
CITY OF CALISTOGA



WASTEWATER RATE STUDY FINAL REPORT

February 20, 2018



BARTLE WELLS ASSOCIATES
INDEPENDENT PUBLIC FINANCE ADVISORS

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February 20, 2018

Dylan Feik
City Manager
City of Calistoga
1232 Washington Street
Calistoga, CA 94515

Re: Wastewater Rate Study

Bartle Wells Associates (BWA) is pleased to submit to the City of Calistoga (City) the attached Wastewater Rate Study. The results of the of the study are a product of Ad-Hoc committee review composed of BWA, Staff and Council members and were presented to the Calistoga City Council at its meeting on November 7, 2017.

This study presents BWA's analysis of the operating and non-operating expenses of the City's wastewater fund and provides five-year cash flow projections and rates. The primary purpose of this study was to analyze the City's wastewater enterprise funds and make recommendations that would achieve their financial sustainability. Another important purpose of this study was to review rates considering the recent drought and ensure that equitability is maintained between customer classes.

The enclosed report recommends updating rates and charges to more accurately recover the costs of providing service to the City's wastewater customers. Recommendations were developed with substantial input from City staff. BWA finds that the rates and charges proposed in our report are based on the cost of service for each customer, follow generally accepted rate design criteria, and adhere to the substantive requirements of Proposition 218. BWA believes that the proposed rates are fair and reasonable to the City's customers.

BWA has enjoyed working with the City on this rate study. Please contact us with any future questions about this study and the recommended wastewater rates.

Sincerely,

Doug Dove, CIPFA
Principal

Abigail Seaman
Financial Analyst

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1 Executive Summary

1.1 Background

The Wastewater Utility Enterprise is operated by the City's Public Works Department. Like the water system, it serves 1,566 customers which are largely in the single-family residential customer class. The City's wastewater system is a self-sustaining enterprise, meaning revenues (mostly sourced from wastewater rates) aim to recover the cost to operate and maintain the wastewater system. The Wastewater Enterprise Fund reported an operating loss of \$403,000 for FY 2016/17 and is projected to have a \$689,000 operating deficit in FY 2017/18. Primary cost factors impacting wastewater rates include the current Cease and Desist Order placed on the City and stringent Regional Water Quality Control Board (RWCQCB) Permit conditions.

The City has contracted Bartle Wells Associates (BWA) to conduct a wastewater rate study which examines current and projected costs and the existing wastewater rate structure as it pertains to California legislation. Basic objectives of the rate study include:

- Identify rate setting principles.
- Develop long-term financial projections to determine future annual wastewater enterprise revenue requirements.
- Evaluate rate alternatives and recommend wastewater rates designed to equitably recover the costs of providing service.

Based on input from City staff, key guiding principles included developing rates that:

- Are fair and equitable to all customer classes.
- Recover the costs of providing service and generate adequate funding for capital needs.
- Are easy to understand and implement.
- Comply with the legal requirements of Proposition 218 and other California laws

1.2 Proposition 218

Utility rates are subject to the procedural and substantive requirements as set forth in Proposition 218. Proposition 218 was adopted by California voters in 1996 and added Articles 13C and 13D to the California Constitution. Article 13D, Section 6 governs property-related charges, which the California Supreme Court subsequently ruled includes ongoing utility service charges such as water and wastewater. Article 13D, Section 6 establishes a) procedural requirements for imposing or increasing property-related charges, and b) substantive requirements for those charges. Article 13D also requires voter approval for new or increased property-related charges but exempts from this voting requirement rates for water and wastewater service. The substantive requirements of Article 13D, Section 6 require the City's utility rates to meet the following conditions:

- Revenues derived from the fee or charge shall not exceed the funds required to provide the property related service.
- Revenues derived from the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed.
- The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.
- No fee or charge may be imposed for a service unless that service is used by, or immediately available to, the owner of the property in question.
- No fee or charge may be imposed for general governmental services, such as police or fire services, where the service is available to the public at large in substantially the same manner as it is to property owners.

