2,570,200	2,570,200	2,570,200	12,851,000
2015 SRF Loan SE SWTF Construction	0	488,359	1,707,345	2,870,661	3,099,832	8,166,197
2016 Water Revenue Bonds	0	838,285	1,676,570	1,676,570	1,676,570	5,867,994
2017 Water Revenue Bonds	0	0	2,602,320	5,204,639	5,204,639	13,011,598
2018 Water Revenue Bonds	0	0	0	2,463,984	4,927,967	7,391,951
2019 Bonds Water Revenue Bonds	0	0	0	0	0	0
2020 Bonds Water Revenue Bonds	0	0	0	0	0	0
Less: 2010 Bonds Reserve Interest	(55,489)	(55,488)	(48,284)	(30,844)	(50,000)	(240,105)
Less: 2015 SRF Loan Reserve Interest	0	0	0	0	0	0
Less: 2016-2020 Revenue Bonds Reserve Interest	0	(9,799)	(40,217)	(69,019)	(69,019)	(188,054)
<b>Total Debt Service</b>	<b>16,718,411</b>	<b>18,057,258</b>	<b>22,550,233</b>	<b>28,769,490</b>	<b>31,465,889</b>	<b>117,561,280</b>
<b>Enterprise Net Income (net of Debt Service)</b>	<b>11,195,489</b>	<b>9,285,542</b>	<b>12,126,267</b>	<b>16,365,010</b>	<b>20,317,411</b>	<b>69,289,720</b>
<b>Reserve Fund Balance (Unrestricted Reserve) and Target</b>						
Previous Ending Balance	41,255,500	38,769,583	34,298,931	31,403,458	33,030,784	
Enterprise Net Income	11,195,489	9,285,542	12,126,267	16,365,010	20,317,411	69,289,720
<b>Plus: Non-operating Revenue</b>	<b>3,025,400</b>	<b>3,038,800</b>	<b>3,135,600</b>	<b>3,235,700</b>	<b>3,270,900</b>	<b>15,706,400</b>
Plus: Transfers from Rate Stabilization Fund	0	0	0	0	0	0
<b>Less: Enterprise Funded CIP</b>	<b>(16,570,506)</b>	<b>(16,658,694)</b>	<b>(18,021,040)</b>	<b>(17,837,084)</b>	<b>(16,748,663)</b>	<b>(85,835,987)</b>
Less: Miscellaneous Transfers In/(Out)						
Restricted reserve accumulation - 2010 Bonds	(7,800)	(7,800)	(7,800)	(7,800)	(7,800)	(39,000)
Restricted reserve accumulation - 2010 Bonds	(128,500)	(128,500)	(128,500)	(128,500)	(128,500)	(642,500)
Restricted reserve accumulation - 2015 SRF Loan	0	0	0	0	0	0
<b>Ending Enterprise Fund Balance</b>	<b>38,769,583</b>	<b>34,298,931</b>	<b>31,403,458</b>	<b>33,030,784</b>	<b>39,734,133</b>	
<b>Target Fund Balance</b>	<b>24,350,000</b>	<b>25,690,000</b>	<b>26,430,000</b>	<b>27,210,000</b>	<b>30,140,000</b>	
<b>Coverage</b>	<b>1.67x</b>	<b>1.51x</b>	<b>1.54x</b>	<b>1.57x</b>	<b>1.65x</b>	

This Page Intentionally Blank.

## Appendix C: Water “Plant in Service Factors” and Allocation of Costs

---

This Page Intentionally Blank.

