

REPORT TO CITY COUNCIL

MEETING DATE: July 15, 2015

AGENDA ITEM NUMBER: _____

Approved By:

Public Works Director Community Development Director

City Administrator

SUBJECT: Public Hearing and Consideration by the City Council of Resolutions Relating to Increases in Water and Sewer Rates as Follows:

Consideration of a Resolution of the City Council of the City Of Madera, California, Establishing Monthly Rates to be Charged for Water Furnished by the City and Repealing Resolution 10-118 and All Other Resolutions in Conflict Herewith

Consideration of a Resolution of the City Council of the City of Madera, California, Establishing Monthly Rates to be Charged for Sewer Service Furnished by the City and Repealing Resolution 10-119 and All Other Resolutions in Conflict Herewith

RECOMMENDATION:

Staff recommends that the City Council take the following actions relating to proposed increases in water and sewer rates:

- 1. Conduct a public hearing to accept public testimony regarding proposed sewer and water rate adjustments.
- 2. Direct staff to tally all valid written protests and report as to whether a majority protest of proposed sewer and/or water rates exists.
- 3. If a majority protest does not exist relative to water rates, adopt the resolution establishing monthly rates to be charged for water furnished by the City and repealing Resolution 10-118 and all other resolutions in conflict herewith.
- 4. If a majority protest does not exist relative to sewer rates, adopt the resolution establishing monthly rates to be charged for sewer service furnished by the City and repealing Resolution 10-119 and all other resolutions in conflict herewith.

BACKGROUND:

The water and sewer rates were last adjusted in June of 2010. After reviewing alternate financial scenarios in March of 2015 and a complete cost of service study in May of 2015, the Council initiated the process to update sewer and water rates as specified under Proposition 218. A public notice was distributed to all owners and utility customers describing the proposed rate adjustment. If a majority protest is not made, the Council may proceed with adopting and implementing the new sewer and water rates.

DISCUSSION:

Cost of Service Study

Escalating water and sewer rates may be established at no greater than 5 year intervals. The City's rate schedule was last adjusted in June of 2010. Prior to that, the rates were adjusted in 2005. As the 5 year interval approached, Council engaged the Raftelis Financial Consultants to prepare a cost of service study for the City's sewer and water programs. Raftelis specializes in such studies. Based on information provided by the consultant, the Council evaluated utility service costs on two occasions prior to initiating the formal process to adjust the rates.

- On March 24, 2015, the Council conducted a workshop to review financial plans associated with the sewer and water systems. The workshop focused on the cost factors for each type of utility and summarized the potential approaches to covering those costs. For example, the requirement to meet debt coverage ratios was identified, along with the need to fund certain capital improvements. The alternative approaches differed with regard to when and how these revenue requirements are met.
- On May 20, 2015, the complete cost of service study for sewer and water services was presented to the Council. The study incorporated the preferred scenarios reviewed by the Council at the workshop in March, and presented a draft schedule of sewer and water rates that would be applied over a five year period beginning this month.

After reviewing and discussing the information presented at the May 20th meeting, the Council directed staff to proceed with the public noticing process required under Proposition 218. A 45 day public notice was subsequently distributed to all owners and utility customers in Madera, and a public hearing was set for the July 15th Council Meeting. As a supplement to this formal notice, the City provided information in the utility bills regarding the proposed adjustment and mailed a set of frequently asked questions to all affected owners and customers.

Majority Protest

Under Proposition 218, customers subject to the proposed rate may choose to file a written protest objecting to the proposed changes in advance of the City Council's adoption. If a majority protest is made, the proposed rate adjustment must be set aside. If no majority protest exists, Council may adopt the new sewer and water rates. All protests must be made in writing and include the following:

- Statement that the identified property owner is in opposition to the proposed rate increases.
- The location of identified parcel by assessor's parcel number, street address, or account number.

- The name and signature of the property owner submitting the protest.
- If the person protesting is not shown on Madera County's last equalized assessment roll as the property owner of record, provide written evidence that the person is the property owner, such as a current copy of city services bill.

A total of 11,500 customer accounts are of record and subject to the protest hearing. In order to constitute a majority protest, 5,751 customers (50% +1) would need to provide written protests. At the time this report was written, approximately 77 letters had been received.

Description of Proposed Rates

The new rates cover the period from fiscal year 2015-16 through fiscal year 2019-20. The sewer utility bill for a typical residential customer is proposed to increase by \$3.23 in fiscal year 2015-16, with rates increasing between 9% and 10% each of the following four years. The water utility bill for a typical residential customer that uses 22 CCF (CCF means 100 Cu. Ft.) per month is proposed to increase by approximately \$12.69 for fiscal year 2015-16. In subsequent years, rate increases will be as follows: 30%, 20%, 10%, and 3%. The initial rate increases for an average residential customer are shown below:

	\$ Existing	\$ Proposed	\$ Change
Water*	28.85	41.54	12.69
Sewer	26.51	29.74	3.23

^{*} The water comparison is based on 22 CCF

The impact to each customer will vary based on the type of property (customer class) and the amount of water that is used. Due to the current drought conditions and the Executive Order by Governor Brown that requires mandatory conservation of 25% statewide, the proposed water rates for residential customers are tiered to reward water conservation. Residential customers that use higher amounts of water will pay higher rates. The proposed tiered rate structure identifies the cost components within each tier and the corresponding unit costs. Additional details regarding the rates and how they were calculated is available in the attached Cost of Service Report.

FINANCIAL IMPACT:

The proposed rate increases are necessary to keep pace with increasing operational costs and to make essential repairs and improvements to property, plant and equipment (infrastructure). The increases are also required to allow the City to meet debt coverage ratios for bonds issued for sewer and water improvements in prior years.

CONSISTENCY WITH THE VISION MADERA 2025 PLAN:

The proposed action is consistent with Vision Plan Action Items 112.1 & 115.5.

Action Item #112.1

Review Development Impact Fees every two years or less. All other fees are evaluated as often as needed, but not less than three years.

Action Item #115.5

Insure the physical and financial sustainability of the City's existing and expanding sewer and water infrastructure.

- A. Develop a comprehensive detailed inventory of the existing water and sewer collection systems that forecasts the probable life, and periodic major maintenance and/or replacement of all of the individual elements.
- B. Provide a long term financial plan that financial forecasts the required capital repairs to the existing system and corresponding revenues.
- C. Where feasible, include appropriate funding in annual and CIP budgeting and determination of user rates.

RESOLUTION NO: _____

Resolution of the City Council of the City of Madera Establishing Monthly Rates To Be Charged For Water Furnished By the City and Repealing Resolution 10-118 and All Other Resolutions In Conflict Herewith

WHEREAS, the City of Madera previously adopted Resolution 10-118 establishing rates for water furnished by the City for the period between July of 2010 and July of 2015; and

WHEREAS, the City of Madera desired to establish water rates which were based on the actual and projected costs of providing services between July of 2015 and July of 2020; and

WHEREAS, the City Council considered a Cost of Service analysis prepared by Raftelis Financial Consultants, a firm with expertise in the analysis of municipal water and sewer utility costs; and

WHEREAS, the Council has caused notices to be sent to all affected customers and property owners regarding the proposal to amend the rates for water use at least 45 days in advance of a noticed public hearing held on July 15, 2015; and

WHEREAS, the Council finds that no majority protest was presented against the proposed rates for water service before or during the public hearing and finds that the proposed rates shall be made effective July 26, 2015.

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF MADERA HEREBY finds, orders and resolves as follows:

- 1. The above recitals are true and correct.
- 2. No majority protest was presented against the proposed rates for water service.
- 3. The monthly rates to be charged for the use of water furnished by the City, enumerated in Attachment A to this Resolution, are hereby adopted.
- 4. Resolution 10-118, and all other resolutions in conflict herewith, are hereby repealed.
- 5. This resolution is effective immediately upon adoption.

* * * * * * *

Resolution Attachment A

City of Madera Water Rates: Fiscal Year 2016-2020

Residential Tiered Rates	¹ Allotment	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Tier 1	0-10	\$1.00	\$1.33	\$1.63	\$1.84	\$1.93
Tier 2	11-33	\$1.52	\$1.90	\$2.25	\$2.50	\$2.60
Tier 3	>33	\$2.64	\$3.20	\$3.69	\$4.05	\$4.22

Multi-Residential Tiered Rates ¹	Allotment	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Tier 1	10	\$1.06	\$1.40	\$1.72	\$1.93	\$2.03
Tier 2	>10	\$2.11	\$2.53	\$2.92	\$3.18	\$3.32

Non-Residential Rates ¹ F	YE 2016	FYE 2017	FYE 2018	FYE 2019	YE 2020
Uniform Rate	\$1.49	\$1.87	\$2.22	\$2.47	\$2.58

Total Monthly					
Fixed Cost by Meter Size ²	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
5/8"	\$9.55	\$12.41	\$14.89	\$16.38	\$16.88
3/4"	\$10.80	\$14.04	\$16.84	\$18.53	\$19.09
1"	\$13.30	\$17.29	\$20.74	\$22.82	\$23.51
1 1/2"	\$19.55	\$25.41	\$30.49	\$33.54	\$34.56
2"	\$27.05	\$35.16	\$42.19	\$46.41	\$47.82
3"	\$50.80	\$66.04	\$79.24	\$87.17	\$89.81
4"	\$85.80	\$111.54	\$133.84	\$147.23	\$151.69
6"	\$169.55	\$220.41	\$264.49	\$290.94	\$299.76
8"	\$307.05	\$399.16	\$478.99	\$526.8 9	\$542.86

1. Rate per CCF of water usage. CCF is hundred cubic feet (748.05 gallons).

2. Monthly charges per account/meter.

Flat Rate Water						
Charges	Units	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
CAR DLR	WATER SERVICE/BLDG/1000	\$7.11	\$9.24	\$11.09	\$12.20	\$12.57
CAR SERV	WATER SERVICE/BAYS	\$4.75	\$6.17	\$7.40	\$8.14	\$8.39
DEPT/RET	WATER SERVICE/BLDG/1000	\$7.11	\$9.24	\$11.09	\$12.20	\$12.57
GAMES	WATER SERVICE/BLDG/1000	\$16.51	\$21.46	\$25.76	\$28.33	\$29.18
GRANNY	PRIMARY WITH SECONDARY UNIT	\$37.97	\$49.36	\$59.24	\$65.16	\$67.12
GROC/MOR	WATER SERVICE/BLDG/1000	\$7.11	\$9.24	\$11.09	\$12.20	\$12.57
HOSP RM	PER BED WATER USE	\$5.93	\$7.71	\$9.25	\$10.17	\$10.48
HOSP/CON	WATER SERVICE/BEDS	\$5.93	\$7.71	\$9.25	\$10.17	\$10.48
HOTEL/W	WATER SERVICE/ROOMS	\$7.11	\$9.24	\$11.09	\$12.20	\$12.57
HOTEL/WO	WATER SERVICE/ROOMS	\$5.93	\$7.71	\$9.25	\$10.17	\$10.48
LIB/CHUR	WATER SERVICE/SEAT	\$0.26	\$0.34	\$0.41	\$0.45	\$0.46
LT MFG	WATER SERVICE/BLDG/1000	\$3.81	\$4.95	\$5.94	\$6.54	\$6.73
MFR/MULT	MFR MULTI ACCT PER PARCEL	\$16.03	\$20.84	\$25.01	\$27.51	\$28.33
MFR/SING	MFR SINGLE ACCT PER PARCEL	\$16.89	\$21.95	\$26.34	\$28.98	\$29.85
OPN AIR	WATER SERVICE/SEAT	\$0.16	\$0.21	\$0.25	\$0.28	\$0.28
PROF BLD	WATER SERVICE/BLDG/1000	\$14.14	\$18.39	\$22.06	\$24.27	\$25.00
REST IN	WATER SERVICE/SEAT	\$1.47	\$1.91	\$2.29	\$2.52	\$2.60
REST OUT	WATER SERVICE/BLDG/1000	\$14.14	\$18.39	\$22.06	\$24.27	\$25.00
SCHOOLS	WATER SERVICE/STUDENTS	\$1.13	\$1.47	\$1.76	\$1.94	\$2.00
SFR	MINIMUM WATER RATE	\$26.46	\$34.39	\$41.27	\$45.40	\$46.76
STRP/MAL	WATER SERVICE/BLDG/1000	\$11.78	\$15.31	\$18.37	\$20.21	\$20.82
WRHSE	WATER SERVICE/BLDG/1000	\$1.00	\$1.30	\$1.56	\$1.72	\$1.77

RESOLUTION NO:

Resolution of the City Council of the City of Madera Establishing Monthly Rates To Be Charged For Sewer Service Furnished By the City and Repealing Resolution 10-119 and All Other Resolutions In Conflict Herewith

WHEREAS, the City of Madera previously adopted Resolution 10-119 establishing rates for sewer service furnished by the City for the period between July of 2010 and July of 2015; and

WHEREAS, the City of Madera desired to establish sewer rates which were based on the actual and projected costs of providing services between July of 2015 and July of 2020; and

WHEREAS, the City Council considered a Cost of Service analysis prepared by Raftelis Financial Consultants, a firm with expertise in the analysis of municipal water and sewer utility costs; and

WHEREAS, the Council has caused notices to be sent to all affected customers and property owners regarding the proposal to amend the rates for sewer use at least 45 days in advance of a noticed public hearing held on July 15, 2015; and

WHEREAS, the Council finds that no majority protest was presented against the proposed rates for sewer service before or during the public hearing and finds that the proposed rates shall be made effective July 26, 2015.

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF MADERA HEREBY finds, orders and resolves as follows:

- 1. The above recitals are true and correct.
- 2. No majority protest was presented against the proposed rates for sewer service.
- 3. The monthly rates to be charged for the use of sewer service furnished by the City, enumerated in Attachment A to this Resolution, are hereby adopted.
- 4. Resolution 10-119, and all other resolutions in conflict herewith, are hereby repealed.
- 5. This resolution is effective immediately upon adoption.

* * * * * * *

Resolution Attachment A

City of Madera Sewer Rates: Fiscal Year 2016-2020

Residential Fla	t Rates FYE 201	lő FYE 201	7 FYE 201	8 FYE 2019) FYE	2020
Monthly Fixed Charge	e \$29.74	\$32.42	\$35.33	\$38.87	\$42	.75
					•	
Multi-Residenti	al Rates FYE 201	16 FYE 201	7 FYE 2011	B FY E 2019	9 FYE	2020
Monthly Fixed Charge	e \$19.32	\$21.06	\$22.95	\$25.25	\$27	.77
, 0		·	·	•	•	
Non-Residentia	l Rates FYE 201	l6 FYE 201	7 FYE 201	B FYE 2019	9 FYE.	2020
Monthly Fixed Servic	e Charge \$13.23	\$14.43	\$15.72	\$17.30	\$19.	.02
•	-					
Non-Residential Disc	harge Rates FYE 201	5 FYE2017	FYE 2018	FY = 2019	FYE 2	(02(0)
CAR DLR & Dept/I	Ret \$1.60	\$1.74	\$1.90	\$2.09	\$2.3	30
Game	\$2.41	\$2.62	\$2.86	\$3.14	\$3.4	16
GROC/MOR	\$3.51	\$3.82	\$4.16	\$4.58	\$5.0)4
HOSP/CON	\$1.59	\$1.73	\$1.89	\$2.08	\$2.2	.8
HOTEL/WO	\$1.59	\$1.73	\$1.89	\$2.07	\$2.2	.8
LIB/CHUR	\$1.57	\$1.71	\$1.86	\$2.04	\$2.2	25
Lt. Manufacturing	\$2.44	\$2.66	\$2.90	\$3.19	\$3.5	51
PROF BLD	\$1.59	\$1.73	\$1.88	\$2.07	\$2.2	.8
RESTAURANT	\$3.64	\$3.96	\$4.32	\$4.75	\$5.2	2
SCHOOLS	\$1.66	\$1.80	\$1.97	\$2.16	\$2.3	8
STRP/MAL	\$2.45	\$2.67	\$2.91	\$3.20	\$3.5	2
WRHSE	\$2.44	\$2.66	\$2.90	\$3.19	\$3.5	51
		•	·	•		
Non-Metered						
Non-Residential Sewer Flat R	ates Units	FYE 2010	5 FYE 2017	FYE 2018	FVE 2019	FYE 2020
CAR DLR and Dept/Ret	SEWER USE/BLDG/10	00 \$13.22	\$14.41	\$15.71	\$17.28	\$19.01
CAR SERV	SEWER USE/BAYS	\$11.45	\$12.48	\$13.60	\$14.96	\$16.45
GAME	SEWER USE/BLDG/10	00 \$40.09	\$43.70	\$47.63	\$52.39	\$57.63
	SEWER USE/BLUG/ IL	00 \$23.51	\$25.63	\$27.93	\$30.73	\$33.80
	SEWER USE/BEDS	\$11.01	\$12.00	\$13.08	\$14.39	\$15.83
	SEWER USE/ROOMS	\$24.45 \$11 22	\$20.05 ¢15.61	\$29.05	\$31.95 ¢10.72	\$35.15
	SEWER USE/REATING	\$14.32 \$ \$0.35	\$13.01 95 A\$	\$17.02	\$10.72	\$20.59 ¢0.50
OPN/AIR	SEWER LISE/SEATING	en n¢ 2	\$0.38 \$0.09	\$0.41 \$0.10	\$0.40 \$0.11	\$0.50 \$0.12
PROF BLD	SEWER USF/BLDG/10	00 \$26.44	\$78.87	\$31.42	\$34 56	\$38 UJ
RESTIN	SEWER USE/SEATING	S4.88	\$5.32	\$5.80	\$6 38	\$7.02
RESTOUT	SEWER USE/BLDG/10	00 \$48.84	\$53.24	\$58.03	\$63.83	\$70.22
SCHOOLS	SEWER USE/STUDEN	TS \$1.10	\$1.20	\$1.31	\$1.44	\$1.58
STRP/MAL	SEWER USE/BLDG/10	\$28.63	\$31.21	\$34.02	\$37.42	\$41.16
WRHSE	SEWER USE/BLDG/10	00 \$1.78	\$1.94	\$2.11	\$2.32	\$2.55

High Industrial User Rates ¹	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Rate per MG of FLOW	\$858.72	\$936.01	\$1,020.25	\$1,122.27	\$1,234.50
Rate per 1,000 lbs of BOD	\$290.00	\$310.00	\$340.00	\$370.00	\$410.00
Rate per 1,000 lbs of TSS	\$240.00	\$260.00	\$280.00	\$310.00	\$340.00

1. The City currently does not have high industrial users, however these will be the applicable charges.



Utility Rate Study Report

Draft Report / May 20, 2015







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 Cell
 951.595.9354

www.raftelis.com

May 21, 2015

Mr. Dave Randall Public Works Director City of Madera 205 West Fourth Street Madera, CA 93637

Subject: Utility Rate Study Report

Dear Mr. Randall,

Raftelis Financial Consultants, Inc. (RFC) is pleased to provide this Utility Rate Study Report (Report) for the City of Madera (City) as a periodic comprehensive update and to establish utility rates that are equitable and in compliance with Proposition 218.