The procedural requirements of Proposition 218 for all utility rate increases are as follows:

- **Noticing Requirement:** The City must mail a notice of proposed rate increases to all affected property owners. The notice must specify the basis of the fee, the reason for the fee, and the date/time/location of a public rate hearing at which the proposed rates will be considered/adopted.
- **Public Hearing:** The City must hold a public hearing prior to adopting the proposed rate increases. The public hearing must be held not less than 45 days after the required notices are mailed.
- **Rate Increases Subject to Majority Protest:** At the public hearing, the proposed rate increases are subject to majority protest. If 50% plus one of affected property owners submit written protests the proposed rate increases, the increases cannot be adopted.

1.3 Use of Generally Accepted Rate-Making Principles

The rates developed in this study use a straightforward methodology to establish an equitable system of fixed and variable charges that recover the cost of providing service and fairly apportion costs to each rate component. The rates were developed using generally accepted cost-based principles and methodologies for establishing wastewater rates, charges, and fees. In developing wastewater rates, it is important to know that there is no “one-size-fits-all” approach for establishing cost-based wastewater rates.

BWA used the following criteria when developing recommendations for the City’s wastewater rates and finances:

- 1) *Revenue Sufficiency:* Rates should recover the annual cost of service and provide revenue stability.

- 2) *Rate Impact:* While rates are calculated to generate sufficient revenue to cover operating and capital costs, they should be designed to minimize, as much as possible, the impacts on ratepayers.
- 3) *Equitable:* Rates should be fairly allocated among all customer classes based on their estimated demand characteristics. Each user class only pays its proportionate share.
- 4) *Practical:* Rates should be simple in form and, therefore, adaptable to changing conditions, easy to administer, and easy to understand.

1.4 Wastewater System Overview

The Wastewater Utility Enterprise is operated by the City's Public Works Department. The City is responsible for the operation and maintenance of the 18 miles of underground sewer collection system (or piping) to the wastewater treatment plant (WWTP), and 5.5 miles of reclaimed water pipeline which serves 15 customers including the schools, golf course and City Parks.

The City's wastewater collection system includes:

- 18 miles of sewer collection piping in City
- 330 manholes
- 4 pumping stations
- 5.5 miles of recycled water mains
- 1,337 customers and lateral connections
- 50 million gallons of storage ponds

The wastewater collection system includes all residential and commercial customers in the City limits. All sewage from the City drains by gravity either to one of four pump stations or to the wastewater treatment plant (WWTP) directly. The WWTP was last upgraded in 2002 converting the plant to tertiary treatment capability to provide "Title 22" recycled water. The system also includes storage ponds, and recycled water distribution facilities.

The City's main source of wastewater revenue is bi-monthly wastewater rates which were last increased on January 1, 2017. Rates are not currently sufficient to fund necessary expenses and the current rate structure does not reflect the cost of wastewater service for each customer class.

BWA recommends (1) increasing overall wastewater rate revenue to better reflect the cost of service; and (2) re-aligning the current wastewater rates to reflect the latest flow and loading data for each customer class.

1.4.1 Factors driving Rate Increases

The primary wastewater cost factor is the current Cease and Desist Order (CDO) placed on the City and stringent Regional Water Quality Control Board (RWQCB) Permit Conditions imposed with the 2016 renewal of the City's permit to operate a Wastewater Treatment Plant facility.

The CDO and permit conditions require the City to make system enhancements including expansion of the reclaimed water storage facilities, relocation or lining of the Riverside Ponds, pipeline improvements, installation of larger pump motors, improvements to lift station, reduction in antimony and boron, reduction in disinfection by-products, and reduction of infiltration. The current rate for wastewater customers and recycled water customers is insufficient to cover the estimated \$7 million capital infrastructure improvement cost of these state regulatory permit conditions. Failure to meet RWQCB permit conditions could result in penalties of up to \$10,000 per day. The Wastewater Enterprise Fund reported an operating loss of \$403,000 for FY 2016/17 and is projected to have a \$689,000 operating deficit in FY 2017/18.

1.4.2 Current and Proposed Wastewater Rates

The City's current and proposed wastewater rates are shown in Table 1 below.