Table C-1  
Plant in Service Allocation

Plant Assets [1]	Valuation, Dollars	Useful Life, Years	Capital Recovery Expense [2] Dollars	Cost Allocation, Dollars						Basis of Allocation [3,4,5,6,7]						
				Base (BAS)	Extra Capacity		Fire Protection (FP)	Meters and Service Laterals (MTR)	Billing and Collection (CUS)	(BAS)	(XMD)	(XMH)	(FP)	(MTR)	(CUS)	
					Maximum Day	Maximum Hour										
Land	74,212,000		3,710,600	2,880,314	756,074	0	74,212	0	0	0	77.6	20.4	0	2.0	0	0
Water Rights	15,663,100		783,155	0	0	0	0	783,155	0	0	0	0	0	0	100	0
Well Sites	133,368,032	50	7,305,465	5,670,791	1,488,565	0	146,109	0	0	77.6	20.4	0	2.0	0	0	0
Leaky Acres Recharge	518,797	50	28,418	22,059	5,790	0	568	0	0	77.6	20.4	0	2.0	0	0	0
Buildings/Structures	5,487,280	50	300,575	90,470	23,748	0	6,012	180,345	0	30.1	7.9	0	2.0	60	0	0
NESWTF	42,691,571	55	2,291,123	1,633,280	428,731	0	0	0	229,112	71.3	18.7	0	0	0	10	0
Tank 1 & 2	5,481,087	55	294,153	116,185	30,498	98,846	48,623	0	0	39.5	10.4	33.6	16.5	0	0	0
Tank 3	5,502,454	50	301,406	119,051	31,250	101,283	49,822	0	0	39.5	10.4	33.6	16.5	0	0	0
Tank 4	10,089,000	50	552,642	218,285	57,299	185,708	91,351	0	0	39.5	10.4	33.6	16.5	0	0	0
Nonresidential Meters	37,013,188	25	2,626,177	0	0	0	0	2,626,177	0	0	0	0	0	100	0	0
Irrigation Meters	1,365,756	25	96,904	0	0	0	0	96,904	0	0	0	0	0	100	0	0
Single Family Meters	76,829,572	25	5,451,247	0	0	0	0	5,451,247	0	0	0	0	0	100	0	0
Services	150,785,742	50	8,259,551	0	0	0	0	8,259,551	0	0	0	0	0	100	0	0
W/H Physical Inventory	1,655,000	50	90,655	0	0	0	0	90,655	0	0	0	0	0	100	0	0
Hydrants	38,489,408	50	2,108,324	0	0	0	2,108,324	0	0	0	0	0	100	0	0	0
Valves	52,285,738	50	2,864,042	1,131,249	296,949	962,420	473,423	0	0	39.5	10.4	33.6	16.5	0	0	0
Sample Points	478,534	20	38,399	15,167	3,981	12,903	6,347	0	0	39.5	10.4	33.6	16.5	0	0	0
Transmission Lines	778,184,814	55	41,762,738	16,495,590	4,330,041	14,033,771	6,903,337	0	0	39.5	10.4	33.6	16.5	0	0	0
Distribution Lines 8"	509,357,255	55	27,335,606	10,797,112	2,834,208	9,185,739	4,518,547	0	0	39.5	10.4	33.6	16.5	0	0	0
Distribution Lines LT 8"	382,017,000	55	20,501,654	16,238,974	4,262,680	0	0	0	0	79.2	20.8	0	0	0	0	0
Blowoffs	1,080,801	50	59,203	23,384	6,138	19,894	9,786	0	0	39.5	10.4	33.6	16.5	0	0	0
SCADA	1,247,948	10	161,615	63,835	16,757	54,308	26,715	0	0	39.5	10.4	33.6	16.5	0	0	0
Furniture	116,801	15	11,253	4,922	1,292	2,186	1,282	1,550	20	43.7	11.5	19.4	11.4	13.8	0.18	0
Tools & Equipment	4,228,758	10	547,644	239,536	62,878	106,380	62,405	75,456	989	43.7	11.5	19.4	11.4	13.8	0.18	0
<b>Total</b>	<b>2,328,149,636</b>		<b>127,482,550</b>	<b>55,760,206</b>	<b>14,636,879</b>	<b>24,763,439</b>	<b>14,526,864</b>	<b>17,565,041</b>	<b>230,121</b>							
<b>Percent of Total</b>				<b>43.7%</b>	<b>11.5%</b>	<b>19.4%</b>	<b>11.4%</b>	<b>13.8%</b>	<b>0.18%</b>							

- The list of Plant Assets, valuations and useful lives were provided by the City.
- The Capital Recovery Expense calculated using an interest rate of > 5.0%
- Fire Protection allocation for Wells Sites, Buildings/Structures and Leaky Acres Recharges is based on the volume of water used for public and private fire protection.
- Fire Protection allocation for Tanks, Valves, Sample Points, Transmission Lines, Distribution Lines, Blowoffs and SCADA is calculated as shown below:  
 $Fire\ Demand = 1,020 \times x^{1/2} (1 - 0.01x^{1/2})$  where x = population in thousands; x = 550 for Fresno Service Area  
 Fire Demand = 18,311 gpm  
 Maximum Day Demand = 133.1 mgd  
 Maximum Day Demand = 92,465 gpm  
 Fire Protection Allocation =  $18,311 / (18,311 + 92,465)$   
 Fire Protection Allocation = 17%