The major objectives of the study include the following:

- 1. Develop financial plans for the water and wastewater enterprises to ensure financial sufficiency, meet operation and maintenance (O&M) costs, ensure sufficient funding for capital replacement and refurbishment (R&R) needs, and maintain a strong financial outlook for the enterprises;
- 2. Develop sound and sufficient reserve fund targets;
- 3. Review current rate structures for the water and wastewater enterprises;
- 4. Develop a cost-of-service analysis for the water and wastewater enterprises; and
- 5. Develop fair and equitable utility rates.

The Report summarizes the key findings and recommendations related to the development of the financial plans for water and wastewater utilities and the development of the updated rates.

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

Sincerely,

RAFTELIS FINANCIAL CONSULTANTS, INC.

Habib Isaac Manager **Gregg Tobler** Senior Consultant

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EXECUTIVE SUMMARY

In 2014, the City of Madera (City) contracted with Raftelis Financial Consultants (RFC) to conduct a comprehensive Water and Wastewater Rate Study (Study) to develop a financial plan as well as design rates for its water and wastewater enterprises.

The City's Water and Wastewater Enterprises are operating in an environment where revenues from rates are outpaced by operating expenditures. Operational costs continue to increase, drought conditions throughout the State of California have threatened the water supply creating groundwater overdraft concerns, and a review of the City's utility capital needs has required the City to develop a detailed 10-year Capital Improvement Plan that went through multiple iterations in planning the timing and extent of capital projects through the planning horizon to address existing deficiencies and ensure adequate reinvestment into each utility moving forward.

This is not a situation that is unique to the City, as many agencies throughout the state are faced with the need to update necessary capital infrastructure to continue providing water and wastewater services, adhere to new regulations and mandates – including conservation initiatives - and meet service demands with limited water supplies.

WATER ENTERPRISE

The City provides approximately 12,000 acre feet (AF) of potable water to approximately 13,000 water accounts, serving a population of approximately 62,000 residents, each year. The City relies entirely on City-owned ground wells for their water supply. The City's water supply is crucial to provide its predominately residential customer base with a reliable supply of water. Given the current drought and the recent executive order by the Governor (Executive Order B-29-15) related to mandatory conservation of 25%, the City is also expanding its CIP to include the feasibility of capturing surface water as an alternative future water source.

The City's current rate structure consists of two components: a monthly fixed charge based on the size of the customers meter, and a variable (volume) charge based on usage. Table E-1 provides a summary of water accounts by meter size, with the majority of residential customers served by 1" meters. Table E-2 identifies the monthly fixed charge by meter size and Table E-3 lists the volumetric charges (also commonly referred to as commodity charges). The City also has accounts that are not currently metered and these accounts are charged a flat monthly fee. Once these accounts are metered, they would be charged the corresponding metered rates.

Table E-1: Water Accounts by Meter Size

Meter Size	FYE 2014 Number of Accounts
% inch	3
¾ inch	8
1 inch	11,280
1½ inch	175
2 inch	291
3 inch	26
4 inch	27
6 inch	11
8 inch	3
Flat Accounts - 1 inch	1,687

Table E-2: Current Monthly Fixed Charge

Meter Size	FYE 2014 Fixed Charge
% inch	\$7.11
¾ inch	\$8.05
1 inch	\$9.93
1 ½ inch	\$14.63
2 inch	\$20.27
3 inch	\$33.43
4 inch	\$52.23
6 inch	\$99.22
8 inch	\$155.62
Flat Accounts - 1 inch	\$9.93

Table E-3: Current Volume Charge (\$ / ccf¹)

Customer Class	FYE 2014 Uniform Rate (\$ / ccf)
All Customer Classes	\$0.86

The beginning balance for Fiscal Year (FY) 2015-16 reserves is projected to be approximately \$7.2M. Without future revenue adjustments or debt issuance, beginning in FY 2015-16, the Water Enterprise will need to draw on reserves to offset annual shortfalls, primarily driven by necessary extensive capital improvement expenses. The annual planned capital improvement expenditures average \$6M

¹ ccf = 100 cubic feet = 748 gallons of water

over the next five years. In FY 2015-16, reserves will need to cover a cash flow deficit of approximately \$500,000 and capital improvement expenses of approximately \$1.7M. By Fiscal Year End 2016-17, reserves will be fully depleted from the additional \$4.8M of scheduled capital. In addition, the City also has debt obligations and corresponding bond covenants to fulfill on an annual basis. The City is currently not meeting its bond covenants that require a coverage ratio of 120%, and will continue to fall short if revenues stay stagnant.

After review of the Water Enterprise's revenue requirements, debt obligations, reserves, and current revenues, RFC developed two separate financial plans to meet the City's five-year revenue requirements. The two options were identified as "Step Down Adjustments" and "Level Adjustments." As part of these two scenarios, the primary goals included the following components:

- Positive net income each year
- ➢ Bond coverage met in FY 2015-16
- > Fund Reserves over the 5-year planning horizon
 - Step Down Adjustments Minimum Reserve Requirement is met by FYE 2019-20
 - Level Adjustments Minimum Reserve Requirement is not met and is short by approximately \$2M
- > Capital is funded through a combination of Debt and Pay-As-You-Go (PAYGO)

These two scenarios were presented and discussed with the City at a rate workshop that was held on March 24, 2015. As part of that City Council Workshop, the Council decided to move forward with the "Step Down" scenario to ensure the utility is in compliance with its bond covenants and reaches a strong financial position by the end of the 5-year planning horizon. Under the proposed plan, the Water Enterprise will reach and maintain a positive net income beginning in FY 2016-17, will meet the minimum reserve target by FY 2019-20. This option also assumes a \$24M bond issue in FY 2019-2020 to fund capital in Fiscal Years 2019-20 and 2020-2021, which includes critical storage facility improvements equal to approximately \$16.3M. Given the useful life of these improvements, funding these items through debt provides inter-generation equity between existing customers and future customers by spreading the cost over a debt-term of 30-years, in-line with the life of improvement. As such, current customers are not funding the entire project in advance of those that will also benefit from the projects.

As part of determining the level of funding needed for the water utility's reserve fund, RFC recommends establishing two separate reserves to identify an appropriate total minimum target to achieve: an Operating Reserve, with a target equal to ninety (90) days of operating expenses, and a Capital Repair and Replacement Reserve, with a target equal to 100% of the 5-yr annual average of capital expenses. Based on the utility's monthly billing frequency, it is a common industry standard to have 90-days of liquid cash on hand to ensure the utility can continue to operate, even during an interruption in revenue collection or to absorb any kind of unanticipated increase in its operational expenses. For the capital reserve, the 5-year annual average is used to ensure a year's worth of capital funding is available so that the scheduling of required capital is not comprised due to fluctuations in monthly revenue.

In addition to reviewing the Water Utilities financial plan, RFC also reviewed the current rate structure and consumption data to determine the most appropriate rate structure moving forward. As such, RFC is recommending the following proposed adjustments to the current rate structure:

- RFC recommends changing the City's Single-Family Residential (SFR) water rate structure from a uniform rate to a 3-tiered inclining rate structure.
- RFC recommends changing the City's Multi-Family Residential (MFR) water rate structure from a uniform rate to a 2-tiered rate structure.
- Non-Residential accounts will still remain on a uniform rate

Setting the SFR water allotments to three tiers closely reflects the water demand of residential customers for indoor needs (Tier 1), outdoor needs (Tier 2), and any additional usage above Tiers 1 and 2 (Tier 3). The indoor demand of customers was based on the City of Madera's density of 3.56 persons per household at 65 gallons per capita per day (gpcpd), which resulted in an indoor allotment of 9.41 units (or 9.41 ccf of water). Peak residential usage in the summer can be used to determine the water demand for outdoor needs as peaking is primarily a result of increased irrigation. Summer usage averaged approximately 31 units of water per account. Because usage varies from month to month and between accounts, a buffer is recommended when setting allotments for each Tier. Consequently, it is recommended that for SFR, Tier 1 be set at 10 units to capture residential indoor water demand and Tier 2 be set at an additional 23 units of water for a total allotment of 33 units, which captures an average usage in summer of approximately 33 units.

MFR customers would be a similar structure; however, MFR customers typically have little or no outdoor water demand when compared to SFR properties. As a result, it is recommended Tier 1 would be the same allotment and account for indoor usage, but Tier 2 would capture any usage above Tier 1. These allotments are on a per unit basis. As such, a three-unit complex would have a Tier 1 allotment equal to 30 units (10 unit allotment x 3 dwelling units = 30 units).

RFC analyzed the consumption data to determine the consumption for the proposed tiers. Table E-4 and Table E-5 show the annual consumption by the proposed tiers for SFR and MFR, respectively.

	Allotment	Total Allocation	Tier Usage	Percentage
Tier 1	10	10	1,037,429	42%
Tier 2	23	33	1,078,921	44%
Tier 3	>33	N/A	328,018	13%

Table E-4: Single-Family Residential Annual Usage by Tier (ccf)

Table E-5: Multi-Family Residential Annual Usage by Tier (ccf)

	Allotment	Total Allocation	Tier Usage	Percentage
Tier 1	10	10	139,259	67%
Tier 2	> 10	N/A	68,438	33%

Non-residential and irrigation accounts would still be charged a uniform rate (i.e. non-tiered rate) consistent with the current rate structure which charges \$0.86 per ccf for usage.

WASTEWATER ENTERPRISE

The current wastewater (WW) rate structure consists of flat monthly rates for residential accounts, which differ between SFR and MFR, and base charge plus a discharge rate based on flow for Non-residential customers. There are still some Non-Residential accounts that are not yet metered and are charged a flat monthly fee. Once accounts are metered for their water service, the wastewater rates will be based on actual discharge. Current WW rates are shown in Tables E-6 and E-7.

Customer Class	FY2014/15 Flat Rate
SFR (per account)	\$26.51
MFR	
(per account)	\$1.11 ²
(per dwelling unit)	\$16.19
Non-Residential	
Metered (per account)	\$1.11
Non-Metered (various units)	See Appendix A

Table E-6: Current WW Monthly Flat (Base) Charges

Table E-7: Current WW Discharge Rates (\$ / ccf)

Non-Residential (Metered)	FY2014/15 Discharge Rate (\$/ccf) ³
Low Strength	\$1.12
Medium Strength	\$1.65
High Strength	\$2.93

Based on current rates and an analysis of the revenue requirements for the WW Enterprise, the utility will be operating at a cash flow deficit of approximately \$540,000 at FYE 2015-16. Without future revenue adjustments, the deficit, primarily driven by the existing debt obligations and necessary capital expenditures, will continue to grow. The WW Enterprise will need to utilize reserves to cover the deficit each year, however, this is not sustainable as the reserves will be fully depleted within four years as a result of funding the utility's capital plan. As mentioned above, the wastewater enterprise has significant debt obligations and corresponding bond covenants to fulfill on an annual basis. With current rate revenue, the City is not meeting, the required 120% bond coverage ratio.

² The MFR flat rate per account is divided equally among all dwelling units in the complex and is in addition to the rate per dwelling unit.

³ There is a minimum Commercial charge of \$26.51 per account in FY 2014/15.

Similar to the water enterprise, the overall goal is to maintain a financial healthy utility by meeting the following components:

- Positive net income each year
- ➢ Bond coverage met in FY 2015-16
- Fund Reserves over the 5-year planning horizon
- > Capital is funded 100% through Pay-As-You-Go (PAYGO)

The proposed financial plan to achieve these objectives was presented and discussed with City Council at a rate workshop that was held on March 24, 2015. As part of that City Council Workshop, the Council decided to move forward with the proposed financial plan for the 5-year planning horizon. Under the proposed plan, the WW Enterprise will reach and maintain a positive net income and fully fund reserves by Fiscal Year ending 2015-16.

Similar to the Water Utility, reserves will be separated into two distinct reserves to identify an appropriate total minimum target to achieve: an Operating Reserve, with a target equal to ninety (90) days of operating expenses and a Capital Repair and Replacement Reserve, with a target equal to 100% of the utility's annual depreciation value, equal to \$2.2M. Depreciation Value was used as the capital reserve target because the 5-yr annual average of capital expenses was less than the amount of depreciation of the utility's assets. Therefore, reaching a reserve that equals the value of depreciation ensures that the City is reinvesting back into the system to maintain the current level of service.

Through our analysis, RFC reviewed the current rate structure as well as the availability of data to determine the most appropriate rate structure moving forward. RFC would recommend the City continue working towards the installation of meters for all water accounts and work towards linking the water and wastewater accounts. Based on our analysis, RFC is recommending the following proposed adjustments to the current rate structure:

- RFC recommends changing the City's MFR WW rate structure from two separate flat rates to one fixed (flat) rate
- RFC recommends maintaining the current Non-Residential Metered rate structure consisting of both a fixed (flat) rate and a discharge (commodity) rate. However, RFC recommends establishing a discharge rate for each of the 14 different types of Non-Residential customers. These discharge rates would be based on the discharge strengths related to those types of commercial use.

1. ASSUMPTIONS USED IN THE STUDY

The period for the Water and Wastewater Financial Plan Study is for Fiscal Year 2015-16 through Fiscal Year 2024-25⁴. Various types of assumptions and inputs were incorporated into the Study. These assumptions were based on discussion with and/or direction from City management. Assumptions include growth rates for customer accounts, annual consumption for different customer classes, reduced water demand factors for recent conservation goals of the City and to account for the Executive Order from the Governor's Office, inflation factors, and other miscellaneous assumptions. These assumptions are presented in Tables 1-1 and 1-2.

Key Factors	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
General	3%	3%	3%	3%	3%
Salary	5%	5%	5%	5%	5%
Benefits	5%	5%	5%	5%	5%
Capital	2%	2%	2%	2%	2%
Water Supply	5%	5%	5%	5%	5%
Energy	5%	5%	5%	5%	5%

Table 1-1: Inflation Factor Assumptions

Table 1-2: Account Growth Rate Assumptions and Potable Water Demand Factor

General Growth Rate	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Growth Rate					
All Customer Classes	0%	0%	0%	0%	0%
Other Revenue Projections					
Interest Earnings	1%	1%	1%	1%	1%
General	1%	1%	1%	1%	1%
Proposed Debt Terms					
Interest Rates	N/A	N/A	N/A	N/A	5%
Term (years)	N/A	N/A	N/A	N/A	30
Issuance Cost w/ Reserve	N/A	N/A	N/A	N/A	12%
Water Demand Factor	85%	98%	98%	98%	98%

⁴ For brevity of presentation, certain tables in this report show the five-year period for FYE 2016 through FYE 2021.

2. WATER SYSTEM – FINANCIAL PLAN

2.1 REVENUE REQUIREMENTS

A review of a utility's revenue requirements is a key step in the rate design process. The review involves analyses of annual operating revenues under the current rates, operation and maintenance (O&M) expenses, capital expenditures, transfers between funds, and reserve requirements. This section of the report provides a discussion on projected revenues, O&M and capital expenditures, the capital improvement financing plan, debt service requirements, and revenue adjustments required to ensure the fiscal sustainability of the Water Enterprise.

2.1.1 Revenues from Current Rates

The current rate structure consists of two components: a monthly fixed charge based on the size of the customers meter, and a variable (volume) charge based on usage. This calculated revenue was based on usage files that were provided by the City. As part of our review, RFC noticed quite a few discrepancies within the consumption data files and we worked with the City to obtain updated data to resolve these issues. This entire analysis is based on the initial data file that we received plus all subsequent files that were provided to us by the City. Based on this information, the projected water revenues for the Water Enterprise derived from current rates are shown in Table 2-1.

Table 2-1: Projected Water Revenues at current FYE 2014-15 Rates

	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Fixed Revenue	\$2,456,410	\$2,456,410	\$2,456,410	\$2,456,410	\$2,456,410
Variable Rate					
Revenue	\$2,865,876	\$2,865,876	\$2,865,876	\$2,865,876	\$2,865,876
Total Water					
Revenues	\$5,322,286	\$5,322,286	\$5,322,286	\$5,322,286	\$5,322,286

2.1.2 O&M Expenses

The City's FY 2014-15 budget values and the assumed inflation factors for the study period were used as the basis for projecting O&M costs. Table 2-2 shows total projected O&M expenses, including debt, for FY 2015-16 and subsequent four years of the study period.

Table 2-2: Projected Water O&M Expenses

	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Total Operating Expenses	\$6,172,595	\$6,359,265	\$6,558,694	\$6,759,712	\$8,753,276

2.1.3 Capital Improvement Plan and Asset R&R

The City has adopted a long-term capital improvement plan (CIP) to address future Water Enterprise needs. Table 2-3 shows a summary of the most recent 5-year CIP from the City. The Water Enterprise's future R&R CIP needs will be funded through a combination of proposed rates on a Pay-As-You-Go (PAYGO) basis and the issuance of debt in FY 2019-20, equal to \$24M.

Table 2-3: Water Capital Expenditures⁵

	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Deficiency / R&R	\$1,719,352	\$4,876,715	\$4,048,292	\$2,681,519	\$15,164,100

2.1.4 Reserve Requirements

To ensure a strong financial outlook and credit rating, RFC recommends a few adjustments to the City's current reserve policy. Currently, the City has a combined unrestricted reserve account. The following is the recommended reserves to maintain for the Water Enterprise Fund.

Operating Reserve – The operating reserve is used primarily to meet ongoing cash flow requirements. Given that a majority of the City's water revenue is through its commodity charge and the City's billing frequency is monthly, RFC recommends establishing an operating reserve target of 90-days of O&M expenses. As the potential of revenue volatility increases, reserves should be set at an amount to offset this revenue reliability. A 90-day reserve ensures working capital to support the operation, maintenance and administration of the utility. Maintaining this level of reserves also provides liquid funds for the continued ongoing operations of the utility in the event of unforeseen costs or interruption with the utility or the monthly billing system.

Capital Reserve – Based on the expected cost of the City's future CIP expenditure, RFC recommends maintaining a minimum capital reserve at 100% of the 5-Yr Average Annual CIP. Doing so will ensure that capital projects stay on schedule and will not be impacted due to the ebs and flows of monthly revenue.

Collectively, total *minimum reserve target* of the Water Utility would equal approximately \$8.0M.