Table 1: Current and Proposed Wastewater Rates

Current Wastewater Rates			Proposed Wastewater Rates (Restructured)				
User Category	Basis	Charge	15.00% Mar-18	13.00% Jan-19	10.00% Jan-20	10.00% Jan-21	3.00% Jan-22
Residential Rates							
Single Family Residential	Flat Monthly	\$65.25	\$69.49	\$78.53	\$86.38	\$95.02	\$97.87
Multi-Family Residential	Flat Monthly per meter	\$54.90	\$58.37	\$65.96	\$72.56	\$79.81	\$82.21
Mobile Home	Flat Monthly per meter	\$35.46	\$37.53	\$42.40	\$46.65	\$51.31	\$52.85
Transient Rates							
Transient General	Per hcf water use	\$13.35	\$14.19	\$16.03	\$17.63	\$19.40	\$19.98
Spa	Per hcf water use	\$13.35	\$14.19	\$16.03	\$17.63	\$19.40	\$19.98
Campground	Per hcf water use	\$13.35	\$14.19	\$16.03	\$17.63	\$19.40	\$19.98
Bed & Breakfast	Per hcf water use	\$13.35	\$14.19	\$16.03	\$17.63	\$19.40	\$19.98
Other Non-Residential Rates							
Commercial General	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21
Restaurant/Bakery	Per hcf water use	\$22.92	\$24.75	\$27.97	\$30.76	\$33.84	\$34.85
Laundry	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21
Public Building	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21
Medical Care	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21
Brewery/Winery	Per hcf water use	\$1.48	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21
School	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21
Service Station	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21
Industrial & Bottling Works							
Measured Flow Rate	Per mg	\$10,330.19	\$10,338.55	\$11,682.56	\$12,850.82	\$14,135.90	\$14,559.98
Calculated BOD Rate	Per pound	\$1.69	\$1.88	\$2.12	\$2.33	\$2.56	\$2.64
Calculated SS Rate	Per pound	\$1.31	\$1.42	\$1.60	\$1.76	\$1.94	\$1.99
Groundwater Discharge Rates							
Spa	Per hcf of Water Use	\$4.15	\$4.77	\$5.39	\$5.93	\$6.53	\$6.72
Residential Spa/Commercial	Per hcf of Groundwater	\$8.61	\$9.90	\$11.19	\$12.31	\$13.54	\$13.94
Other Rates							
Wastewater Capacity Allocation	Flat Monthly	\$41.19	\$47.37	\$53.53	\$58.88	\$64.77	\$66.71
Minimum Rate for All Non-Residential User Categories	Flat Monthly	\$35.46	\$40.78	\$46.08	\$50.69	\$55.76	\$57.43

In order to address the current revenue deficit, increasing operations costs, debt service requirements and capital improvement expenditures the wastewater enterprise requires overall rate revenue increases according to the above proposed increases.

As consumption has decreased since the last rate study, cost allocations have shifted in favor of commercial users. For example, the current rate of \$5.17 for general commercial water use is equal to nearly 13 units at the Single Family Residential flat monthly rate, while actual typical residential indoor water use is much less. The revised rate structure re-aligns each customer class to ensure equitable costs of service across customer classes.

2 Wastewater Financial Projections and Rates

2.1 Wastewater Financial Overview

Bartle Wells Associates conducted an independent evaluation of the City’s wastewater enterprise finances. Key observations include:

- Wastewater rates have not been increased since FY 2016 – 17. Staff has strived to keep costs down but the Wastewater enterprise is experiencing a revenue deficit while operations and capital costs continue to rise.
- The wastewater enterprise has debt service requirements totaling approximately \$700,000 per year. The City has an SRF loan which is scheduled to be paid off in 2023/24, reducing the annual payments by approximately \$360,000 per year. The City is not currently meeting its debt service requirement of 1.25x net operating expenses.
- The current Capital Improvement Plan which addresses aging infrastructure, CDO projects, and RWQCB requirements will require additional funds to maintain prudent reserves. Additional debt financing may be needed to help fund capital improvement projects. \$3.4 million in grants is expected to be awarded to the City, which will offset these costs for the ratepayer. There is a potential for an additional \$3 million in grants for the Riverside Pond & Headworks project which may further reduce ratepayer impact.
- The City has had to draw down fund reserves in recent years to support annual operating and capital funding needs.
- Projected wastewater expenses were determined by developing projections based on historical audits, budgets, and up to date information provided by the City. Projected expenses and minimum reserve fund targets were used to develop annual revenue requirements.
- Current wastewater rate structure requires adjustments to comply with Proposition 218 requirements.