- Base (BAS) and Maximum Day (XMD) allocations for Water Treatment facilities are calculated as shown below:  
 Average Day Demand = 105.5 mgd  
 Maximum Day Demand = 133.1 mgd  
 Base Allocation =  $\frac{105.5}{133.1} = 79.2\%$   
 Maximum Day Allocation =  $\frac{133.1 - 105.5}{133.1} = 20.8\%$

- Base (BAS), Maximum Day (XMD) and Maximum Hour (XMH) allocations for Tanks, Valves, Sample Points, Transmission Lines, Distribution Lines, Blowoffs and SCADA are calculated as shown below. When Fire Protection allocation is incorporated, the remaining asset value is allocated using the BAS, XMH and XMD values.  
 Average Day Demand = 105.5 mgd  
 Maximum Day Demand = 133.1 mgd  
 Maximum Hour Demand = 222.9 mgd  
 Base Allocation =  $\frac{105.5}{222.9} = 47.3\%$   
 Maximum Day Allocation =  $\frac{133.1 - 105.5}{222.9} = 12.4\%$   
 Maximum Hour Allocation =  $\frac{222.9 - 133.1}{222.9} = 40.3\%$

- Allocation of Land, Water Rights, Furniture and Tools & Equipment are based on a composite of all other assets.

All Other Assets	Cost Allocation, Dollars						Composite Allocation (%)						
	Capital Recovery Expense	Base (BAS)	Extra Capacity		Fire Protection (FP)	Meters and Service Laterals (MTR)	Billing and Collection (CUS)	(BAS)	(XMD)	(XMH)	(FP)	(MTR)	(CUS)
			Maximum Day	Maximum Hour									
	126,923,653	55,515,747	14,572,710	24,654,873	14,463,177	17,488,034	229,112	43.7	11.5	19.4	11.4	13.8	0.2