2.1.5 Financial Pro Forma at Current Rates

Table 2-4 displays a summary pro forma of the Water Enterprise's funds under current rates over the forecast period. All projections shown in the table are based on the current rate structure and do not include any revenue adjustments. Under this scenario, revenues generated from rates and other miscellaneous revenues are less than the operating expenses of the Water Enterprise for Fiscal Year 2015-16. As 0&M costs increase through annual inflationary adjustments, current revenues cannot fully fund 0&M, capital, and debt obligations without drawing down reserves each year. Commencing in Fiscal Year 2015-16, reserves would need to cover a shortfall of approximately \$679,000 of operating expenses and an additional \$1.7M in capital improvement expenses. The reserves will be fully depleted within two years. In addition, the City currently has debt obligations and

⁵ Please note that the costs presented in Table 2-3 only include those costs related to the water enterprise. A detailed CIP listing can be found in Appendix B.

corresponding bond covenants to fulfill on an annual basis. With current rate revenue, the City is not satisfying its 120% bond coverage ratio.

Water Enterprise Fund	FYE 2015	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Revenues						
Total Revenues	\$5,491,706	\$5,493,401	\$5,495,112	\$5,496,840	\$5,498,586	\$5,500,349
Total Operating Expenditures	\$5,033,348	\$5,213,821	\$5,402,184	\$5,598,799	\$5,804,044	\$6,018,315
Total Debt Service	\$921,125	\$958,775	\$957,082	\$959,895	\$955,668	\$2,734,961
Repair & Replacement Costs	\$0	\$1,719,352	\$4,876,715	\$4,048,292	\$2,681,519	\$15,164,100
ENDING BALANCES	\$6,791,393	\$4,430,355	(\$1,310,513)	(\$6,420,660)	(\$10,363,305)	(\$4,780,333)
TARGET BALANCES	\$8,143,107	\$8,188,225	\$8,235,316	\$8,284,470	\$8,335,781	\$8,389,348
Debt Coverage	50%	29%	10%	-11%	-32%	-19%

Table 2-4: Financial Plan Pro-forma at Current Rates

2.2 RECOMMENDATIONS AND PROPOSED FINANCIAL PLAN

2.2.1 Proposed Financial Plan

RFC developed two separate financial plans to meet the City's five-year revenue requirements. The two options were identified as "Step Down Adjustments" and "Level Adjustments". As part of these two scenarios, the primary goals included the following components:

- Positive net income each year
- ▶ Bond coverage met in FY 2015-16
- > Fund Reserves over the 5-year planning horizon
 - Step Down Adjustments Minimum Reserve Requirement is met by FYE 2019-20
 - Level Adjustments Minimum Reserve Requirement is not met and is short by approximately \$2M
- > Capital ins funded through a combination of Debt and Pay-As-You-Go (PAYGO)

These two scenarios were presented and discussed with the City at a rate workshop that was held on March 24, 2015. As part of that City Council Workshop, the Council decided to move forward with the "Step Down" scenario to ensure the utility is in compliance with its bond covenants and reaches a strong financial position by the end of the 5-year planning horizon. Under the proposed plan, the Water Enterprise will reach and maintain a positive net income beginning in FY 2016-17, will meet the minimum reserve target by FY2019-20. This option also assumes a \$24M bond issue in Fiscal Year 2019-2020 to fund capital in Fiscal Years 2019-20 and 2020-2021, which includes critical storage facility improvements equal to approximately \$16.3M. Given the useful life of these improvements, funding these items through debt provides inter-generation equity between existing customers and future customers and spreading the cost over a debt-term of 30-years, in-line with the life of improvement. As such, current customers are not funding the entire project in advance of those that will also benefit from the projects.

A pro forma of the proposed revenue requirements is shown in Table 2-5 below (Appendix "C" provides a detailed summary of Table 2-5).

Water Enterprise Fund	FYE 2015	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Total Revenues Total Operating Expenditures	\$5,491,706 \$5,033,348	\$5,491,706 \$6,957,029 \$5,033,348 \$5,213,821		\$10,968,150 \$5,598,799	\$12,049,255 \$5,804,044	\$12,407,207 \$6,018,315
New Debt Proposed Debt Issue	\$0	\$0	\$0	\$0	\$0	\$27,272,727
Total Debt Service	\$921.125	\$958.775	\$957.082	\$959.895	\$955.668	\$2.734.961
	<i>+</i>	<i><i><i>quuuuuuuuuuuuu</i></i></i>	1 7		+,	+_,,
Repair & Replacement Costs	\$0	\$1,719,352	\$4,876,715	\$4,048,292	\$2,681,519	\$15,164,100
Repair & Replacement Costs	\$0 \$6,791,393	\$1,719,352 \$5,901,354	\$4,876,715 \$3,857,011	\$4,048,292 \$4,245,660	\$2,681,519 \$6,906,985	\$15,164,100 \$19,396,816
Repair & Replacement Costs ENDING BALANCES TARGET BALANCES	\$0 \$6, 791,393 \$8,143,107	\$1,719,352 \$5,901,354 \$8,188,225	\$4,876,715 \$3,857,011 \$8,235,316	\$4,048,292 \$4,245,660 \$8,284,470	\$2,681,519 \$6,906,985 \$8,335,781	\$15,164,100 \$19,396,816 \$8,389,348

Table 2-5: Water Enterprise Proposed Financial Plan - Pro-forma

2.2.2 Proposed Financial Outlook

The recommended revenue adjustments are only for the next five years and the figures below reflect FY 2015-16 through Fiscal Year 2019-20. Figures 2-1, 2-2, 2-3 and 2-4 illustrate the projected fiveyear financial plan for the Water Enterprise. **Figure 2-1** displays the proposed and expected revenue adjustments through Fiscal Year 2019-20. **Figure 2-2** illustrates the operating position of the Water Enterprise, where the expenses, exclusive of reserve funding, are shown by stacked bars and total revenues, at current rates and proposed rates, are shown by the horizontal trend lines. **Figure 2-3** summarizes the projected CIP and its funding sources, which is a combination of PAYGO and debt funding. The ending total fund balance for the water utility – inclusive of both the operating and capital funds – is projected and shown in **Figure 2-4**, where the horizontal trend line indicates the target reserve balance as recommended by the reserve requirements discussed in Section 2.1.1.4.



Figure 2-1: Proposed and Expected Revenue Adjustments



Figure 2-2: Proposed Operating Financial Plan





Figure 2-4: Projected Ending Balances for Water Enterprise Funds



3. WATER SYSTEM – COST OF SERVICE AND RATE DESIGN

3.1 LEGAL FRAMEWORK AND RATE METHODOLOGY BACKGROUND

Proposition 218 (California Constitution Article 13D) states that:

- 1. A property-related charge (such as water rates) imposed by a public agency on a parcel shall not exceed the funds required to provide the property related service.
- 2. Revenues derived by the charge shall not be used for any other purpose other than that for which the charge was imposed.
- 3. The amount of the charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel.
- 4. No charge may be imposed for a service unless that service is actually used or immediately available to the owner of property.
- 5. A written notice of the proposed charge shall be mailed to the record owner of each parcel at least 45 days prior to the public hearing, when the agency considers all written protests against the charge.

Prop 218 ensures that Water Rates cannot be "arbitrary and capricious," meaning that the ratesetting methodology must be sound and that there must be a nexus between costs and the rate charge. In the Rate Methodology, RFC ensures that all aspects of Proposition 218 are followed and that it creates rates that charge customers equitably. In addition, as stated in the American Water Works Association (AWWA) Manual M1, "the costs of water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers."

In conjunction with Proposition 218, Article X (2) of the State Constitution established the need to preserve the State's water supplies and to discourage the wasteful or unreasonable use of water by encouraging conservation. In addition, Section 106 of the Water Code declares that the highest use of water is for domestic purposes, and irrigation is secondary. In connection with meeting the objectives of Article X, Water Code Sections 370 (AB2882) and 375 authorize a water purveyor to utilize its water rate design to incentivize the efficient use of water.

3.1.1 Tiered Rates

"Inclining" Block-Rate Structures, when properly designed and differentiated by customer class as this Rate Study does, allows a water enterprise to send consistent price incentives for conservation to customers. Due to heightened interest in water conservation, tiered rates have been increasingly favored, especially in relatively water-scarce regions, such as California.

A tiered rate structure was upheld in the *Brydon v. East Bay Mun. Utility Dist.* California Court of Appeal, Fourth District (1995) ("Brydon"). In Brydon, a pre-Proposition 218 decision, the Appellate Court rejected the challenge that the tiered rate structure constituted a "special tax" in violation of Proposition 13.

Proposition 218 requires a nexus and proportionality between the fees charged for a service and the cost to provide that service. Proposition 218's position on the use of tiered rates was clarified in the

case of Capistrano Taxpayer's Association v. City of San Juan Capistrano. The Fourth Appellate District of California ruled that tiered rate structures are not a violation of Proposition 218, so long as they are supported by actual cost of service calculations. Tiered rate structures that do not demonstrate a nexus between each tiered rate and the cost to provide service to higher-tier users are in violation of Proposition 218 and can be invalidated. In summary, agencies must now "show their work" and explain the methodology behind the charges for service.

Also at issue, was whether public water agencies could charge high potable water users for the costs related to the development of recycled water systems. The Appellate Court concluded that the availability of recycled water frees up potable water for other users, that otherwise would not be available. When both types of water are provided by the same local water agency, and some customers are able to make use of recycled water while others are not, providing each kind of water, collectively, is providing "Water Service." Therefore, rates that charge potable water customers for recycled water costs are still in compliance with Proposition 218.

3.1.2 Proportionality

There is a fair amount of ambiguity in the way that Proposition 218 was drafted – none more so than the issue of "proportionality." It has taken a succession of court rulings over several years to clarify the substantive requirement of Proposition 218.

The most recent Appellate case of *Griffith v. Pajaro Valley Water Management Agency* (2013) ("Pajaro Case") California Court of Appeal, Sixth District has provided much guidance on several important Proposition 218 issues, including the issue of proportionality. In Pajaro, the Appellate Court held in part as follows:

That proportionality is not measured on an individual parcel basis, but instead is measured collectively, considering all rate payers. As such, the Appellate Court in Pajaro confirmed the common practice of grouping customers into classes our sub-groups with comparable service costs and setting rates by class rather than parcel. Rate setting by class met the Prop 218 requirement that fees be proportionate to the cost of providing service to each parcel.

Given the opinion in Pajaro, utilities can develop rates by grouping customers and meet the requirements of Proposition 218, as opposed to the strict interpretation which would require cost proportionality to each parcel receiving service. This was another major clarification of Proposition 218 since cost proportionality to individual parcels is almost impossible to achieve in the strict sense.

3.2 RATE METHODOLOGY

As stated in the Manual M1, the AWWA Rates and Charges Subcommittee agree with the Proposition 218 that "the costs of water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers." To develop utility rates that comply with Proposition 218 and industry standards while meeting other emerging goals and objectives of the utility, there are four major steps:

3.2.1 Step 1 – Determination of Revenue Requirements

The rate-making process starts with the determination of future revenue requirements to sufficiently fund the utility's operation and maintenance (O&M), capital replacement and refurbishment (R&R), capital improvement and perpetuation of the system and to ensure preservation of the utility's financial integrity. The basic revenue requirements of a utility include O&M expenses, debt service payments, contributions to specified reserves and the cost of capital expenditures that are not debt financed.

3.2.2 Step 2 – Cost of Service Analysis

The annual costs of providing water services, determined in the financial plan development, and should be allocated among the customers commensurate with their service requirements. In this step, costs are identified and allocated to functional cost components and distributed to respective customer classes according to the industry standards provided in the Manual M1 published by AWWA. California Government Code Section 54999 mandates agencies to conduct a thorough cost of service analysis every ten years in determining the utility rates.

3.2.3 Step 3 – Rate Design and Calculations

Rates do more than simply recover costs. Within the legal framework and industry standards, properly designed rates should support and optimize a blend of various utility objectives, such as conservation, affordability for essential needs and revenue stability, among other objectives. Rates should work as a public information tool in communicating these objectives to customers.

3.2.4 Step 4 – Rate Adoption

In the last step of the rate-making process, to comply with Proposition 218 requirements, the results of the analyses are documented in a Study Report to help educate the public about the proposed changes, the rationale and justifications behind the changes and their anticipated financial impacts in lay terms. At least 45 days after sending out the public notices, at a public hearing, the agency shall consider all written protests against the proposed rates. If there is no majority protest, the agency can officially adopt the new rates.

3.3 PROPOSED RATE STRUCTURE

The City has decided to implement a rate structure composed of two components: a monthly fixed charge based on the size of the customers meter, and a variable (volume) charge based on usage. RFC recommends adjusting the variable rate structure for SFR and MFR from uniform rates to the following tiered structures.

3.3.1 Single-Family Residential 3-Tiered Rate Structure

RFC recommends implementing a 3-tiered rate structure for SFR customers. The goal of the first tier is to provide for basic indoor water needs; the second tier to provide for outdoor needs; and the third tier is considered excessive use that is above Tiers 1 and 2. This is consistent with State laws regarding the highest and most efficient use of water. Tier 1 is based on the City of Madera's density of 3.56 persons per household and the amount of water needed on a per person basis, equal to 65 gallons per capita per day (gpcpd). SB7x-7 has a per capita target to achieve by 2020 of 55 gpcpd and

the current 65gpcpd is a step towards that direction. The planning horizon is through 2019-20 and the City can readjust the Tier 1 allotment to the 55 gpcpd when they need to review rates again. Figure 3-1 shows the calculation used to derive the Tier 1 allocation of 10 units of water.

Figure 3-1: Tier 1 Allotment Formula



Tier 2 is designed to account for an additional allotment for outdoor needs. Tier 2 provides an additional 23 units of water for a total allotment of 33 units through Tier 2, which captures the average usage of SFR accounts in summer of approximately 33 units. Tier 3 captures any additional usage above the amount allotted in Tiers 1 and 2. Figure 3-2 graphically shows the SFR tier structure.



Figure 3-2: SFR Tier Structure

3.3.2 Multiple-Family Residential 2-Tiered Rate Structure

MFR customers would be a similar structure; however, MFR customers typically have little or no outdoor water demand when compared to SFR customers. As a result, it is recommended that the MFR rate structure consists of only two tiers. Tier 1 would be the same allotment and account for indoor usage and Tier 2 would capture any usage above Tier 1. These allotments are on a per unit basis. As such, a three-unit complex would have a Tier 1 allotment equal to 30 units (10 unit allotment x 3 dwelling units = 30 units).

3.3.3 Non-Residential Uniform Rate Structure

Non-residential accounts would still be charged a uniform rate consistent with the current rate structure. Customers other than residential vary considerably in size, use profile, and needs, which

makes it impractical and inequitable to place them in a "one size fits all" tiered rate structure. For example, a bookstore and a coffee shop exhibit drastically different water needs. However, despite not being tiered, the uniform rate structure is built on the same cost components. Non-Residential customers are paying their fair share of incurred costs and will not be subsidized by other customer classes.

3.3.4 Non-Metered Accounts

The City also has a number of accounts that are currently non-metered, with approximately 1,200 Residential accounts and approximately 500 Non-Residential accounts. The City's current billing method will remain intact, which varies based on type of account; however, the rates will be increased based on the five-year revenue requirements. As such, non-metered accounts will continue to recover approximately 19% of total revenue. Once these accounts are metered, their rates will be charged based on actual usage and the size of installed meter and the revenue generated by non-metered accounts will decrease as meter conversions occur.

3.4 FUNCTIONAL COST COMPONENTS

The total cost of water service is analyzed by system function in order to equitably distribute costs in relation to how it's generally incurred, which then allows each cost component to be recovered through the most appropriate revenue recovery (i.e. fixed versus variable). For this analysis, water utility costs of service are assigned under the Base-Extra Capacity method to the following functional cost components: Water Supply, Base, Max Day, Max Hour, Conservation, Fixed Demand and Conservation. This method is consistent with the American Water Works Association M1 Manual, and is widely used in the water industry to design rates for retail customers. Table 3-1 provides a breakdown of the City's revenue requirements by functional cost components, using FYE 2016 as the baseline to account for how costs are generally incurred.

Total Water					Supply					Customer		Fixed			
Description	Expenses	Cost Categories	Base	N	lax Day	Μ	ax Hour		Costs	Со	nservation	2	Service	D	emand
Dept 709: Water Utility - Billing/Collections	\$0	100% Base	\$ -	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Bad Debt Expense	\$0	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Depreciation / Replacement	\$0	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Interfund Charges - Admin. Overhead	\$25,696	100% Base	\$ 25,696	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Operating Transfer to Other Funds	\$658,860	100% Base	\$ 658,860	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Dept 711: Water Utility - Maint./Ops.		100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Salaries / Full-time	\$450,243	33% Base/Max/Meters	\$ 150,081	\$	150,081	\$	-	\$	-	\$	-	\$	-	\$	150,081
Salaries / Part-time	\$22,706	33% Base/Max/Meters	\$ 7,569	\$	7,569	\$	-	\$	-	\$	-	\$	-	\$	7,569
Salaries / Overtime	\$19,005	33% Base/Max/Meters	\$ 6,335	\$	6,335	\$	-	\$	-	\$	-	\$	-	\$	6,335
Salaries - Leave Payout	\$4,985	33% Base/Max/Meters	\$ 1,662	\$	1,662	\$	-	\$	-	\$	-	\$	-	\$	1,662
Salaries / Uniform Pay	\$2,048	33% Base/Max/Meters	\$ 683	\$	683	\$	-	\$	-	\$	-	\$	-	\$	683
Salaries - Auto & Expense Allowance	\$1,301	33% Base/Max/Meters	\$ 434	\$	434	\$	-	\$	-	\$	-	\$	-	\$	434
Public Employees Retirement System	\$101,625	33% Base/Max/Meters	\$ 33,875	\$	33,875	\$	-	\$	-	\$	-	\$	-	\$	33,875
Long Term Disability Insurance	\$1,609	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	1,609	\$	-
Life Insurance Premiums	\$524	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	524	\$	-
Worker's Compensation Insurance	\$36,644	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	36,644	\$	-
Medicare Tax - Employer's Share	\$7,522	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	7,522	\$	-
Deferred Compensation / Part-time	\$852	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	852	\$	-
Deferred Compensation / Full-time	\$17,606	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	17,606	\$	-
Unemployment Insurance	\$3,886	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	3,886	\$	-
Section 125 Benefit Allow.	\$148,015	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	148,015	\$	-
Gas and Electric Utilities	\$1,470,000	Base/Max Day/Max Hour	\$ 857,500	\$	122,500	\$	490,000	\$	-	\$	-	\$	-	\$	-
Telephone and Fax Charges	\$4,120	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	4,120	\$	-
Advertising - Other	\$1,030	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	1,030	\$	-
Professional Dues	\$4,841	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	4,841	\$	-
Office Supplies - Expendable	\$1,545	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	1,545	\$	-
Postage / Other Mailing Charges	\$721	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	721	\$	-
Mileage Reimbursements	\$309	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	309	\$	-
Vehicle Fuel, Supplies & Maintenance	\$46,350	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	46,350	\$	-
Contracted Services	\$214,974	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	214,974	\$	-
Taxes and Assessments	\$14,420	100% Meters	\$ -	\$	-	\$	-	\$	-	\$	-	\$	-	\$	14,420
Building Supplies, Keys, Repairs	\$3,605	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	3,605	\$	-
Other Maintenance Supplies	\$175,100	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	175,100	\$	-
Liability / Property Insurance	\$67,277	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	67,277	\$	-
Retiree Insurance Premiums	\$2,625	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	2,625	\$	-
OPEB Obligation Expense	\$5,693	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	5,693	\$	-
Conference, Training, Education	\$10,300	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$	10,300	\$	-