2.2 Current Monthly Wastewater Rates

Current rates (as shown on Table 1) are determined by customer class. Residential users pay a fixed fee per month while Commercial and Industrial users pay usage-based charges subject to a minimum

charge. The current rates do not accurately reflect the cost of service for each customer class as flow and loading data has changed significantly since the last rate study.

2.3 Current Wastewater Accounts

The City serves approximately 1,566 accounts, 45% of which are single family residential. Table 3 shows current number of meters (several of which are billed to the same account).

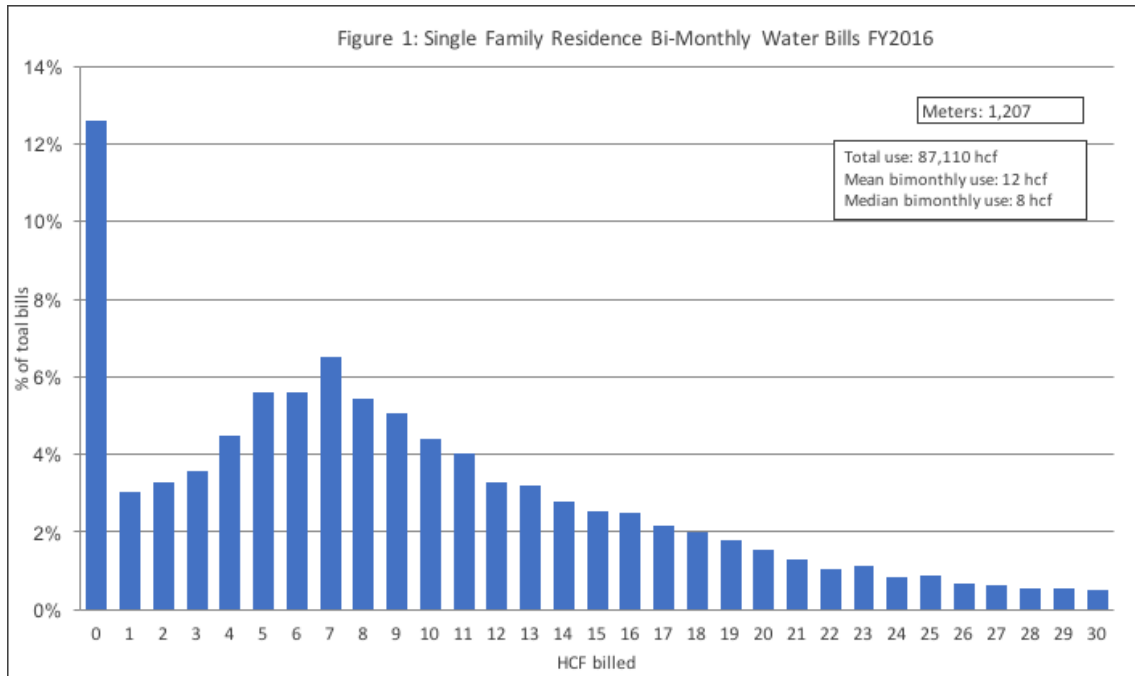
Table 2: Wastewater Accounts FY 2016

Meter Size (inches)	# of meters	Max Continuous Flow (gpm) (AWWA)	Flow Factor for 5/8" x 3/4" Base (AWWA)	Meter Equivalent Units
5/8	1,454	10	1	1,454
3/4	0	15	1.5	0
1	143	25	2.5	357.5
1 1/2	38	50	5	190
2	38	80	8	304
3	6	160	15	90
4	4	250	25	100
6	3	500	50	150
8	2	800	80	160