Table C-2  
Cost Allocation Factors

	FY15	Quantity Charges			Meter and Private Fire Protection Charges			Basis of Allocation [1]
		Base (BAS)	Maximum Day (XMD)	Maximum Hour (XMH)	Fire Protection (FP)	Meters & Service Laterals (MTR)	Billing and Collecting (CUS)	
<b>Operating Revenues</b>								
Backflow Prevention Program Charges	286,000	0	0	0	0	0	286,000	Customer
Other Charges for Services	3,025,400	1,323,294	347,361	587,683	344,750	416,851	5,461	Plant In Service
Interest Income--Enterprise Fund	141,500	61,891	16,246	27,486	16,124	19,496	255	Plant In Service
Federal Reimbursement - BABS	1,978,300	865,298	227,138	384,284	225,431	272,578	3,571	Plant In Service
Transfers from Rate Stabilization Fund	0	0	0	0	0	0	0	Plant In Service
<b>Total Operating Revenues</b>	<b>5,431,200</b>	<b>2,250,484</b>	<b>590,745</b>	<b>999,453</b>	<b>586,305</b>	<b>708,926</b>	<b>295,288</b>	
<b>Operating Expenditures</b>								
Labor and Benefits	14,481,300	10,809,700	0	0	1,650,170	1,995,290	26,140	System Operations
Pumping Power	10,378,400	4,911,095	1,289,147	4,178,158	0	0	0	Base/Max Day/Max Hr/Fire
Source of Supply	5,732,700	2,507,453	658,199	1,113,575	653,251	789,874	10,348	Plant In Service
Chemicals	2,462,600	1,077,128	282,743	478,359	280,618	339,307	4,445	Plant In Service
Fleet Services & Maintenance	2,813,200	0	0	0	0	0	2,813,200	Customer
Reimbursement of Overhead	1,591,600	0	0	0	0	0	1,591,600	Customer
UB&C ID Charges	1,757,800	0	0	0	0	0	1,757,800	Customer
Fire Hydrant Inspection and Maintenance	619,000	0	0	0	0	619,000	0	Fire Protection
DPU Admin	673,700	0	0	0	0	0	673,700	Customer
Additional SE SWTF O&M Costs	0	0	0	0	0	0	0	Plant In Service
All Other O&M	8,859,300	3,875,012	1,017,178	1,720,916	1,009,533	1,220,669	15,992	Plant In Service
Additional Operating Expenses	0	0	0	0	0	0	0	
<b>Total Operating Expenditures</b>	<b>49,369,600</b>	<b>23,180,388</b>	<b>3,247,267</b>	<b>7,491,008</b>	<b>3,593,572</b>	<b>4,964,139</b>	<b>6,893,226</b>	
Other Loan Payments (Non-debt service)	197,700	86,473	22,699	38,403	22,528	27,240	357	Plant In Service
<b>Total Expenditures</b>	<b>49,567,300</b>	<b>23,266,861</b>	<b>3,269,966</b>	<b>7,529,411</b>	<b>3,616,100</b>	<b>4,991,379</b>	<b>6,893,583</b>	
<b>Net Operating Revenues</b>	<b>-44,136,100</b>	<b>-21,016,377</b>	<b>-2,679,221</b>	<b>-6,529,958</b>	<b>-3,029,796</b>	<b>-4,282,453</b>	<b>-6,598,295</b>	
<b>Debt Service</b>								
2003 Water Remediation Bonds	1,374,400	601,155	157,801	266,977	156,615	189,370	2,481	Plant In Service
2010 Water Revenue Bonds A-1	6,412,000	2,804,576	736,192	1,245,529	730,659	883,470	11,574	Plant In Service
2010 Water Revenue Bonds A-2	6,097,300	2,666,927	700,060	1,184,398	694,798	840,110	11,006	Plant In Service
Prop 44 Loan Repayment #1	0	0	0	0	0	0	0	Plant In Service
Prop 82 Loan Repayment	120,000	52,487	13,778	23,310	13,674	16,534	217	Plant In Service
SDWSRF Loan Repayment (CL2 Buildings)	122,000	53,362	14,007	23,698	13,902	16,810	220	Plant In Service
SDWSRF Loan Repayment (Ent Canal)	78,000	34,117	8,956	15,151	8,888	10,747	141	Plant In Service
SRF Loan for Residential Meter Retrofit	2,570,200	1,124,192	295,097	499,260	292,879	354,132	4,640	Plant In Service
SRF Loan for SE SWTF	0	0	0	0	0	0	0	Plant In Service
2016 Water Revenue Bonds	0	0	0	0	0	0	0	Plant In Service
2017 Water Revenue Bonds	0	0	0	0	0	0	0	Plant In Service
2018 Water Revenue Bonds	0	0	0	0	0	0	0	Plant In Service
2019 Bonds Water Revenue Bonds	0	0	0	0	0	0	0	Plant In Service
2020 Bonds Water Revenue Bonds	0	0	0	0	0	0	0	Plant In Service
Less: 2010 Bonds Reserve Fund Interest	-55,000	-24,057	-6,315	-10,684	-6,267	-7,578	-99	Plant In Service
Less: Projected Reserve Fund Interest	0	0	0	0	0	0	0	Plant In Service
<b>Total Debt Service</b>	<b>16,718,900</b>	<b>7,312,760</b>	<b>1,919,577</b>	<b>3,247,640</b>	<b>1,905,149</b>	<b>2,303,595</b>	<b>30,180</b>	
<b>Enterprise Net Income (net of Debt Svc)</b>	<b>-60,855,000</b>	<b>-28,329,138</b>	<b>-4,598,797</b>	<b>-9,777,598</b>	<b>-4,934,944</b>	<b>-6,586,048</b>	<b>-6,628,475</b>	
<b>Reserve Fund Balance (Unrestricted Reserve)</b>								
Plus: Non-operating Revenue	3,025,400	1,323,294	347,361	587,683	344,750	416,851	5,461	Plant In Service
Plus: Transfers from Rate Stabilization Fund	0	0	0	0	0	0	0	
Less: Enterprise Funded CIP	(16,570,506)	-7,247,853	-1,902,539	-3,218,815	-1,888,239	-2,283,149	-29,912	Plant In Service
Less: Miscellaneous Transfers In/(Out)								
<b>Revenue Required from Rates</b> (negative values represent funds required)	<b>-74,400,106</b>	<b>-34,253,697</b>	<b>-6,153,976</b>	<b>-12,408,730</b>	<b>-6,478,433</b>	<b>-8,452,345</b>	<b>-6,652,925</b>	
		<b>46.0%</b>	<b>8.3%</b>	<b>16.7%</b>	<b>8.7%</b>	<b>11.4%</b>	<b>8.9%</b>	

1 Allocations for categories other than "Customer" and "Fire Protection" (which are allocated to a single functional category) are shown below:

	Basis of Allocation (%)					
	(BAS)	(XMD)	(XMH)	(FP)	(MTR)	(CUS)
Plant In Service	43.7	11.5	19.4	11.4	13.8	0.18
Base/Max Day/Max Hr/Fire	47.3	12.4	40.3	0.0	0.0	0.0
System Operations	74.6	0.0	0.0	11.4	13.8	0.2



Submitted by

**MUNICIPAL FINANCIAL SERVICES**

2969 Valley Basin Avenue  
Henderson , NV