Table 3-1: Detailed Revenue Requirements by Function
								1	Water			0	F ¹	
	Total Water							S	Supply			Customer	FIX(ed .
Description	Expenses	Cost Categories	Base	Ma	ax Day	Ma	x Hour		Costs	Con	servation	Service	Dem	and
Water Conservation Program	\$51,000	Conservation	\$ -	\$	-	\$	-	\$	-	\$	51,000	\$-	\$	-
Depreciation / Replacement	\$0	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$-	\$	-
Capitalized Asset Contra Account	\$0	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$-	\$	-
Loss on Disposal of Capital Asset	\$0	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$-	\$	-
Interfund Charges - Fac. Maint	\$48,597	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$ 48,597	\$	-
Interfund Charges - Central Supply	\$24,205	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$ 24,205	\$	-
Interfund Charges - Cost Distribution	\$201,980	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$ 201,980	\$	-
Interfund Charges - GF-Admin. Overhead	\$217,700	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$ 217,700	\$	-
Interfund Charges - Vehicle Repairs	\$54,481	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$ 54,481	\$	-
Interfund Charges - Replace Vehicles	\$92,975	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$ 92,975	\$	-
Interfund Charges - Vehicle Replacement	\$0	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$-	\$	-
Interfund Charges-Computer Maint.	\$12,192	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$ 12,192	\$	-
Interfund Charges - Computer Replacement	\$0	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$-	\$	-
Office Furniture	\$927	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$ 927	\$	-
Computer Equipment and Peripherals	\$7,210	100% Customer Account	\$ -	\$	-	\$	-	\$	-	\$	-	\$ 7,210	\$	-
Other New Equipment	\$0	General/Admin	\$ -	\$	-	\$	-	\$	-	\$	-	\$-	\$	-
Replacement of Equipment	\$0	General/Admin	\$ -	\$	-	\$	-	\$	-	\$	-	\$-	\$	-
Infrastructure Projects - Water	\$0	Base/Max Day	\$ -	\$	-	\$	-	\$	-	\$	-	\$-	\$	-
4th St Widening, UPRR to Lake, R-5	\$0 .	33% Base/Max/Customer Accts	\$ -	\$	-	\$	-	\$	-	\$	-	\$-	\$	-
Lease Payment	\$0	Base/Max Day/Max Hour	\$ -	\$	-	\$	-	\$	-	\$	-	\$-	\$	-
Water Well Security Lights	\$0	100% Base	\$ -	\$	-	\$	-	\$	-	\$	-	\$-	\$	-
Pump Bowls	\$103,000	Base/Max Day/Max Hour	\$ 60,083	\$	8,583	\$	34,333	\$	-	\$	-	\$-	\$	-
Dept 713: Water Utility - Quality Control		100% Water Supply Costs	\$ -	\$	-	\$	-	\$	-	\$	-	\$-	\$	-
Salaries / Full-time	\$229,315	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	229,315	\$	-	\$-	\$	-
Salaries / Part-time	\$25,332	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	25,332	\$	-	\$-	\$	-
Salaries / Overtime	\$9,450	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	9,450	\$	-	\$-	\$	-
Salaries - Leave Payout	\$1,107	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	1,107	\$	-	\$-	\$	-
Salaries / Uniform Pay	\$1,313	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	1,313	\$	-	\$-	\$	-
Salaries - Auto and Expense Allowance	\$536	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	536	\$	-	\$-	\$	-
Public Employees Retirement System	\$52,950	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	52,950	\$	-	\$-	\$	-
Long Term Disability Insurance	\$826	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	826	\$	-	\$-	\$	-
Life Insurance Premiums	\$284	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	284	\$	-	\$-	\$	-
Worker's Compensation Insurance	\$19,666	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	19,666	\$	-	\$-	\$	-
Medicare Tax - Employer's Share	\$4,019	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	4,019	\$	-	\$-	\$	-
Deferred Compensation / Part-time	\$950	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	950	\$	-	\$-	\$	-
Deferred Compensation / Full-time	\$9,152	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	9,152	\$	-	\$-	\$	-
Unemployment Insurance	\$2,555	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	2,555	\$	-	\$-	\$	-
Section 125 Benefit Allow.	\$104,897	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	104,897	\$	-	\$-	\$	-
Gas and Electric Utilities	\$0	100% Water Supply Costs	\$ -	\$	-	\$	-	\$	-	\$	-	\$-	\$	-

Table 3-1: Detailed Revenue Requirements by Function (continued)

										Water			Cı	ustomer		Fixed
	Total Water									Supply			,	Sorvico	П	omand
Description	Expenses	Cost Categories		Base	N	lax Day	Max H	lour		Costs	Co	onservation		Jei vice		emanu
Telephone and Fax Charges	\$1,030	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	1,030	\$	-	\$	-	\$	-
Advertising - Bids and Legal Notices	\$4,120	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	4,120	\$	-	\$	-	\$	-
Professional Dues	\$618	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	618	\$	-	\$	-	\$	-
Publications and Subscriptions	\$690	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	690	\$	-	\$	-	\$	-
Office Supplies - Expendable	\$1,030	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	1,030	\$	-	\$	-	\$	-
Postage / Other Mailing Charges	\$3,502	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	3,502	\$	-	\$	-	\$	-
Vehicle Fuel, Supplies & Maintenance	\$12,360	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	12,360	\$	-	\$	-	\$	-
Contracted Services	\$259,566	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	259,566	\$	-	\$	-	\$	-
Other Maintenance Supplies	\$25,750	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	25,750	\$	-	\$	-	\$	-
Retiree Insurance Premiums	\$932	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	932	\$	-	\$	-	\$	-
OPEB Obligation Expense	\$1,604	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	1,604	\$	-	\$	-	\$	-
Conference, Training, Education	\$4,120	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	4,120	\$	-	\$	-	\$	-
Depreciation / Replacement	\$0	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Loss on Disposal of Capital Asset	\$0	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Interfund Charges - Fac.Maint.	\$48,597	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	48,597	\$	-	\$	-	\$	-
Interfund Charges - Central Supply	\$3,090	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	3,090	\$	-	\$	-	\$	-
Interfund Charges - Admin. Overhead	\$24,108	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	24,108	\$	-	\$	-	\$	-
Interfund Charges - Vehicle Repairs	\$7,825	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	7,825	\$	-	\$	-	\$	-
Interfund Charges - Replace vehicles	\$8,240	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	8,240	\$	-	\$	-	\$	-
Interfund Charges-Computer Maint.	\$3,982	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	3,982	\$	-	\$	-	\$	-
Interfund Charges - Computer Replacement	\$0	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Computers and Peripherals	\$0	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Other New Equipment	\$0	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Lease Payment	\$0	100% Water Supply Costs	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Dept 716: Water Debt Services - Revenue Bonds		General/Admin	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Bond Trustee Fees	\$1,200	33% Base/Max/Meters	\$	400	\$	400	\$	-	\$	-	\$	-	\$	-	\$	400
Amortization Expense - 2006 bond	\$3,500	33% Base/Max/Meters	\$	1,167	\$	1,167	\$	-	\$	-	\$	-	\$	-	\$	1,167
Madera PFA W&WW Revenue Bonds, Series 2006	\$153,862	33% Base/Max/Meters	\$	51,287	\$	51,287	\$	-	\$	-	\$	-	\$	-	\$	51,287
Madera PFA Water Revenue Bonds, Series 2010	\$781,113	33% Base/Max/Meters	\$	260,371	\$	260,371	\$	-	\$	-	\$	-	\$	-	\$	260,371
Bond Trustee Fees	\$3,700	33% Base/Max/Meters	\$	1,233	\$	1,233	\$	-	\$	-	\$	-	\$	-	\$	1,233
Amortization Expense-2010 bond	\$15,400	33% Base/Max/Meters	\$	5,133	\$	5,133	\$	-	\$	-	\$	-	\$	-	\$	5,133
Subtotal Revenue Requirements	;		\$2	2,122,369	\$	651,313	\$52 <u>4,</u> 3	333 _	Ś	873,516		\$51,000	\$ 2	l,415,41 <u>5</u>	\$	534,649
				34.4%		10.6%	8.5%	6		14.2%		0.8%		22.9%		8.7%

Table 3-1: Detailed Revenue Requirements by Function (continued)

3.5 COST OF SERVICE

The enterprise's revenue requirements are, by definition, the cost of providing service. This cost is then used as the basis to develop unit costs for the water components and to allocate costs to the various customer classes in proportion to the water services rendered. The concept of proportionate allocation to customer classes requires that allocations should consider not only the average quantity of water used but also the peak rate at which it is consumed (Max Day / Max Hour). This is because the water system is designed to handle peak demands, and the additional costs associated with design, construction and maintenance of facilities specified to meet these peak demands needs to be allocated to those incurring such costs so that the costs can be recovered appropriately.

Once the total cost of each functional component is calculated, the next step is to determine the most appropriate way to recover such costs based on the following criteria: 1) how the cost is incurred, 2) City policy objectives, 3) promote water efficiency, and 4) revenue stability to name a few. Table 3-2 is a summary of how costs were allocated to fixed versus variable revenue components.

	Cost of	<u>Fixe</u>	<u>ed</u>	<u>Variable</u>				
Cost Categories	Service	Meter Capacity	Accounts	Water Supply	Delivery	Peaking		
Water Supply Costs	\$848,223	0.0%	0.0%	100.0%	0.0%	0.0%		
Base	\$2,920,592	0.0%	0.0%	0.0%	100.0%	0.0%		
Max Day	\$632,454	0.0%	0.0%	0.0%	0.0%	100.0%		
Max Hour	\$509,151	0.0%	0.0%	0.0%	0.0%	100.0%		
Conservation	\$51,000	0.0%	0.0%	0.0%	0.0%	100.0%		
Fixed Demand	\$1,378,844	100.0%	0.0%	0.0%	0.0%	0.0%		
Customer Service	\$1,374,431	0.0%	100.0%	0.0%	0.0%	0.0%		
Total	\$7,714,696	\$1,378,844	\$1,374,431	\$848,223	\$2,920,592	\$1,192,605		
	100.00%	17.9%	17.8%	11.0%	37.9%	15.5%		

Table 3-2: Fixed vs. Variable Cost Allocation to Revenue Components

Therefore, monthly fixed charges recovers all of the costs associated with customer service and fixed demand (capacity). Commodity rates recover all or a portion of the costs associated with Base and all of the cost associated with Max Day and Max Hour (Peaking), Water Supply, and Conservation Programs.

This study calculated water rates based on Fiscal Year 2015-16 as the base year with FY 2015-16 through FY 2020-21 for the new proposed rates. The annual revenue requirements or costs of service to be recovered from rates include O&M expenses (including water supply), debt service and capital costs. O&M expenses include costs directly related to the supply, treatment, and distribution of water as well as routine maintenance of system facilities. Table 3-3 summarizes revenue requirements, by function, for Fiscal Year 2015-16. The cost of service analysis is based upon the premise that the utility must generate annual revenues adequate to meet estimated annual revenue requirements (Revenue requirements for Fiscal Year 2016-17 through Fiscal Year 2019-20 is identified under Appendix C).

Table 3-3: Revenue Requirements by Function – FYE 2016 through FYE 2020

10 J								
				<u>Fix</u>	<u>ed</u>		<u>Variable</u>	
	Rate	Non-Metered	Metered	36.0	0%		64.0%	
	Revenue	Revenue	Revenue					
FYE 2016	\$6,918,972	\$1,310,355	\$5,608,617	\$1,002,426	\$999,218	\$616,662	\$2,123,283	\$867,029

3.6 PROPOSED RATES

3.6.1 Fixed Charges

[AB1]

Currently, the City's fixed monthly water charge generates approximately 34% of total revenue and as part of the proposed rate structure; RFC maintained a similar percentage of revenue from the fixed monthly charge in order to maintain the current level of revenue stability; while promoting water efficiency and identifying which costs are collected through the fixed charges and variable charges (36% Fixed / 64% Variable).

The monthly fixed service charge has the following main components: customer related costs and capacity related costs. Customer costs include costs, such as general customer service, billing, meter reading and other operational costs. These costs are recovered from all accounts equally; in which, meter size in not taken into consideration.

Capacity costs include capital costs, public fire protection and other costs that are more equitably recovered based on the size of each meter, which reflects potential demand on the water utility system. RFC utilized the American Water Works Association meter service cost ratios in calculating the meter component of the fixed charge. These costs are assigned based on meter size. Based on these ratios, the City's 11,821 accounts have a meter equivalency of 33,439.

Table 3-4 shows the fixed charge separated between costs apportioned evenly over all accounts and meter equivalencies. Table 3-5 shows the proposed FY 2015-16 monthly service charges.

Table 3-4: Fixed Charge Calculation – 5/8" Meter

Customer Service Cost per	
Account	FYE 2016
Total Customer Service Cost	\$999,218
Number of Accounts	11,821
Monthly Charge per Account	\$7.05
Capacity Cost Calculation	FYE 2016
Total Capacity Cost	\$1,002,426
Total Capacity Cost Number of Equivalent Meters ¹	\$1,002,426 33,439
Total Capacity Cost Number of Equivalent Meters ¹ Monthly Charge per Account	\$1,002,426 33,439 \$2.50

Base Fixed Charge for 5/8" Meter \$9.55

1. Based on AWWA Capacity Ratios

Table 3-5: Proposed FYE 2016 Monthly Service Charge

Meter Size	Current Rates	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
5/8"	\$7.11	\$9.55	\$12.41	\$14.89	\$16.38	\$16.88
3/4"	\$8.05	\$10.80	\$14.04	\$16.84	\$18.53	\$19.09
1"	\$9.93	\$13.30	\$17.29	\$20.74	\$22.82	\$23.51
1.5"	\$14.63	\$19.55	\$25.41	\$30.49	\$33.54	\$34.56
2"	\$20.27	\$27.05	\$35.16	\$42.19	\$46.41	\$47.82
3"	\$33.43	\$50.80	\$66.04	\$79.24	\$87.17	\$89.81
4"	\$52.23	\$85.80	\$111.54	\$133.84	\$147.23	\$151.69
6"	\$99.22	\$169.55	\$220.41	\$264.49	\$290.94	\$299.76
8"	\$155.62	\$307.05	\$399.16	\$478.99	\$526.89	\$542.86

3.6.2 Variable Charges

Approximately 64% of the City's revenue requirements are proposed to be recovered from the commodity charges, based on the amount of water used. Variable cost components include delivery costs, peak costs (max day / max hour), conservation costs, and water supply costs.

For this analysis, consumption and peaking characteristics of customers as well as available water supplies of the City were analyzed to appropriately allocate costs between customer classes as well as tiers within certain customer classes. Variable costs were separated into four discrete components: Water Supply, Delivery, Peaking, and Conservation. The sum of each of the variable cost components is used to determine the proposed rates for the five-year planning horizon. Deriving the corresponding unit price for each cost component of each applicable tier or uniform rate synchronizes the objectives of Article X (2) and Proposition 218 in developing a cost of service tiered rate structure.

3.6.2.1 Water Supply Costs

The City relies entirely on groundwater from City-owned wells for their water supply. The City's water supply is crucial to provide its predominately residential customer base with a reliable supply of water. The City currently provides approximately 12,000 AF of potable water each year. Due to the current drought conditions and the recent executive order from the State Governor, the City plans to investigate the impacts of a reduced water table and the feasibility to secure an alternative water supply, such as treated surface water, in future years to serve a portion of the City's total water demand. Water supply costs were spread evenly over all units of water at a rate of \$0.20 per ccf. Table 3-6 shows the allocation of the water supply costs to each customer class.

Customer Classes	# of Accts	Annual Usage	Percentage of Annual Usage	Water Supply Costs	Unit Rate
Single-Family Residential	11,156	2,444,368	77.04%	\$475,085	\$0.20
Multi-Family Residential	233	207,698	6.55%	\$40,368	\$0.20
Non-Residential	432	520,732	16.41%	\$101,209	\$0.20
Total	11,821	3,172,797	100.00%	\$616,662	\$0.20

Table 3-6: Water Supply Costs per Unit of Water

3.6.2.2 Delivery Costs

Delivery, which recovers Base costs, are those operating and capital costs of the water system associated with delivering water to all customers at a constant average rate of use. Therefore, costs that are related to delivery are spread over all units of water, irrespective of customer classes or tiers, to calculate a uniform rate. Table 3-7 shows the allocation of Delivery to each customer class.

Table 3-7: Delivery Costs per Unit of Water

Customer Classes	# of Accts	Annual Usage	Percentage of Annual Usage	Delivery Costs	Unit Rate
Single-Family Residential	11,156	2,444,368	77.04%	\$1,635,807	\$0.67
Multi-Family Residential	233	207,698	6.55%	\$138,994	\$0.67
Non-Residential	432	520,732	16.41%	\$348,481	\$0.67
Total	11,821	3,172,797	100.00%	\$2,123,283	\$0.67

3.6.2.3 Peak Costs (Max Day / Max Hour)

Costs associated with peaking, which primarily includes capital improvements, power, and conservation are first apportioned to each defined customer class based on their total demand, which accounts for peak use (total water used weighted by peak factor). Peaking was calculated for each customer class based on the consumption files, which ensures that accounts within each customer class will only recover the costs allocated to their respective customer class and no account is subsidizing any other account. In addition, City Council provided direction at the May 20, 2015 City Council meeting to increase the conservation budget up to \$1M. Table 3-8 and Table 3-9 shows the peak costs and conservation costs allocated between each customer class.