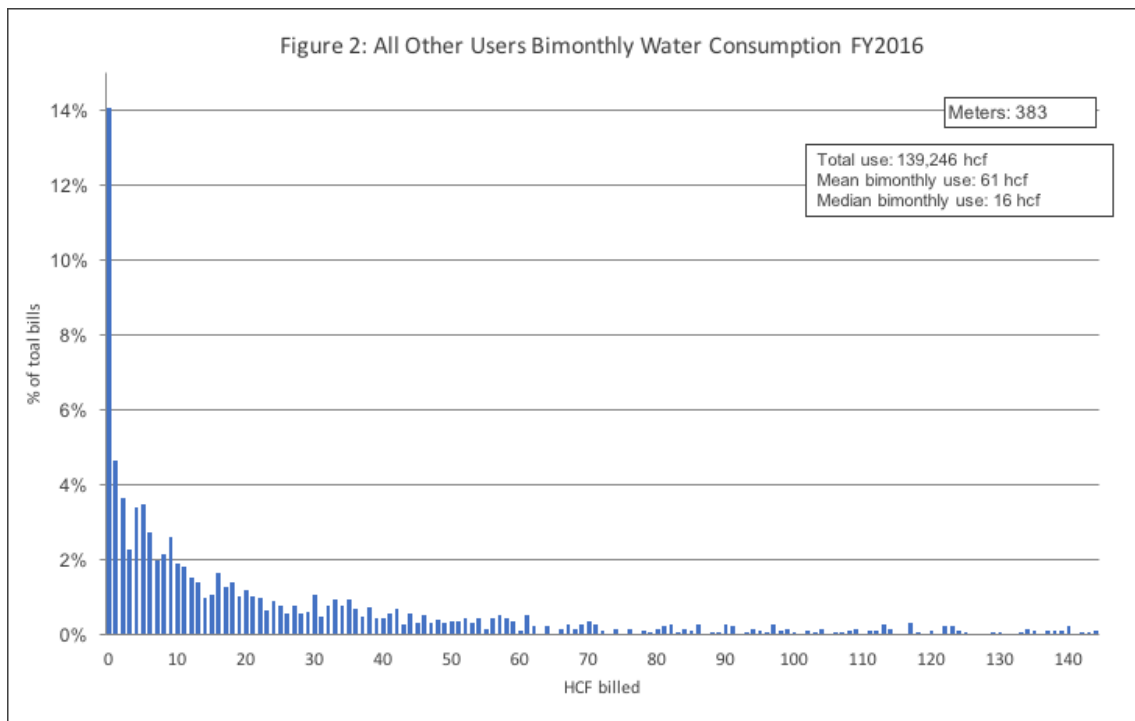
Calistoga is a relatively slow-growth community and therefore can conservatively expect 0.5% of revenue growth per year as a result of new rate-payers or increased consumption. In 2018/19, the City expects that two new resort communities will begin paying wastewater rates totaling approximately \$700,000 and increased each year according to the proposed rates.

2.4 FY 2016 Water Consumption

The wastewater rate study conservatively assumes consumption has remained static since FY 2016 except for a small growth projection of approximately 0.5% per year between potential new users and a small increase in consumption. Single-family water consumption is shown in Figure 1 below. Single family wastewater rates reflect indoor water use only, which is reflected in winter water use, as outdoor irrigation during the summer time does not impact the wastewater system.



Commercial bills for FY 2015/16 are shown in Figure 2 below. These bills are much more varied but still have a relatively large percentage of bills for 0 hcf, which represents vacant or part-time multi-family and commercial accounts. Typical bimonthly usage is about 61 hcf. These users typically discharge 80 – 100% of total water use into the wastewater system.



2.5 Financial Challenges/Key Drivers of Rate Increases

The City's water enterprise will need to have front-loaded consistent wastewater rate increases over the next five years to address the current and projected revenue deficit. Key drivers of future rate increases are summarized as follows.

2.5.1 Ongoing Operating Cost Inflation

The City's water operations budget totals approximately \$2.5 million for FY 2017/18 including costs for wastewater collection and treatment (excluding depreciation). Expenses are projected to increase 4% per year according to the average yearly percentage change in operations costs FY 2011-2016. FY 2017/18 budget revenue is projected to be \$2.5 million, which is approximately sufficient to cover operating expenses but will not be sufficient to cover debt or capital obligations.

2.5.2 Debt Obligations

In addition to operating costs, the City pays semi-annual debt service payments on three debt issuances shown on Table 3.