	Max Day Requirements								
Customor Classos	Annual	Peaking	Weighted Peak	Percentage	Poak Costs				
	Usage	Factors	Factor	of Peak	Fear Costs				
Single-Family Residential	2,444,368	1.60	3,914,637	76.52%	\$624,402				
Multi-Family Residential	207,698	1.48	306,875	6.00%	\$48,948				
Non-Residential	520,732	1.72	894,515	17.48%	\$142,679				
Total	3,172,797		5,116,027	100.00%	\$816,029				

Table 3-8: Peak Costs Allocation to Customer Class

Table 3-9: Conservation Costs Allocation to Customer Class

	Max Day Requirements									
Customer Classes	Annual	Dooking Factors	Weighted Peak	Percentage	Conservation					
Customer classes	Usage	Peaking Factors	Factor	of Peak	Costs					
Single-Family Residential	2,444,368	1.60	3,914,637	76.52%	\$765,171					
Multi-Family Residential	207,698	1.48	306,875	6.00%	\$59,983					
Non-Residential	520,732	1.72	894,515	17.48%	\$174,846					
Total	3,172,797		5,116,027	100.00%	\$1,000,000					

Once peak and conservation costs are allocated to each customer class, the next step is to design the most equitable and appropriate rate structure to recover such costs from the corresponding customer class. The proposed variable rate structure for SFR customers is a 3-tiered structure, 2-Tiered structure for MFR customers and a uniform rate structure for non-residential customers.

3.6.2.3.1 SFR Peaking Allocation by Tiers

Using the defined tiers and allotments from Section 3.3.1.1, the functional variable costs are then applied to each tier. Similar to how maximum day and maximum hour costs were apportioned between customer classes, the peaking costs allocated to SFR in Fiscal Year 2015-16, equal to \$624,402 are further apportioned between the defined tiers based on the peaking characteristics generated by customers within each tier, where Tier 1 is considered the base level (no peak; equal to 1.0). Peaking factors for Tiers 2 and 3 were then calculated by taking the average usage per customer within these tiers compared to the full allotment of Tier 1 equal to 10 ccf. This approach groups accounts within the Residential classes between tiers as the usage characteristics of these sub-classes are similar to each other and follow the same methodology when allocating costs between customer classes. Table 3-10 shows the SFR peaking factor by tier and Table 3-11 shows the peak costs

allocated between tiers. Note the respective unit costs derived from this analysis become the tier demand values in the variable component in Table 3-18a.

Table 3-10: SFR Peaking Factors

Customer Classes	Average Number of Accounts	Average Monthly Use By Tier	Peaking Factors
Single-Family Residential			
Tier 1	2,597	10	1.00
Tier 2	6,702	19	1.93
Tier 3	1,855	53	5.31

Table 3-11: SFR Allocation of Peak Costs

Customer Classes	Usage	Peaking Factors	Weighted Peak Factor	Percent of Weighted Peak Factor	Allocated Peak Cost	Unit Rate
Single-Family Residential						
Tier 1	1,037,429	1.00	1,037,429	21.35%	\$133,292	\$0.13
Tier 2	1,078,921	1.93	2,080,929	42.82%	\$267,364	\$0.26
Tier 3	328,018	5.31	1,741,452	35.83%	\$223,747	\$0.70
Total	2,444,368		4,859,810	100.00%	\$624,402	

3.6.2.3.2 MFR Peaking Allocation by Tiers

Similar to SFR, the peaking costs allocated to MFR customers are then applied to each tier identified in Section 3.3.1.2. Table 3-12 and 3-13 present the MFR Peaking Factors and the MFR Allocation of Peak Costs, respectively.

Table 3-12: MFR Peaking Factors

Customer Classes	Average Number of Accounts	Average Monthly Use By Tier	Peaking Factors
Multiple-Family Residential			
Tier 1	1,579	10	1.00
Tier 2	694	19	1.91

Table 3-13: MFR Allocation of Peak Costs

Customer Classes	Usage	Peaking Factors	Weighted Peak Factor	Percent of Weighted Peak Factor	Allocated Peak Cost	Unit Rate
Multiple-Family Residential						
Tier 1	139,259	1.00	139,259	51.55%	\$25,231	\$0.19
Tier 2	68,438	1.91	130,900	48.45%	\$23,717	\$0.36
Total	207,698		270,159	100.00%	\$48,948	

3.6.2.4 Conservation Costs

Identical to the allocation of tier demand costs, conservation costs are allocated by the percentage share of peak using the same peaking factors as in 3.6.2.3. However, conservation costs are only allocated to units of water demanded in tiers 2 and 3, where water consumption is considered discretionary, inefficient and/or excessive and for which conservation programs are designed to assist. Allocation of conservation costs to the upper tiers provides a strong price signal for conservation and efficient use, consistent with City and State of California policy objectives. Table 3-14 through 3-16 show the Allocation of conservation costs to customer classes. Note the unit costs derived constitute the variable rate component, in the respective tiers, in Table 3-18a and Table 3-18b.

	Table 5-14, 51 K Anotation of Consel Vation Costs									
SFR Tiers	Usage	Peaking Factors	Weighted Peak Factor	Percent of Weighted Peak Factor	Allocated Conservation Cost	Unit Rate				
Single-Fami	ily Residential									
Tier 2	1,078,921	1.93	2,448,152	54.44%	\$416,564	\$0.39				
Tier 3	328,018	5.31	2,048,767	45.56%	\$348,607	\$1.07				
Total	1,406,939		4,496,919	100.00%	\$765,171					

Table 3-14: SFR Allocation of Conservation Costs

Table 3-15: MFR Allocation of Conservation Costs

MFR Tiers	Usage	Allocated Conservation Cost	Unit Rate			
MFR-Family Residential						
Tier 2	68,438	\$59,983	\$0.88			
Total	68,438	\$59,983				

3.6.2.4.1 Non-Residential Peaking and Conservation Costs

For non-residential customers, variable costs are recovered through a uniform rate. Therefore, peak costs and conservation costs that were allocated to Non-Residential as shown in Tables 3-8 and 3-9, respectively, are recovered over all Non-Residential usage to derive a cost per unit as calculated in Table 3-16.

Table 3-16: Non-Residential Allocation of Peak and Conservation Costs

Class	Usage	Allocated Peak Cost	Peak Cost Unit Rate	Allocated Conservation Cost	Conservation Unit Rate
Non-Resider	ntial				
Uniform	520,732	142,679	0.28	\$174,846	\$0.34
Total	520,732	\$142,679		\$174,846	

3.6.3 Proposed Variable Rates

3.6.3.1 SFR & MFR Variable Rates

Tables 3-17a and 3-17b display the different variable rate components which are included in the SFR and MFR tiers, respectively. Note, for example, every tier pays for water supply and delivery, while conservation and peak costs vary by tier as the demand in higher tiers forces the City to implement conservation programs and reflect the relative financial burden of higher consumption for costs associated with peak usage.

Table 3-17a: SFR Variable Cost Components

Tier	Water Supply	Delivery	Conservation	Peak (Tier 1 = Base)
Tier 1	\checkmark	\checkmark		\checkmark
Tier 2	\checkmark	\checkmark	\checkmark	\checkmark
Tier 3	\checkmark	\checkmark	\checkmark	\checkmark

Table 3-17b: MFR Variable Cost Components

Tier	Water Supply	Delivery	Conservation	Peak (Tier 1 = Base)
Tier 1	\checkmark	\checkmark		\checkmark
Tier 2	\checkmark	\checkmark	\checkmark	\checkmark

Tables 3-18a and 3-18b display the unit costs of SFR and MFR variable (commodity) rates, by tier, respectively.

Table 3-18a: FY 2015-16 SFR Variable (Commodity) Rates by Tier

Tier	Water Supply	Delivery	Conservation	Peak Demand (T1 = Base)	Proposed Rate
Tier 1	\$0.20	\$0.67	\$0.00	\$0.13	\$1.00
Tier 2	\$0.20	\$0.67	\$0.39	\$0.26	\$1.52
Tier 3	\$0.20	\$0.67	\$1.07	\$0.70	\$2.64

Tier	Water Supply	Delivery	Conservation	Peak Demand (T1 = Base)	Proposed Rate
Tier 1	\$0.20	\$0.67	\$0.00	\$0.19	\$1.06
Tier 2	\$0.20	\$0.67	\$0.88	\$0.36	\$2.11

Table 3-18b: FY 2015-16 MFR Variable (Commodity) Rates by Tier

3.6.3.2 Non-Residential Variable Rates

As previously mentioned, all variable charges are summed to derive a uniform rate per ccf rather than a tiered rate structure. Table 3-19 shows the Non-Residential commodity uniform rate.

Table 3-19: FY 2015-16 Non-Residential Commodity Rate

	Water Supply	Delivery	Conservation	Peak Demand (T1 = Base)	Proposed Rate
Uniform	\$0.20	\$0.67	\$0.34	\$0.28	\$1.49

3.6.3.3 Variable (Commodity) Rate Summary

Table 3-20 shows five years of proposed commodity rates by customer class.

Table 3-20: Proposed Commodity Rates

Residential Tiered Rates	Allotment	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Tier 1	0-10	\$1.00	\$1.33	\$1.63	\$1.84	\$1.93
Tier 2	11-33	\$1.52	\$1.90	\$2.25	\$2.50	\$2.60
Tier 3	>33	\$2.64	\$3.20	\$3.69	\$4.05	\$4.22

Multi-Residential Tiered Rates	Allotment	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Tier 1	10	\$1.06	\$1.40	\$1.72	\$1.93	\$2.03
Tier 2	>10	\$2.11	\$2.53	\$2.92	\$3.18	\$3.32

Non-Residential Rates	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Uniform Rate	\$1.49	\$1.87	\$2.22	\$2.47	\$2.58

3.6.3.4 Non-Metered Flat Rate Customers

Table 3-21 shows five years of proposed rates for non-metered customers. Once these customers are metered, the account will be charged based on actual usage. The rates are based on these customers recovering the same pro-rata share of cost that each customer class has historically been recovering

Flat Rate Water Charges	Units	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
CAR DLR	WATER SERVICE/BLDG/1000	\$7.11	\$9.24	\$11.09	\$12.20	\$12.57
CAR SERV	WATER SERVICE/BAYS	\$4.75	\$6.17	\$7.40	\$8.14	\$8.39
DEPT/RET	WATER SERVICE/BLDG/1000	\$7.11	\$9.24	\$11.09	\$12.20	\$12.57
GAMES	WATER SERVICE/BLDG/1000	\$16.51	\$21.46	\$25.76	\$28.33	\$29.18
GRANNY	PRIMARY WITH SECONDARY UNIT	\$37.97	\$49.36	\$59.24	\$65.16	\$67.12
GROC/MOR	WATER SERVICE/BLDG/1000	\$7.11	\$9.24	\$11.09	\$12.20	\$12.57
HOSP RM	PER BED WATER USE	\$5.93	\$7.71	\$9.25	\$10.17	\$10.48
HOSP/CON	WATER SERVICE/BEDS	\$5.93	\$7.71	\$9.25	\$10.17	\$10.48
HOTEL/W	WATER SERVICE/ROOMS	\$7.11	\$9.24	\$11.09	\$12.20	\$12.57
HOTEL/WO	WATER SERVICE/ROOMS	\$5.93	\$7.71	\$9.25	\$10.17	\$10.48
LIB/CHUR	WATER SERVICE/SEAT	\$0.26	\$0.34	\$0.41	\$0.45	\$0.46
LT MFG	WATER SERVICE/BLDG/1000	\$3.81	\$4.95	\$5.94	\$6.54	\$6.73
MFR/MULT	MFR MULTI ACCT PER PARCEL	\$16.03	\$20.84	\$25.01	\$27.51	\$28.33
MFR/SING	MFR SINGLE ACCT PER PARCEL	\$16.89	\$21.95	\$26.34	\$28.98	\$29.85
OPN AIR	WATER SERVICE/SEAT	\$0.16	\$0.21	\$0.25	\$0.28	\$0.28
PROF BLD	WATER SERVICE/BLDG/1000	\$14.14	\$18.39	\$22.06	\$24.27	\$25.00
REST IN	WATER SERVICE/SEAT	\$1.47	\$1.91	\$2.29	\$2.52	\$2.60
REST OUT	WATER SERVICE/BLDG/1000	\$14.14	\$18.39	\$22.06	\$24.27	\$25.00
SCHOOLS	WATER SERVICE/STUDENTS	\$1.13	\$1.47	\$1.76	\$1.94	\$2.00
SFR	MINIMUM WATER RATE	\$26.46	\$34.39	\$41.27	\$45.40	\$46.76
STRP/MAL	WATER SERVICE/BLDG/1000	\$11.78	\$15.31	\$18.37	\$20.21	\$20.82
WRHSE	WATER SERVICE/BLDG/1000	\$1.00	\$1.30	\$1.56	\$1.72	\$1.77

Table 3-21: Proposed Non-Metered Flat Rates

3.7 CUSTOMER IMPACTS

Bill distribution and customer impact analyses reflect the City's policies in terms of promoting the meeting of SB x7-7 targets and the principle of affordability for essential use. Figures 3-3 through 3-5 show the relative bill impact, by rate class of the new rates and rate structures.

Figure 3-6 shows the SFR customer impact of the new proposed rates versus current rates at various usage levels.











Figure 3-5: Non-Residential Impacts - \$ Change in Bill Amount

4. WASTEWATER SYSTEM – FINANCIAL PLAN

4.1 REVENUE REQUIREMENTS

A review of a utility's revenue requirements is a key step in the rate design process. The review involves analyses of annual operating revenues under the current rates, operation and maintenance (O&M) expenses, capital expenditures, transfers between funds, and reserve requirements. This section of the report provides a discussion on projected revenues, O&M and capital expenditures, the capital improvement financing plan, debt service requirements, and revenue adjustments required to ensure the fiscal sustainability of the City's Wastewater Enterprise.

4.1.1 Revenues from Current Rates

The current wastewater (WW) rate structure consists of a flat rate per account for residential customers and a flat rate plus a commodity rate for non-residential customers. Non-metered non-residential customers are charged a flat rate per unit. Current WW rates are shown in Tables 4-1 and 4-2.

Customer Class	FYE 2014/15 Flat Rate
SFR (per account)	\$26.51
MFR	
(per account)	\$1.11 ⁶
(per dwelling unit)	\$16.19
Non-Residential	
Metered (per account)	\$1.11
Non-Metered (various units)	See Appendix A

Table 4-1: Current WW Monthly Flat (Base) Charges

Table 4-2: Current WW Discharge Rates (\$ / ccf)

Non-Residential (Metered)	FYE 2014/15 Discharge Rate (\$/ccf) ⁷		
Low Strength	\$1.12		
Medium Strength	\$1.65		
High Strength	\$2.93		

⁶ The MFR flat rate per account is divided equally among all dwelling units in the complex and is in addition to the rate per dwelling unit.

⁷ There is a minimum non-residential charge of \$26.51 per account in FYE 2014/15.

4.1.1.1 Wastewater Service Demand

4.1.1.1.1 Wastewater Accounts

Table 4-3 shows that the majority of the City's WW accounts are residential customers (SFR and MFR). The City charges MFR residential customers by account (master meter) and per dwelling unit.

Customer Class	Number of accounts
Single Family Residential	11,645
Multiple Family Residential	738
Non-Residential	813
Total	13,196

4.1.1.1.2 Wastewater Strength and Flow Assumptions

While revenue is recovered from residential users based on a flat rate per dwelling unit, metered non-residential customers pay a flat charge and a volume charge based on quantity (wastewater discharge/flow) and quality (strength concentration) of the wastewater contributed by these customers. Table 4-4 indicates the estimated wastewater flow for metered non-residential customers. The level of flow is assumed to remain flat throughout the forecast period.

Table 4-4: Metered Non-Residential Wastewater Flows

Description	Wastewater Flow
Single-Family Residential	1,410,842
Multiple Family Residential	244,913
Non-Res Metered	
CAR DLR & Dept/Ret	78,484
Game	550
GROC/MOR	20,262
HOSP/CON	15,059
HOTEL/WO	8,374
LIB/CHUR	4,208
Lt. Manufacturing	43,794
PROF BLD	58,809
RESTAURANT	24,271
SCHOOLS	46,835
STRP/MAL	6,783
WRHSE	35,461
Total	1.998.645

The projected revenues for the WW Enterprise, derived from current rates and service demand, are shown in Table 4-5.

	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
User Charges	\$5,861,340	\$5,861,340	\$5,861,340	\$5,861,340	\$5,861,340
Other Revenue	533,766	537,148	540,564	544,014	547,499
Total WW Revenues	\$6,395,106	\$6,398,488	\$6,401,904	\$6,405,354	\$6,408,839

Table 4-5: Projected Wastewater Revenues at current FYE 2014-15 Rates

4.1.2 O&M Expenses

O&M expenses include the costs of operating and maintaining the wastewater collection as well as other administrative costs such as customer service and billing. The City's FY 2014-15 budget values and the assumed inflation factors for the study period (as shown in Table 4-6) were used as the basis for projecting O&M costs. Table 4-7 summarizes projected O&M expenses for the WW enterprise.

Key Factors	FYE	FYE	FYE	FYE	FYE
	2016	2017	2018	2019	2020
General	3%	3%	3%	3%	3%
Salary	5%	5%	5%	5%	5%
Benefits	5%	5%	5%	5%	5%
Capital	2%	2%	2%	2%	2%
Energy	5%	5%	5%	5%	5%

Table 4-6: Inflation Factors

Table 4-7: Projected Wastewater O&M Expenses

	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Total Operating Expenses	\$4,219,606	\$4,346,195	\$4,476,580	\$4,610,878	\$4,749,204

4.1.3 Capital Improvement Plan and Asset R&R

The City has adopted a long-term capital improvement plan (CIP) to address future WW Enterprise needs. Table 4-8 shows a summary of the most recent 5-year CIP from the City. The WW Enterprise's future CIP is proposed to be funded on a pay-as-you-go (PAYGO) basis through proposed rate revenues and debt is not anticipated to be issued to fund the utility's capital plan over the five-year planning horizon.

Table 4-8: Wastewater Capital Expenditures

	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Deficiency / R&R	\$0	\$766,442	\$1,608,494	\$1,845,234	\$1,510,505

4.1.4 Debt Service Requirements

Table 4-9 shows the City's existing debt service. Debt service requirements consist of principal and interest payments on existing debt. The City currently has debt service obligations associated with two outstanding obligations, the Madera PFA Water and Wastewater Bonds and the IBank Loan, which are being used to make improvements to the City's wastewater system. Existing debt service annual payments are approximately \$2.7 million.

Outstanding Debt	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Amortization Expense	\$23,297	\$23,995	\$24,715	\$25,457	\$26,220
Bond 2006-Trustee Fees	\$5,665	\$5,835	\$6,010	\$6,190	\$6,376
Madera PFA Water & Wastewater Revenue Bonds, Series 2006	\$2,157,801	\$2,157,801	\$2,156,494	\$2,153,880	\$2,157,007
Loan Fees-IBank loan	\$27,084	\$27,896	\$28,733	\$29,595	\$30,483
Interest Expense-IBank loan	\$259,069	\$266,841	\$274,846	\$283,091	291,584
Principal Repayment-IBank loan	\$286,216	\$294,803	\$303,647	\$312,756	322,139
Total Debt Service	\$2,759,131	\$2,777,171	\$2,794,446	\$2,810,970	\$2,833,810

Table 4-9: Outstanding Debt Service

4.1.4.1 Debt Service Coverage

The City must meet debt service coverage requirements on its outstanding debt obligations. While the specific coverage requirements differ amongst the existing issuances, the City maintains its own coverage requirement of 1.20 (or 120%), which is sufficient to capture the different issuance requirements. This self-imposed requirement implies that the City's Adjusted Net System Revenues shall amount to at least 1.20 times its Annual Debt Service. The System Revenues include funds derived from the ownership and operation of the system including wastewater service charges from the City's users, property taxes, service charges, and interest income. Annual Debt Service includes annual principal and interest payments on outstanding debt.

4.1.5 Reserve Requirements

To ensure a strong financial outlook and credit rating, RFC recommends a few adjustments to the City's current reserve policy. Currently, the City has a combined unrestricted reserve account. The following is the recommended reserves to maintain for the Wastewater Enterprise Fund.

Operating Reserve

The operating reserve is used primarily to meet ongoing cash flow requirements. Given the City's monthly billing frequency, RFC recommends establishing an operating reserve target of 90-days of 0&M expenses. A 90-day reserve ensures working capital to support the operation, maintenance and administration of the utility. Maintaining this level of reserves also provides liquid funds for the continued ongoing operations of the utility in the event of unforeseen costs or interruption with the utility or the monthly billing system.

Capital Reserve

Based on the expected cost of the City's future CIP expenditures, RFC recommends maintaining a minimum capital reserve at 100% of the Annual Depreciation of Capital Assets. Depreciation Value was used as the capital reserve target because the 5-yr annual average of capital expenses was less than the amount of depreciation of the utility's assets. Therefore, reaching a reserve that equals the value of depreciation ensures that the City is reinvesting back into the system to maintain the current level of service.

Collectively, total *minimum reserve targets* of the Wastewater Utility would equal approximately \$3.3M.

4.1.6 Financial Pro Forma at Current Rates

Table 4-10 displays a summary pro forma of the WW Enterprise's funds under current rates over the forecast period. All projections shown in the table are based on the current rate structure and do not include any revenue adjustments.

Under this scenario, projected revenues generated from rates and other miscellaneous revenues are less than the projected operating expenses of the WW Enterprise for FY 2015-16. As O&M costs increase through annual inflationary adjustments, current revenues cannot fully fund O&M, capital, and debt obligations without drawing down reserves each year. The City is also not currently meeting bond debt covenants. Commencing in FY 2015-16, reserves would need to cover a shortfall of approximately \$540,000. Without future revenue adjustments, the deficit, primarily driven by the existing debt and necessary capital expenditures, will continue to grow. The WW Enterprise will need to utilize reserves to cover the deficit each year, however, this is not sustainable as the reserves will be fully depleted within four years, which is not financially prudent given the potential for unexpected costs associated with risk factors, such as, facility failures and other operational interruptions. As mentioned above, the City has two debt obligations and corresponding bond covenants to fulfill on an annual basis. With current rate revenue, the City is not meeting, the required 120% bond coverage ratio.

In conclusion, the City will likely be unable to maintain fiscal sustainability and solvency under the current rates.

	EYE 2015	EYE 2016	EYE 2017	EYE 2018	EYE 2019	EYE 2020
City of Madera		112 2010	112 2027			112 2020
Sewer Cash Flows						
Total Revenues	\$6,391,757	\$6,395,106	\$6,398,488	\$6,401,904	\$6,405,354	\$6,408,839
Total Operating Expenditures	\$4,557,308	\$4,219,606	\$4,376,210	\$4,539,013	\$4,708,275	\$4,884,270
Net Revenues w/o Debt	\$1,889,711	\$2,220,030	\$2,068,144	\$1,910,133	\$1,745,738	\$1,574,688
Total Debt Service	2,741,617	2,759,131	2,777,171	2,794,446	2,810,970	2,833,810
Net Cash Flow	(\$851,905)	(\$539,102)	(\$709,027)	(\$884,312)	(\$1,065,232)	(\$1,259,122)
Ending Balances	\$7,207,613	\$6,728,624	\$5,306,205	\$2,850,894	(\$40,153)	(\$2,805,273)
Target Balances	\$3,421,898	\$3,337,472	\$3,376,623	\$3,417,324	\$3,459,640	\$3,503,638
Debt Coverage	87%	103%	96%	88%	81%	73%

Table 4-10: WW Financial Plan Pro-forma at Current Rates

4.2 RECOMMENDATIONS AND PROPOSED FINANCIAL PLAN

4.2.1 Proposed Revenue Adjustments

To ensure that the WW Enterprise will have adequate revenues to fund operating expenses, capital expenditures, and comply with its bond covenants, it is recommended that the City implement phased in revenue adjustments for FY 2015-16 through FY 2019-20. These proposed revenue adjustments would occur on July 1st for each year of the five years, commencing on July 1, 2015. The proposed revenue adjustments would enable the Enterprise to meet their debt service obligations as well as complete the planned capital projects for the Study period while establishing and maintaining adequate reserves. The proposed adjustments will also allow the City to maintain compliance with its bond covenant of 120% coverage through the planning horizon.

4.2.2 Proposed Financial Plan

A pro forma of the proposed revenue requirements is shown in Table 4-11 below (Appendix "C" provides a detailed summary of Table 4-11).

The proposed revenue requirements account for the City's financial needs, meeting the target reserve balances, and achieving positive net revenues through the study period while addressing the City's O&M and CIP needs. Additionally, the WW Enterprise will satisfy its debt reserve requirement of 120% in future years.

	FYE 2015	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
City of Madera						
Sewer Cash Flows						
Total Revenues	\$6,391,757	\$6,922,627	\$7,501,006	\$8,131,169	\$8,893,680	\$9,732,131
Total Operating Expenditures	\$4,557,308	\$4,219,606	\$4,376,210	\$4,539,013	\$4,708,275	\$4,884,270
Net Revenues w/o Debt	\$1,889,711	\$2,747,550	\$3,170,662	\$3,639,399	\$4,234,064	\$4,897,980
Total Debt Service	2,741,617	2,759,131	2,777,171	2,794,446	2,810,970	2,833,810
Net Cash Flow	(\$851,905)	(\$11,581)	\$393,491	\$844,953	\$1,423,094	\$2,064,170
Ending Balances	\$7,207,613	\$7,256,915	\$6,941,317	\$6,227,638	\$5,851,194	\$6,456,087
Target Balances	\$3,421,898	\$3,337,472	\$3,376,623	\$3,417,324	\$3,459,640	\$3,503,638
Debt Coverage	87%	127%	147%	168%	196%	226%

Table 4-11: Ten-Year WW Enterprise Proposed Financial Plan - Pro-forma

4.2.3 Proposed Financial Outlook

The recommended revenue adjustments are only for the next five years and the figures below reflect FY 2015-16 through FY 2020-21. Figures 4-1, 4-2, 4-3 and 4-4 illustrate the projected five-year financial plan for the WW Enterprise. **Figure 4-1** displays the proposed and expected revenue adjustments through FY 2020-10. **Figure 4-2** illustrates the operating position of the WW Enterprise, where the expenses, inclusive of reserve funding, are shown by stacked bars and total revenues, at current rates and proposed rates, are shown by the horizontal trend lines. Proposed revenue is above the bars. **Figure 4-3** summarizes the projected CIP and its funding source of 100% PAYGO. **There is no debt shown because the proposed financial plan does not propose debt.** The ending total fund balance for the WW Enterprise – inclusive of both the operating and capital funds – is projected and shown in **Figure 4-4**, where the horizontal trend line indicates the target reserve balance as recommended by the reserve requirements discussed in Section 4.1.5.



Figure 4-1: Proposed and Expected WW Revenue Adjustments



Figure 4-2: Proposed WW Operating Financial Plan





Figure 4-4: Projected Ending Balances for Water Enterprise Funds



5. WASTEWATER SYSTEM – COST OF SERVICE AND RATE DESIGN

5.1 COST OF SERVICE

Government Code Section 54999 requires agencies to perform a cost of service analysis at least once every ten years. A cost of service analysis involves allocating the annual revenue requirements determined by the financial plan to the City's customer classes based on their proportionate use of the wastewater system, and contributions to the cost of its operations.

As a part of this study, RFC performed a cost of service analysis for the City's Wastewater Enterprise. The cost of service analysis involves the following steps:

- 1. Determination of the total costs to be recovered from rates (cost of service)
- 2. Determination of the loadings for each customer class to ensure costs are proportionally allocated to each customer class.
- 3. Allocation of the cost of service to the loading components (parameters)- Customer, Flow, Biochemical Oxygen Demand (BOD), and Total Suspended Solids (TSS)
- 4. Calculation of unit costs for the four components and the costs to serve the different user classes based on their loadings
- 5. Determination of rates for each user class

This section of the report discusses the allocation of operating and capital costs to the Customer, Flow, BOD and TSS components, the determination of unit rates, and the calculation of user class cost responsibility.

5.1.1 Existing Strength Testing Method

The City's strength is characterized by BOD and TSS. Many agencies used biochemical oxygen demand, as the basis for strength measurements. The reason for this is that discharge permits from regulatory agencies are often defined on the basis of BOD and TSS. Treatment plants are therefore designed to treat BOS and TSS, and as a result, customers are also characterized by BOD and TSS.

5.1.2 Cost of Service to be Allocated

The annual revenue requirement or cost of service to be recovered from wastewater charges includes operation and maintenance expenses and existing debt service. O&M expenses include costs directly related to the collection, treatment, and disposal of wastewater and maintenance of system facilities. Annual debt service represents the principal and interest payments on the outstanding debt used to fund improvements to the City's wastewater system.

The total FYE 2016 net cost of service to be recovered from the City's wastewater users is estimated at nearly \$6.9 million, of which \$4.2 million are operating costs and the remaining \$2.7 million are net capital costs including debt service costs. It is important to note that the net capital costs are annualized costs. Capital project costs are not considered an annual expense, as they are typically one-time costs funded through specific reserves. Actual project expenditures may vary considerably between years, which can lead to inconsistent cost of service results. To mitigate this, RFC uses cash

reserves to fund part of the capital project costs. As part of the financial plan, RFC worked with City Staff to determine the level of reserves necessary to continue funding capital projects for the length of the Study period. Revenues in excess of expenses are placed in a reserve for future use. The cost of service analysis is based upon the need to generate annual revenues adequate to meet the estimated annual revenue requirement. As part of the cost of service analysis, revenues from other sources except wastewater rates and charges are deducted from the appropriate cost elements. Additional deductions are made to reflect interest income and other non-operating income during FYE 2016. Adjustments are also made to account for cash balances to ensure adequate collection of revenue as shown in the operating cash flow.

5.1.3 Cost Allocation to Wastewater Components

The four main cost allocation components are Customer Service, Wastewater Flow, BOD, and TSS. BOD and TSS constitute the strength components of the wastewater discharge. The percentages used to allocate the FY 2016 cost of service to the wastewater components are derived based on the design method of allocation described in the Water Environment Federation's Manual of Practice No. 27. Under the design method of allocations, costs are assigned based on the components which dictate the design of each process. The allocation of costs to the four components involves:

- Detailed breakdown of O&M and Capital costs by function
- Allocation of the functional costs to the wastewater components

The net cost of providing service is determined by the total revenue requirements of the enterprise. In a cost of service analysis, the total cost of service is proportionally allocated to customer classes based on services rendered, which takes into account the flow (Flow parameter) and strength of such wastewater (BOD and TSS parameters).

The design method of allocations process is the method used in determining percentage values for each parameter by which wastewater costs are assigned. This methodology involves breaking down O&M and capital expenditures by individual expenses, categorizing such expenses into functional cost categories and then allocating the functional cost categories.

In order to allocate costs of service to the different customer classes, unit costs of service were calculated for flow, strength parameters, and total Equivalent Dwelling Units (EDUs) for fixed costs. The unit costs of service are developed by dividing the total annual costs allocated to each parameter by the total annual loadings or number of accounts for the respective parameter (Discharge, BOD, TSS, and customer service).

Table 5-1 summarizes the revenue requirements, by function, for Fiscal Year 2015-16.



Table 5-1: Revenue Requirements by Function – FY 2015-2016

5.1.4 Cost Allocations to Customer Classes

The next step in the cost of service is to further allocate the costs within each component to each customer class / category based on their proportional demand placed on the system.

In order to allocate costs of service to the different user classes, unit costs of service were developed for Flow, BOD, TSS, and customer service by dividing the total annual costs allocated to each component by the total annual loadings of the respective component

5.1.4.1 Wastewater Flow

RFC calculated the wastewater flow for each customer class and non-residential category. For the residential customer classes (SFR and MFR) the indoor needs of 65 gpcd (as identified in Section 3.3.1) was utilized to project the amount of total discharge from residential accounts or dwelling units. For residential customers, indoor usage reasonably estimates the wastewater discharge since the water being used indoors (showers, dishwashers, washing machines, toilets, etc) flows as wastewater (or discharge) into the wastewater system. The flow for SFR customers was calculated assuming a density of 3.8 persons per household whereas the flow for MFR customers was calculated assuming a density of 2.5 persons per household. As shown in Table 5-2, the total wastewater flow for SFR and MFR customers was 1,410,842 ccf and 244,913 ccf respectively.

Single-Family Residential				
Accounts/DU	11,645			
GPD	248			
Total Gallons	1,055,380,528			
Gallons per CCF	748.05			
SFR WW Flow (ccf)	1,410,842			
Multi-Fami	ly Residential			
DU	3,110			
GPD	161			
Total Gallons	183,207,534			
Gallons per CCF	748.05			
MFR WW Flow (ccf)	244,913			

Table 5-2: Total Residential Wastewater Flow

For those non-residential customers that had a metered water account, historical water consumption was analyzed to estimate the discharge by non-residential customer category.

Table 5-3 summarizes the wastewater flows by customer category and identifies each customer classes or categories relative share of the total wastewater discharge.

Tuble 5 51 Total Waste Water Thom by Sustemer Glass							
Description	Wastewater Flow	Allocation %					
Single-Family Residential	1,410,842	70.59%					
Multiple Family Residential	244,913	12.25%					
Non-Res Metered							
CAR DLR & Dept/Ret	78,484	3.93%					
Game	550	0.03%					
GROC/MOR	20,262	1.01%					
HOSP/CON	15,059	0.75%					
HOTEL/WO	8,374	0.42%					
LIB/CHUR	4,208	0.21%					
Lt. Manufacturing	43,794	2.19%					
PROF BLD	58,809	2.94%					
RESTAURANT	24,271	1.21%					
SCHOOLS	46,835	2.34%					
STRP/MAL	6,783	0.34%					
WRHSE	35,461	1.77%					
Total	1,998,645	100.00%					

Table 5-3: Total Wastewater Flow by Customer Class

Table 5-4 shows the \$1,283,856 of costs previously allocated to the wastewater flow component further allocated to each customer class or category.

Description	Allocation %	FY 2016
Single-Family Residential	70.59%	\$ 906,274
Multiple Family Residential	12.25%	\$ 157,323
Non-Res Metered		
CAR DLR & Dept/Ret	3.93%	\$ 50,415
Game	0.03%	\$ 353
GROC/MOR	1.01%	\$ 13,016
HOSP/CON	0.75%	\$ 9,673
HOTEL/WO	0.42%	\$ 5,379
LIB/CHUR	0.21%	\$ 2,703
Lt. Manufacturing	2.19%	\$ 28,132
PROF BLD	2.94%	\$ 37,777
RESTAURANT	1.21%	\$ 15,591
SCHOOLS	2.34%	\$ 30,085
STRP/MAL	0.34%	\$ 4,357
WRHSE	1.77%	\$ 22,779
Total	100 00%	\$ 1 283 856

Table 5-4: Wastewater Flow Component Cost Allocation by Customer Class

5.1.4.2 BOD

Next the loading for all customer classes was determined based on the City of Los Angeles and Sanitation Districts of Los Angeles County (LACSD)⁸ loading factors. LACSD factors are used by wastewater utilities statewide to approximate the respective loadings of a utility's customer classes, when large scale strength testing is either impractical or prohibitively expensive. The loading factor was applied to each customer classes estimated discharge (flow) in order to determine their proportional share of the BOD cost component. Table 5-5 summarizes the allocation by customer class.

Description	Allocation %	FY 2016	
Single-Family Residential	65.16%	\$	836,521
Multiple Family Residential	11.28%	\$	144,818
Non-Res Metered			
SCAR DLR & Dept/Ret	3.36%	\$	43,122
Game	0.04%	\$	483
GROC/MOR	2.66%	\$	34,137
HOSP/CON	0.64%	\$	8,182
HOTEL/WO	0.36%	\$	4,571
LIB/CHUR	0.17%	\$	2,233
Lt. Manufacturing	3.97%	\$	50,911
PROF BLD	2.49%	\$	31,954
RESTAURANT	3.98%	\$	51,156
SCHOOLS	2.07%	\$	26,631
STRP/MAL	0.62%	\$	7,911
WRHSE	3.21%	\$	41,224
Total	100.00%	\$	1,283,856

Table 5-5: BOD Component Cost Allocation by Customer Class

5.1.4.3 TSS

The TSS cost component was allocated using the same approach as the BOD component allocation and was also based on the LACSD factors. Table 5-6 summarizes the TSS component allocation by customer class.

Table 5-6: TSS Component Cost Allocation by Customer Class

Description	Allocation %	FY 2	016
Single-Family Residential	66.55%	\$	563,714
Multiple Family Residential	11.42%	\$	96,752
Non-Res Metered			
SCAR DLR & Dept/Ret	3.72%	\$	31,528
Game	0.06%	\$	484
GROC/MOR	2.81%	\$	23,784
HOSP/CON	0.71%	\$	6,010
HOTEL/WO	0.39%	\$	3,303
LIB/CHUR	0.19%	\$	1,630
Lt. Manufacturing	3.28%	\$	27,760
PROF BLD	2.75%	\$	23,298
RESTAURANT	2.52%	\$	21,368
SCHOOLS	2.43%	\$	20,616
STRP/MAL	0.51%	\$	4,299
WRHSE	2.65%	\$	22,478
Total	100.00%	\$	847,026

⁸ See Appendix D for loading factors.

5.1.4.4 Customer Service / Accounts

All fixed costs were allocated to the customer service component which were then allocated equally over each account or dwelling unit. Customer classes with more accounts received a larger portion of the customer service costs. This is reasonable since every account has access to customer services and each account receives a bill, irrespective of the demand such accounts place on the system. Table 5-7 summarizes the allocation of customer service costs to each customer class or category.