Table 3: Wastewater Projected Debt Service Schedule

	FY17/18	FY18/19	FY19/20	FY20/21	FY21/22
Installment Agreement	\$224,983	\$224,341	\$223,319	\$222,041	\$220,506
2005 Certificates of Participation	\$106,381	\$106,370	\$106,199	\$106,374	\$106,376
State Revolving Fund Loan	<u>\$363,591</u>	<u>\$363,591</u>	<u>\$363,591</u>	<u>\$363,591</u>	<u>\$363,591</u>
Total Debt Service	\$694,954	\$694,301	\$693,109	\$692,005	\$690,473

The City has a total debt service coverage requirement of 1.25x net operating revenues which is currently not being met.

2.5.3 Wastewater Capital Plan

The City's Wastewater Capital Improvement Plan addresses aging infrastructure, Cease and Desist Order requirements, and Regional Water Quality Control Board Permit requirements. Approximately \$2 million in this program would pay for necessary projects such as water line replacements, lateral service replacements, storage tank replacement, Kimball Reservoir improvements and disinfection by-product reduction that are necessary to keep the water distribution system in sound operational shape and in compliance with State and Federal regulations for provision of safe drinking water.

Table 4: Wastewater Capital Improvement Plan

	2017/18	2018/19	2019/20	2020/21	2021/22
Total Wastewater Capital Improvement Plan	\$2.21m	\$4.30m	\$3.64m	\$1.20m	\$2.51m

The City aggressively pursues grants to fund capital projects and has secured \$3.4 million in grant funding over the next 5 years. This will offset some capital costs but cannot fully cover what is needed to meet the City’s capital needs. A \$3 million may be awarded to the City as part of the Riverside Pond and Headworks project soon, which would significantly reduce rate impacts. Additionally, the City’s current operating deficit precludes access to many grants and low-interest loans.

2.6 Wastewater Enterprise Revenue Requirements

The wastewater cash flow projections incorporate the latest information available as well as reasonable, prudently conservative assumptions. Key assumptions include:

Growth & Water Demand Assumptions

- The City is a relatively slow-growth community but has two major resorts projected to come online in 2017/18 with revenues of approximately \$570,000 and increasing each year with proposed rate increases. Otherwise, growth is projected at 0.5% per year
- Future wastewater sales are projected to increase with growth.

Revenue Assumptions

- Investment income is estimated based on current budget. Future projections are conservatively estimated to increase at 0.5% per year; actual amounts will vary based on reserves and future interest earning rates.
- Other revenues are projected to increase 0.5% per year

Expense Assumptions

- Operations and maintenance costs are based on the 2017-18 budget and escalate at the annual rate of 4.0% to account for future cost inflation.
- Capital expenditures include approximately \$14 million in projects through FY 2021/22

To address the needs outlined in Section 2.5, the City will need to increase wastewater rates. Based on the assumptions above, BWA created a cash flow projection that determined revenue requirements for the next 5 years. The proposed rate increases are shown on Table 5.

Table 5: Wastewater Proposed Rate Increases (Secured Grand Funding Only)

Fiscal Year	2017/18	2018/19	2019/20	2020/21	2021/22
Proposed Rate Increases	15%	13%	10%	10%	13%

If the City is successful in securing the Riverside Headworks Project grant, necessary rate increases are significantly reduced as shown in Table 6.

Table 6: Wastewater Proposed Rate Increases (With Riverside Headworks Grant)

Fiscal Year	2017/18	2018/19	2019/20	2020/21	2021/22
Proposed Rate Increases	15%	8%	5%	3%	3%

The proposed rates accomplish the following:

- Full Operations and Capital Improvement Plan funding (front-loaded for faster recovery from current deficit and minimized rate increase impact in outer years)
- Minimum debt service coverage of 1.25x net operating revenues over the next 5 years (with the use of a Rate Stabilization Fund)
- Minimum target fund balance of 90 days Operations and Maintenance expenses