Description	Allocation %	FY 2016	
Single-Family Residential	83.33%	\$ 1	,848,760
Multiple Family Residential	14.51%	\$	321,965
Non-Res Metered			
SCAR DLR & Dept/Ret	0.94%	\$	20,956
Game	0.02%	\$	476
GROC/MOR	0.08%	\$	1,746
HOSP/CON	0.04%	\$	953
HOTEL/WO	0.02%	\$	476
LIB/CHUR	0.06%	\$	1,270
Lt. Manufacturing	0.14%	\$	3,175
PROF BLD	0.34%	\$	7,620
RESTAURANT	0.21%	\$	4,763
SCHOOLS	0.07%	\$	1,588
STRP/MAL	0.05%	\$	1,111
WRHSE	0.16%	\$	3,651
Total	100.00%	\$ 2	218.512

Table 5-7: Customer Service Component Cost Allocation by Customer Class

5.1.4.5 Customer Class Allocation Summary

The allocations of costs between customer classes is summarized in Table 5-8. Table 5-8 indicates the proportionate share of costs allocated to each customer class, which will be recovered via the rates designed for that class.

Description	W All	W Flow location	BOD	Allocation	TSS A	llocation	Cu S All	stomer ervice ocation	To Re	tal Revenue quirements
Single-Family Residential	\$	906,274	\$	836,521	\$	563,714	\$	1,848,760	\$	4,155,269
Multiple Family Residential	\$	157,323	\$	144,818	\$	96,752	\$	321,965	\$	720,858
Non-Res Metered										
SCAR DLR & Dept/Ret	\$	50,415	\$	43,122	\$	31,528	\$	20,956	\$	146,021
Game	\$	353	\$	483	\$	484	\$	476	\$	1,796
GROC/MOR	\$	13,016	\$	34,137	\$	23,784	\$	1,746	\$	72,683
HOSP/CON	\$	9,673	\$	8,182	\$	6,010	\$	953	\$	24,818
HOTEL/WO	\$	5,379	\$	4,571	\$	3,303	\$	476	\$	13,729
LIB/CHUR	\$	2,703	\$	2,233	\$	1,630	\$	1,270	\$	7,836
Lt. Manufacturing	\$	28,132	\$	50,911	\$	27,760	\$	3,175	\$	109,978
PROF BLD	\$	37,777	\$	31,954	\$	23,298	\$	7,620	\$	100,649
RESTAURANT	\$	15,591	\$	51,156	\$	21,368	\$	4,763	\$	92,878
SCHOOLS	\$	30,085	\$	26,631	\$	20,616	\$	1,588	\$	78,920
STRP/MAL	\$	4,357	\$	7,911	\$	4,299	\$	1,111	\$	17,678
WRHSE	\$	22,779	\$	41,224	\$	22,478	\$	3,651	\$	90,132
Total	\$	1.283.856	\$	1.283.856	\$	847.026	\$	2.218.512		\$ 5.633.250

Table 5-8: Customer Class Allocations

5.2 PROPOSED RATE STRUCTURE

The final step in the rate process is to determine the rates for each customer class. As mentioned above, the proposed rate structure consists of a monthly flat rate for residential customers, a monthly customer service charge plus a per ccf discharge rate for metered non-residential customers, and maintaining the current structure of a monthly flat rate for non-metered non-residential customers.

5.2.1 Single-Family Residential Monthly Charge

The single-family residential flat rate was determined by summing all of the costs allocated to the class and dividing by the number of single-family residential units, as shown in Table 5-9.

	 •
Description	FYE 2016
Flow Related Costs	\$ 906,274
Bio-Chemical Oxygen Demand (BOD) Costs	836,521
Suspendable Solids (SS) Costs	563,714
Customer Service Costs	1,848,760
Residential EDUs	11,645
Monthly Charge	29.74

Table 5-9: SFR Monthly WW Rate

5.2.2 Multi-Family Residential Monthly Charge

The multi-family residential flat rate was determined by summing all of the costs allocated to the class and dividing by the number of multi-family residential units, as shown in Table 5-10.

Table 5-10: MFR Monthly WW	Rate	
Description		FYE 2016
Flow Related Costs	\$	157,323
Bio-Chemical Oxygen Demand (BOD) Costs		144,818
Suspendable Solids (SS) Costs		96,752
Customer Service Costs		321,965
Residential EDUs		3,110
Monthly Charge		19.32

5.2.3 Metered Non-Residential Rates

5.2.3.1 Non-Residential Monthly Customer Service Charge

The non-residential monthly customer service charge was determined by dividing the customer service allocation to non-residential customer by the total number of accounts (EDU's), as shown in Table 5-11.

Table 5-11: Non-Residential Monthly Service Charge				
Description		FYE 2016		
Annual Customer Service Allocation	\$	47,787		
Total Customer EDUs		301		
Customer Service Charge (Monthly)	\$	13.23		

5.2.3.2 Non-Residential Discharge Rates (\$/ccf)

The non-residential discharge rates were determined by summing the flow, BOD, and TSS costs for each non-residential category and dividing by the projected discharge for that category. Tables 5-12 through 5-23 show this calculation for each of the 12 categories.

1 /	C	,
Description		FYE 2016
Flow Related Costs	\$	50,415
Bio-Chemical Oxygen Demand (BOD) Costs	\$	43,122
Suspendable Solids (SS) Costs	\$	31,528
Projected Discharge		78,484
Cost per Unit of Flow	\$	1.60

Table 5-12: "CAR DLR & Dept/Ret" Discharge Rate

Table 5-13: "Game" Discharge Rate

Description	FYE 2016
Flow Related Costs	\$ 353
Bio-Chemical Oxygen Demand (BOD) Costs	\$ 483
Suspendable Solids (SS) Costs	\$ 484
Projected Discharge	550
Cost per Unit of Flow	\$ 2.41

Table 5-14: "Groc/Mor" Discharge Rate

,	<u> </u>	
Description		FYE 2016
Flow Related Costs	\$	13,016
Bio-Chemical Oxygen Demand (BOD) Costs	\$	34,137
Suspendable Solids (SS) Costs	\$	23,784
Projected Discharge		20,262
Cost per Unit of Flow	\$	3.51

Table 5-15: "Hosp/Con" Discharge Rate

Description	FYE 2016
Flow Related Costs	\$ 9,673
Bio-Chemical Oxygen Demand (BOD) Costs	\$ 8,182
Suspendable Solids (SS) Costs	\$ 6,010
Projected Discharge	15,059
Cost per Unit of Flow	\$ 1.59

Table 5-16: "Hotel/W" Discharge Rate

Description	FYE 2016
Flow Related Costs	\$ 5,379
Bio-Chemical Oxygen Demand (BOD) Costs	\$ 4,571
Suspendable Solids (SS) Costs	\$ 3,303
Projected Discharge	8,374
Cost per Unit of Flow	\$ 1.59

Table 5-17: "Lib/Chur" Discharge Rate

Description	FYE 2016
Flow Related Costs	\$ 2,703
Bio-Chemical Oxygen Demand (BOD) Costs	\$ 2,233
Suspendable Solids (SS) Costs	\$ 1,630
Projected Discharge	4,208
Cost per Unit of Flow	\$ 1.57

Table 5-18: "Lt. Manufacturing" Discharge Rate

Description	FYE 2016
Flow Related Costs	\$ 28,132
Bio-Chemical Oxygen Demand (BOD) Costs	\$ 50,911
Suspendable Solids (SS) Costs	\$ 27,760
Projected Discharge	43,794
Cost per Unit of Flow	\$ 2.44

Table 5-19: "Prof Bld" Discharge Rate

Description	FYE 2016
Flow Related Costs	\$ 37,777
Bio-Chemical Oxygen Demand (BOD) Costs	\$ 31,954
Suspendable Solids (SS) Costs	\$ 23,298
Projected Discharge	58,809
Cost per Unit of Flow	\$ 1.59

Table 5-20: "Rest In" Discharge Rate

Description	FY 2016
Flow Related Costs	\$ 15,591
Bio-Chemical Oxygen Demand (BOD) Costs	\$ 51,156
Suspendable Solids (SS) Costs	\$ 21,368
Projected Discharge	24,271
Cost per Unit of Flow	\$ 3.64

Table 5-21: "Schools" Discharge Rate

Description	FYE 2016
Flow Related Costs	\$ 30,085
Bio-Chemical Oxygen Demand (BOD) Costs	\$ 26,631
Suspendable Solids (SS) Costs	\$ 20,616
Projected Discharge	46,835
Cost per Unit of Flow	\$ 1.66

Table 5-22: "Strp Mal" Discharge Rate

Description	FYE 2016
Flow Related Costs	\$ 4,357
Bio-Chemical Oxygen Demand (BOD) Costs	\$ 7,911
Suspendable Solids (SS) Costs	\$ 4,299
Projected Discharge	6,783
Cost per Unit of Flow	\$ 2.45

Table 5-23: "Wrhse" Discharge Rate

Description	FYE 2016
Flow Related Costs	\$ 22,779
Bio-Chemical Oxygen Demand (BOD) Costs	\$ 41,224
Suspendable Solids (SS) Costs	\$ 22,478
Projected Discharge	35,461
Cost per Unit of Flow	\$ 2.44

5.2.3.3 Rate Summary

Rate per 1,000 lbs of BOD Rate per 1,000 lbs of TSS

Table 5-24 shows five years of proposed rates by customer class.

Table 5-24: Metered Residential and Non-Residential Monthly Rates

Residential Flat Rates	FYE 2016		FYE 2017	FYE 2018	FYE 2019	FYE 2020
Monthly Fixed Charge		\$29.74	\$32.42	\$35.33	\$38.87	\$42.75
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Multi-Residential Rates	FYE 2016		FYE 2017	FYE 2018	FYE 2019	FYE 2020
Monthly Fixed Charge		\$19.32	\$21.06	\$22.95	\$25.25	\$27.77
Non-Residential Rates	FYE 2016		FYE 2017	FYE 2018	FYE 2019	FYE 2020
Monthly Fixed Service Charge		\$13.23	\$14.43	\$15.72	\$17.30	\$19.02
Non-Residential Discharge Rates	FYE 2016		FYE 2017	FYE 2018	FYE 2019	FYE 2020
CAR DLR & Dept/Ret	\$1.60		\$1.74	\$1.90	\$2.09	\$2.30
Game	\$2.41		\$2.62	\$2.86	\$3.14	\$3.46
GROC/MOR	\$3.51		\$3.82	\$4.16	\$4.58	\$5.04
HOSP/CON	\$1.59		\$1.73	\$1.89	\$2.08	\$2.28
HOTEL/WO	\$1.59		\$1.73	\$1.89	\$2.07	\$2.28
LIB/CHUR	\$1.57		\$1.71	\$1.86	\$2.04	\$2.25
Lt. Manufacturing	\$2.44		\$2.66	\$2.90	\$3.19	\$3.51
PROF BLD	\$1.59		\$1.73	\$1.88	\$2.07	\$2.28
RESTAURANT	\$3.64		\$3.96	\$4.32	\$4.75	\$5.22
SCHOOLS	\$1.66		\$1.80	\$1.97	\$2.16	\$2.38
STRP/MAL	\$2.45		\$2.67	\$2.91	\$3.20	\$3.52
WRHSE	\$2.44		\$2.66	\$2.90	\$3.19	\$3.51
High Industrial Users ¹	FYE 2016	FYE 2017	FYE 2018	FYE <u>201</u>	9 FYE <u>20</u>	020
Rate per MG of FLOW	\$ 858.72	\$ 936.01	\$ 1,020.25	5 \$ 1,122.	27 \$ 1,234	1.50

1. The City currently does not have high industrial users, however these will be the applicable charges.

\$ 290.00 \$ 310.00 \$ 340.00 \$ 370.00 \$ 410.00

\$ 240.00 \$ 260.00 \$ 280.00 \$ 310.00 \$ 340.00

5.2.4 Non-Metered Non-Residential Flat Rates

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The City also has a number of accounts that are currently non-metered with approximately 509 Non-Residential accounts. The City's current billing method will remain intact, which varies based on type of account; however, the rates will be increased based on the five-year revenue requirements. As such, non-metered accounts will continue to recover approximately 12% of total revenue. Once these accounts are metered, their rates will be charged based on actual usage and the size of installed meter and the revenue generated by non-metered accounts will decrease as meter conversions occur. Table 5-24 shows five years of proposed flat monthly rates for each non-metered non-residential customer category.

Non-Metered									
Non-Residential Sewer Flat Rates	Units	Current Rates	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020		
CAR DLR and Dept/Ret SEWER USE/BLDG		\$12.13	\$13.22	\$14.41	\$15.71	\$17.28	\$19.01		
CAR SERV SEWER USE/BAYS \$		\$10.50	\$11.45	\$12.48	\$13.60	\$14.96	\$16.45		
GAME	GAMESEWER USE/BLDG/1000\$3GROC/MORSEWER USE/BLDG/1000\$2		\$40.09	\$43.70	\$47.63	\$52.39	\$57.63		
GROC/MOR			\$23.51	\$25.63	\$27.93	\$30.73	\$33.80		
HOSP/CON	SEWER USE/BEDS	\$10.10	\$11.01	\$12.00	\$13.08	\$14.39	\$15.83		
HOTEL/W	SEWER USE/ROOMS	\$22.43	\$24.45	\$26.65	\$29.05	\$31.95	\$35.15		
HOTEL/WO	SEWER USE/ROOMS	\$13.14	\$14.32	\$15.61	\$17.02	\$18.72	\$20.59		
LIB/CHUR	SEWER USE/SEATING	\$0.32	\$0.35	\$0.38	\$0.41	\$0.46	\$0.50		
OPN/AIR	SEWER USE/SEATING	\$0.08	\$0.09	\$0.09	\$0.10	\$0.11	\$0.12		
PROF BLD	SEWER USE/BLDG/1000	\$24.26	\$26.44	\$28.82	\$31.42	\$34.56	\$38.02		
REST IN	SEWER USE/SEATING	\$4.48	\$4.88	\$5.32	\$5.80	\$6.38	\$7.02		
REST OUT	SEWER USE/BLDG/1000	\$44.81	\$48.84	\$53.24	\$58.03	\$63.83	\$70.22		
SCHOOLS	SEWER USE/STUDENTS	\$1.01	\$1.10	\$1.20	\$1.31	\$1.44	\$1.58		
STRP/MAL	SEWER USE/BLDG/1000	\$26.27	\$28.63	\$31.21	\$34.02	\$37.42	\$41.16		
WRHSE	SEWER USE/BLDG/1000	\$1.63	\$1.78	\$1.94	\$2.11	\$2.32	\$2.55		

Table 5-25: Non-Metered Non-Residential Flat Monthly Rates by Category

APPENDIX A – NON-METERED CURRENT RATES

Non-Metered		
Non-Residential Sewer Flat Rates	Units	Current Rates
CAR DLR and Dept/Ret	SEWER USE/BLDG/1000	\$12.13
CAR SERV	SEWER USE/BAYS	\$10.50
GAME	SEWER USE/BLDG/1000	\$36.78
GROC/MOR	SEWER USE/BLDG/1000	\$21.57
HOSP/CON	SEWER USE/BEDS	\$10.10
HOTEL/W	SEWER USE/ROOMS	\$22.43
HOTEL/WO	SEWER USE/ROOMS	\$13.14
LIB/CHUR	SEWER USE/SEATING	\$0.32
OPN/AIR	SEWER USE/SEATING	\$0.08
PROF BLD	SEWER USE/BLDG/1000	\$24.26
REST IN	SEWER USE/SEATING	\$4.48
REST OUT	SEWER USE/BLDG/1000	\$44.81
SCHOOLS	SEWER USE/STUDENTS	\$1.01
STRP/MAL	SEWER USE/BLDG/1000	\$26.27
WRHSE	SEWER USE/BLDG/1000	\$1.63