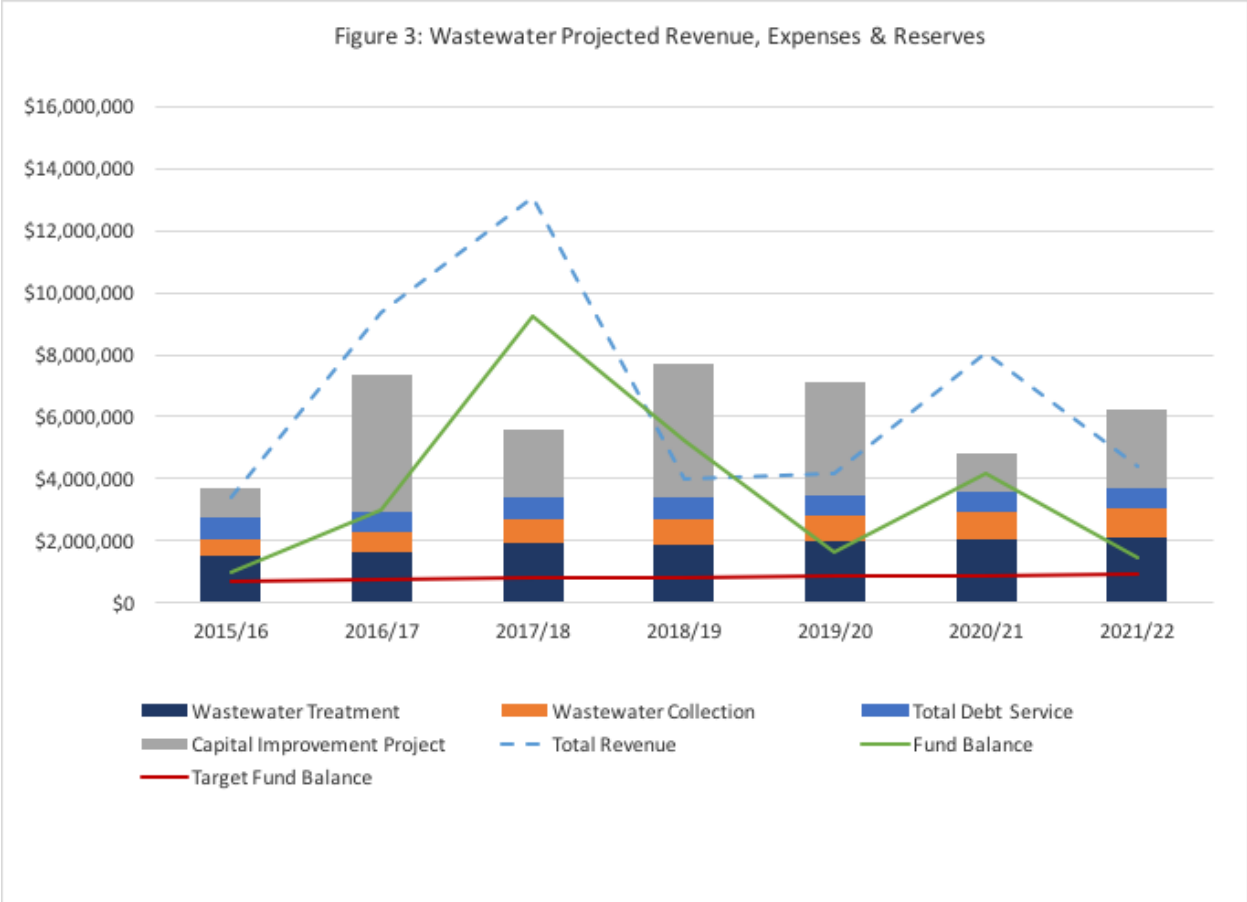
BWA recommends that the City notice maximum rates according to revenue requirements shown in Table 5. If the grant is awarded, the City can choose to adopt lower rates in any year.

Rates would be effective following a mailed Proposition 218 notice and successful public hearing. The effective date is projected to be March 1, 2018 and January 1 each fiscal year thereafter, which aligns with the City’s current trend of increasing rates on January 1.

Additionally, BWA has included two bank loans in fiscal years 2017/18 and 2020/21 to facilitate smooth implementation of the Capital Improvement Plan. This would increase the City’s debt service payments by about \$600,000 per year (thereby increasing the needed 1.25x debt service coverage requirement). Alternatively, the City could choose to defer or reduce capital expenditures in the near future or seek alternative funding sources such as grants and low-interest loans.