APPENDIX B – DETAILED CIP

Proiect #	Water System Improvements - Scenario 3			FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
W-06	System Upgrades. H St to Madera Ave	Expansion	\$265.000		\$0	\$0	\$10.000	\$255.000				
W-08	Water Main Upgrades - 10th St.	Expansion	\$780.000	_	\$0	\$0	\$10,000	\$770.000				
W-09	System Upgrade - River Crossing @ Gateway	Expansion	\$205.000	\$20.000	\$185.000		+,	÷···)				
W-17	Well #27 - Pipeline Outfall Ext., Almond/Winerv	Expansion	\$575.000	\$0	\$45.000	\$530.000						
W-03	Water Main Ungrades - Locations 1-12	Expansion	\$850,000	, vo	<i>Q</i> 10,000	\$850,000						
W-26	Water Tower Demolition	Deficiency/R&R	\$300,000	-	\$35,000	\$265,000						
W-22	Water Tower Bernaring	Deficiency/R&R	\$500,000	-	\$1,500,000	<i>4203,000</i>						
W-20	Replace numps at well No. 28 at Stony & Tozer Road	Deficiency/R&R	\$500,000	-	<i>Ş</i> 1,500,000	\$500,000						
W-04	Water Main Ungrades - Locations 13-23	Expansion	\$1 500,000	_		\$1 500,000						
Mactor Pla	n Recommendations	Expansion	\$1,500,000	_		<i>Ş</i> 1,300,000						
FF-1	Manle St Dine - From Dine St to Noble St	Deficiency/R&R	¢52 712		\$53 713							
	Rotan Ave Ding From Howard Pd to Dlumas St	Deficiency/R&R	\$10,140	\$0	\$40,140							
FF-2	Religion and the superior and the superior 220 ft west	Deficiency/R&R	\$40,145	\$0	\$40,149							
	Olivo Avo Dino From Dino St to Noblo St	Deficiency/R&R	\$17,904	\$0	\$17,904 \$52,671							
	Dive Ave Pipe From Pine St to Noble St	Deficiency/R&R	\$55,071	\$0	\$55,071				¢6 617			
PINW-29	Pipe Aviation Dr Crossing Airport Dr to connect 12-Inch lines	Deficiency/R&R	\$0,017	\$0					\$0,017			
	Pipe Aviation Dr Connect existing 12-inch lines in Aviation Dr hear Faicon D	Deficiency/R&R	\$12,499	ŞU				¢0	\$12,499	¢04.000		
PSW-45	Pipe, Almond Ave, From Pine St to Stadium Rd	Deficiency/R&R	\$276,000					ŞU	\$44,000	\$94,000		
PSW-50	Pipe, Pecan Ave, From approx 480 ft w/o Monterey St to Monterey St	Deficiency/R&R	\$35,290	\$10,587					650 202			
PSE-3	Pipe, Pecan Ave, From Madera Ave to approx 760 ft e/o Madera Ave	Deficiency/R&R	\$55,876						\$50,283			
GW-1	Well, Well No. 37, Granada n/o Cleveland	Deficiency/R&R	\$1,012,000	\$1,012,000	¢0			¢500.000	Ć4 544 000			
GW-2	Well, Well No. 35, Ellis St approx 9/0 ft w/o Chapin St	Deficiency/R&R	\$2,011,000	\$0	ŞÜ	A.00.000		\$500,000	\$1,511,000			
GW-3	Well, Well No. 36, Hwy 145 and Indigo Dr	Deficiency/R&R	\$2,011,000			\$120,660						
	Study of Local Hydrology and Well Performancelissues (AECOM)	Deficiency/R&R	\$20,000	\$20,000								
	Retrofit of 4 wells with Variable Frequency Drives	Deficiency/R&R	\$160,000	\$160,000								
T-1	Above Ground Storage 7 MG Tank at Ave. 17 & RD. 27	Deficiency/R&R	\$9,648,493	_	\$288,630	\$226,781	\$147,260	\$5,943,425	\$3,042,397			
PS-1	Pump Station for Tank at Ave. 17 & Road 27	Deficiency/R&R	\$6,731,507	_	\$201,370	\$158,219	\$102,740	\$4,146,575	\$2,122,603			
PNE-4	Pipe, Lake Street (Road 27) 24" from Ellis to Avenue 17	Deficiency/R&R	\$700,000	_	\$0	\$60,000	\$25,000	\$615,000				
PNE-3	12" Lake Martin to Avenue 17	Deficiency/R&R	\$93,357	\$0	\$0	\$9,336	\$3,734	\$80,287				
	Water Distribution System Conditon Assessment Study	Deficiency/R&R	\$300,000	\$300,000								
	Sycamore 7th to Clinton replace 2" Galvanized line. 500 feet	Deficiency/R&R	\$75,000	\$0	\$75,000							
	Valve replacement Down town area 26 valves	Deficiency/R&R	\$130,000	\$0	\$130,000							
	Fourth & Gateway Valve replacement and 12 " line to Well 22	Deficiency/R&R	\$250,000					\$30,000	\$220,000			
	Meter Shop	Deficiency/R&R	\$300,000		\$50,000	\$250,000						
	Average Annual R&R CIP	Deficiency/R&R			\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$4,000,000	\$4,000,000	\$4,000,000	\$4,000,000
	Water Feasibility Project - New Water Supply	Deficiency/R&R		\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000
	Total Scenario 3 C	P		\$1,672,587	\$4,825,437	\$6,619,996	\$2,448,734	\$14,490,287	\$11,159,399	\$4,244,000	\$4,150,000	\$4,150,000
Sewer Sys	stem Improvements - Scenario 2			FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Sewerl	Main, Manhole Covers D	eficiency/R&R			\$10,000							
Schnoo	r Ave. Trunk Sewer System D	eficiency/R&R			\$40,000	\$565,000						
Pipe, W	essmith Way, 190ft e/o Lake St (Road 27) to Lake St (Road 27)	eficiency/R&R	45600		\$24,219							
Pipe, SI	nerwood Way, Lake St (Road 27) to 220ft w/o Nebraska Ave	eficiency/R&R	\$463,200		\$246,016							
Lift Station, Fairgrounds Lift Station Pump Capacity Upgrade Defic		eficiency/R&R	\$450,000		\$288,000							
WWTP	Name Plate Defeciencies - Influent Lift Station Expansion	eficiency/R&R	\$2.600.000			\$0	\$0					
WWTP Name Plate Defeciencies - Sludge Thickener Class B solids Deficie		eficiency/R&R	\$3,500,000					\$200.000	\$3,300,000			
Airport Lift Station replacement of pumps		eficiency/R&R	\$150.000			\$20.000	\$130.000	,	, ,			
Mainberry between Howard & Sunset Relocate, 2.800 feet Deficiency/R&R		eficiency/R&R	\$420.000			\$20.000	\$400.000					
Double	tree between Westberry & Liberty Lane Replace laterals 700 Feet	eficiency/R&R	\$50,000			\$50,000	÷ 100,000					
Sewer System Condition Assessment and Rebabilitation Program		eficiency/R&R	332000		\$114,000	\$218,000						
Sewer line Video Inspection Services Dofici		eficiency/R&R	613000		911 9 ,000	\$613,000						
Annual Depreciation Repair		eficiency/R&R	3473855			Ç013,000	\$1 1/1 285	\$1 1/1 285	\$1 1/1 285	\$2 282 571	\$7 282 571	\$2 282 571
Annual		enciency/non	2423035	ćn l	\$722.225	\$1.496.000	\$1,141,200 \$1,671,29F	\$1 241 29F	\$4 441 29E	\$2,202,3/1	\$2,202,371	\$2,202,371
				ŞU	\$122,235	Ş1,400,000	\$1,0/1,205	ş1,341,265	94,441,265	ş2,202,5/1	ş2,202,3/1	<i>32,202,31</i>
APPENDIX C - FINANCIAL PRO FORMA

Water Enterprise Fund			FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Povon							
Reven	Revenues from Curr	ent Rates	\$5,322,286	\$5,322,286	\$5,322,286	\$5,322,286	\$5,322,286
	Base Rate User Char	ges	1,487,109	1,487,109	1,487,109	1,487,109	1,487,109
	Flat Rate User Charg	es	969,301	969,301	969,301	969,301	969,301
	Commodity User Ch	arges	2,865,876	2,865,876	2,865,876	2,865,876	2,865,876
	Revenue Adjustmer	nts					
	%	Months					
FYE 2016	30.0%	August	\$1,463,629	\$1,596,686	\$1,596,686	\$1,596,686	\$1,596,686
FYE 2017	30.0%	July		\$2,075,692	\$2,075,692	\$2,075,692	\$2,075,692
FYE 2018	20.0%	July			\$1,798,933	\$1,798,933	\$1,798,933
FYE 2019	10.0%	July				\$1,079,360	\$1,079,360
FYE 2020	3.0%	July					\$356,189
FYE 2021	4.0%	July					
FYE 2022	4.0%	July					
FYE 2023	4.0%	July					
FYE 2024	4.0%	July	\$1,463,629	\$3 672 377	\$5 471 310	\$6,550,670	\$6,906,858
			<i><i></i></i>	<i>\$3,072,377</i>	<i>Ş</i> 3,471,310	<i>\$6,336,010</i>	<i>\$0,500,050</i>
Reven	nues						
Total Revenue from Rates			\$6,785,915	\$8,994,663	\$10,793,596	\$11,872,956	\$12,229,144
	Other Revenues			\$172,826	\$174,554	\$176,300	\$178,063
Total Revenues			\$6,957,029	\$9,167,489	\$10,968,150	\$12,049,255	\$12,407,207
0&M	Expenditures						
	Dept 709: Water Util	ity - Billing/Collections	\$684,556	\$685,327	\$686,121	\$686,939	\$687,782
	Dept 711: Water Util	ity - Maint./Ops.	3,655,748	3,807,888	3,966,731	4,132,585	4,305,773
	Dept 713: Water Util	ity - Quality Control	873,516	908,968	945,947	984,520	1,024,760
Total	Operating Expenditu	res	\$5,213,821	\$5,402,184	\$5,598,799	\$5,804,044	\$6,018,315
Net Revenues w/o Debt			\$1,743,209	\$3,765,305	\$5,369,351	\$6,245,211	\$6,388,892
New	Debt						
Proposed Debt Issue			\$0	\$0	\$0	\$0	\$27,272,727
Debt Proceeds			\$0	\$0	\$0	\$0	\$24,000,000
Debt Se	ervice						
Bond Trustee Fees			\$1,200	\$1,200	\$1,200	\$1,200	\$1,200
Amortization Expense - 2006 bond			\$3,500	\$3,500	\$3,500	\$3,500	\$3,500
Madera PFA Water & Wastewater Revenue B			\$153,862	\$153,769	\$153,583	\$153,806	\$153,568
Madera PFA Water Revenue Bonds, Series 20			\$781,113	\$779,513	\$782,513	\$778,063	\$783,463
Bond Trustee Fees		\$3,700	\$3,700	\$3,700	\$3,700	\$3,700	
	Amortization Expense-2010 bond		\$15,400	\$15,400	\$15,400	\$15,400	\$15,400
Proposed Debt Issue		\$0	\$0	\$0	\$0	\$1,774,130	
Total Debt Service			\$958,775	\$957,082	\$959,895	\$955,668	\$2,734,961
Capital Expenditures			¢1 710 252	¢1 976 715	¢4.049.202	¢2 691 610	¢1E 164 100
Kepair & Replacement Costs			\$1,719,352	\$4,876,715	\$4,048,292	\$2,081,519	\$15,164,100
NET CA	SH FLOWS		\$784,434	\$2,808,224	\$4,409,456	\$5,289,543	\$3,653,931
BEGINNING BALANCES			\$6,791,393	\$5,901,354	\$3,857,011	\$4,245,660	\$6,906,985
Plus: Debt Proceeds			\$0	\$0	\$0	\$0	\$24,000,000
Plus: Interest Earnings			\$44,878	\$24,148	\$27,485	\$53,301	\$0
Less: R&R CIP			\$1,719,352	\$4,876,715	\$4,048,292	\$2,681,519	\$15,164,100
ENDING	G BALANCES		\$5,901,354	\$3,857,011	\$4,245,660	\$6,906,985	\$19,396,816
TARGET BALANCES		\$8,188,225	\$8,235,316	\$8,284,470	\$8,335,781	\$8,389,348	
Covera	ge Target		120%	120%	120%	120%	120%
			182%	393%	559%	653%	234%
200000			/0	000/0		000/0	

Sewer Ca	ash Flows			FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Revenue	s							
Revenues under Existing Rates				\$5,861,340	\$5,861,340	\$5,861,340	\$5,861,340	\$5,861,340
	Revenue A	Adjustments						
Year	%		Months					
FY 2016	9.0%	August	11	483,561	527,521	527,521	527,521	527,521
FY 2017	9.0%	July	12		574,997	574,997	574,997	574,997
FY 2018	9.0%	July	12			626,747	626,747	626,747
FY 2019	10.0%	July	12				759,061	759,061
FY 2020	10.0%	July	12					834,967
FY 2021	5.0%	July	12					
FY 2022	5.0%	July	12					
FY 2023	4.0%	July	12					
FY 2024	4.0%	July	12					
			Total Revenue Adjustments:	\$483,561	\$1,102,518	\$1,729,265	\$2,488,326	\$3,323,292
Revenue	۰							
Total Revenue from Rates				\$6,344,901	\$6.963.858	\$7.590.605	\$8,349,666	\$9,184,632
	Other Rev	enues		533.766	537.148	540.564	544.014	547,499
	Total Rev	enues		\$6,878,666	\$7,501,006	\$8,131,169	\$8,893,680	\$9,732,131
Expendit	ures							
	Dept : Unc	lesignated Activ	vity	-	-	-	-	-
	Dept 502: Sewer Utility - Finance Department				339,313	349,492	359,977	3/0,776
Dept 508: Sewer Utility - Maint./Ops.				1,424,300	1,482,246	1,542,690	1,605,747	1,6/1,534
Dept 509: Sewer Utility - W.W.I.P.				2,421,346	2,508,785	2,599,588	2,693,892	2,791,840
Dept 510: Sewer Utility - Billing/Collections				44 520	45.966	0	48.650	0 F0 110
Total Operating Expanditures			44,530	40,000 \$4 376 210	47,242 \$4 530 013	48,009	\$1 991 270	
	iotai opei			<i>,213,000</i>	<i>,,,,,,,</i> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<i>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</i>	<i>Ş¬,700,273</i>	<i>,,,,,,,,,,,,</i> ,,,,,,,,,,,,,,,,,,,,,,,,
	Net Rever	ues w/o Debt		\$2,747,550	\$3,170,662	\$3,639,399	\$4,234,064	\$4,897,980
Debt Ser	vice							
Amortization Expense			23,297	23,995	24,715	25,457	26,220	
	Bond 2006-Trustee Fees			5,665	5,835	6,010	6,190	6,376
Madera PFA Water & Wastewater Revenue Bonds, Series 2006			\$2,157,801	\$2,157,801	\$2,156,494	\$2,153,880	\$2,157,007	
Loan Fees-IBank Ioan			27,084	27,896	28,733	29,595	30,483	
	Interest Expense-IBank Ioan			259,069	266,841	274,846	283,091	291,584
	Principal Repayment-IBank Ioan			286,216	294,803	303,647	312,756	322,139
	Total Dabi	Service		2 750 121	-	2 704 446	2 910 070	2 022 010
	Total Debi	Jervice		2,735,131	2,777,171	2,734,440	2,810,970	2,033,010
Capita	al Expendit	ures						
-	Repair & R	eplacement Co	osts	\$0	\$766,442	\$1,608,494	\$1,845,234	\$1,510,505
	Net Cash F	low		(\$11,581)	\$393,491	\$844,953	\$1,423,094	\$2,064,170
	Destant	Delever		67 207 C42	67 256 065	66 044 247	66 337 630	ĆE 054 404
	Beginning Balances			\$7,207,613	\$7,256,915	\$6,941,317	\$6,227,638	\$5,851,194
	Plus: Debt Proceeds			ېل 460 موم	ېل د د ج ک	ېل د ۹۵ مد ک	ېل د د د د د	ېل د د د د د
	Plus: Interest Earnings			۵۵4,00¢	307,302 766 AAD	249,803 1 609 404	243,090	ې۲۲,۲۲ ۲ ۲۵۵ ۲۵۲
	Less: K&K CIP			57 256 01F	\$6 9/1 217	1,008,494 \$6 777 629	1,040,204	1,310,305
	Target Ral	ances		\$3 337 177	\$3,376,672	\$3 417 37/	\$3,6 31,134 \$3,459,640	\$3 503 639
	i ai get Dali			۲ ۱۳ , ۲۵, ۵۵, ۵۶	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	43,417,324	,u+U,-U2,U+U	٥د٥,د٥د,دې
	Coverage	Target		120%	120%	120%	120%	120%
	Debt Coverage			127%	147%	168%	196%	226%

APPENDIX D – LOADING FACTORS

DESCRIPTION	UNIT OF MEASURE	FLOW (gpd)	COD (lb/day)	SOLIDS (Ib/day)	COD (mg/L)	BOD (mg/L) =COD*0.6	SS (mg/L)
RESIDENTIAL							
Single Family Home	Dwelling Unit	260	1.22	0.59	563	338	272
Condominiums	Dwelling Unit	195	0.92	0.44	566	339	271
Multi-Unit Residential	Dwelling Unit	156	0.73	0.35	561	337	269
Mobile Home Parks	No. of Spaces	156	0.73	0.35	561	337	269
COMMERCIAL							
Hotel/Motel/Rooming House	Room	125	0.54	0.28	518	311	269
Store	1,000 sq ft	100	0.43	0.23	516	309	276
Supermarket	1,000 sq ft	150	2.00	1.00	1599	959	799
Shopping Center	1,000 sq ft	325	3.00	1.17	1107	664	432
Regional Mall	1,000 sq ft	150	2.10	0.77	16/9	1007	616
Office Building Medical Dontal Veterinary	1,000 sq ft	200	0.86	0.45	516	309	270
Clinic or Building	1,000 sq ft	300	1 20	0.68	516	300	272
Restaurant	1 000 sa ft	1 000	16.68	5.00	2000	1200	600
Indoor Theatre	1,000 sq ft	125	0.54	0.28	518	311	269
Car Wash Tunnel - No Recyclin	1.000 sq ft	3.700	15.86	8.33	514	308	270
Car Wash Tunnel - Recycling	1,000 sq ft	2,700	11.74	6.16	521	313	274
Car Wash - Wand	1,000 sq ft	700	3.00	1.58	514	308	271
Bank, Credit Union	1,000 sq ft	100	0.43	0.23	516	309	276
Service Shop,							
Vehicle Maintenance &	1,000 sq ft						
Repair Shop		100	0.43	0.23	516	309	276
Animal Kennels	1,000 sq ft	100	0.43	0.23	516	309	276
Gas Station	1,000 sq ft	100	0.43	0.23	516	309	276
Auto Sales	1,000 sq ft	100	0.43	0.23	516	309	276
Wholesale Outlet	1,000 sq ft	100	0.43	0.23	516	309	276
Nursery/Greenhouse	1,000 sq ft	25	0.11	0.06	528	317	288
Manufacturing	1,000 sq ft	200	1.86	0.70	1115	669	420
Light Manufacturing	1,000 sq ft	25	0.23	0.09	1103	662	432
Lumber Yard	1,000 sq ft	25	0.23	0.09	1103	662	432
	1,000 sq ft	25	0.25	0.09	1105	662	452
Drive-in Theatre	1,000 sq ft	20	0.23	0.05	540	324	300
Night Club	1.000 sq ft	350	1.50	0.79	514	308	271
Bowling/Skating	1.000 sq ft	150	1.76	0.55	1407	844	440
Club& Lodge Halls	1,000 sq ft	125	0.54	0.27	518	311	259
Auditorium, Amusement	1,000 sq ft	350	1.50	0.79	514	308	271
Golf Course and Park							
(Structures and	1,000 sq ft						
Improvements)		100	0.43	0.23	516	309	276
	Sites, Slips, or						
Campground, Marina,	Spaces						
Recreational Vehicle Park		55	0.34	0.14	741	445	305
Convalescent Home	Bed	125	0.54	0.28	518	311	269
Horse Stables	Stalls	25	0.23	0.09	1103	662	432
Laundromat Mortuory Europeal Home	1,000 sq ft	3,825	16.40	8.61	514	308	2/0
Hoalth Spa Cympasium	1,000 SQ 11	100	1.55	0.67	1595	957	005
w/Showers	1,000 sq ft	600	2 58	1 35	516	309	270
Health Spa. Gymnasium		000	2.50	1.55	510	505	270
w/o Showers	1,000 sq ft	300	1.29	0.68	516	309	272
Convention Center,	Average	500	1.20	0.00	510	505	272
Fairground, Racetrack,	Daily						
Sports Stadium/Arena	Attendance	10	0.04	0.02	480	288	240
INSTITUTIONAL							
College/University	Student	20	0.09	0.05	540	324	300
Private School	1,000 sq ft	200	0.86	0.45	516	309	270
Library, Museum	1,000 sq ft	100	0.43	0.23	516	309	276
Post Office (Local)	1,000 sq ft	100	0.43	0.23	516	309	276
Post Office (Regional)	1,000 sq ft	25	0.23	0.09	1103	662	432
Church	1,000 sq ft	50	0.21	0.11	504	302	264

Source: LACSD Revenue Program Report pg. 21-22

lb/day to mg/L conversion

=(lb/day)*(1,000,000/gpd)*(1/8.34)

*Duplex, Triplex, and Fourplex are now considered "Multi-Unit Residential"

when modeling be careful to note the number of units listed for these types of residences