2.6.1 Cash Flow Projection

Figure 3 shows the City’s overall financial position with the proposed rate increases. This stacked bar chart shows expenses as a stacked bar chart and revenue and fund balance as line graphs. With the proposed rate increases, the City is projected to have revenues sufficient to fully cover operating expenses after the first five years and maintain prudent reserve levels above the target (red line) of 90 days O&M expenses in each year. Spikes in revenue include grant funding and proposed loans. The full cash flow projection can be seen in Appendix: Wastewater Tables.



2.7 Wastewater Rate Structure Recommendations

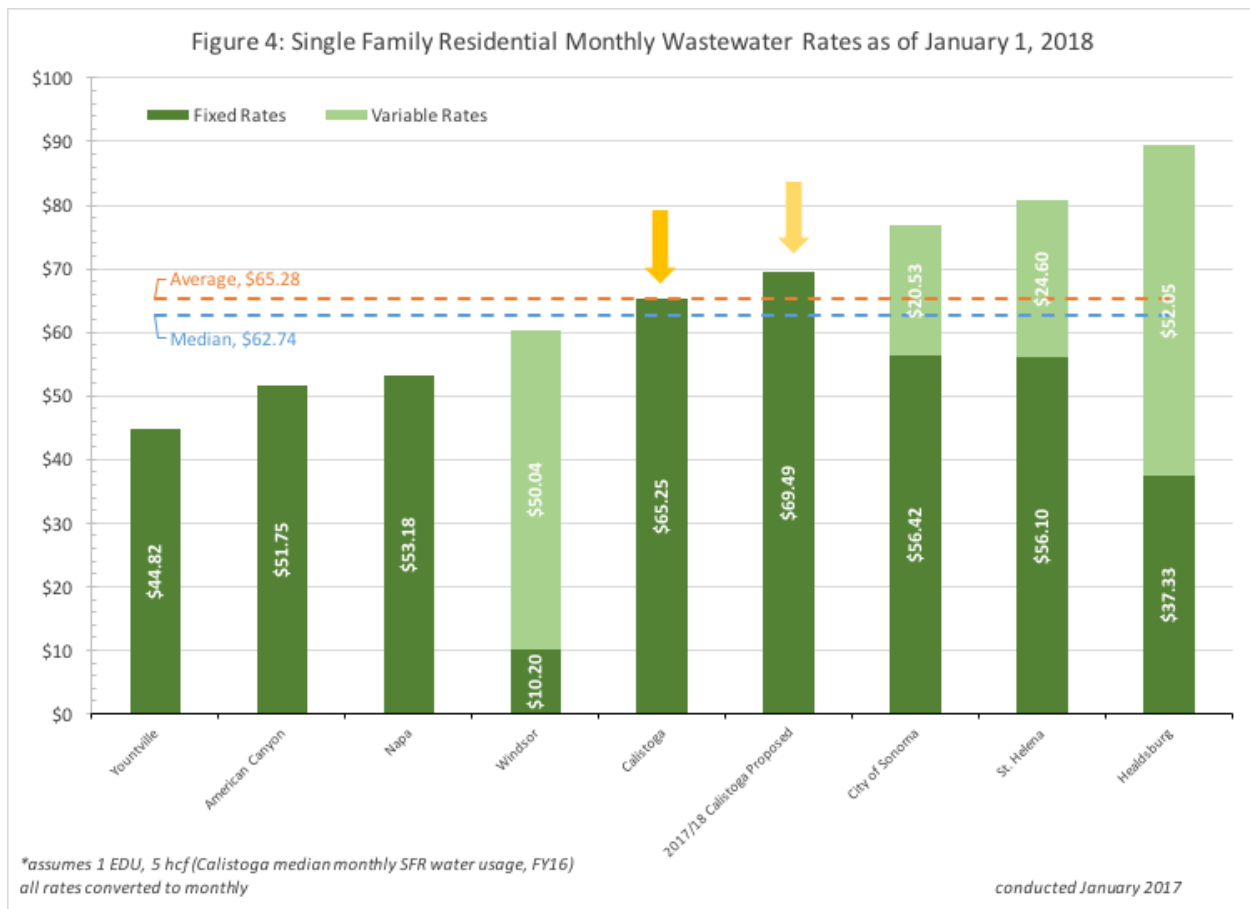
In addition to the proposed increases, Bartle Wells Associates also recommends a rate structure change to align with requirements set forth in Proposition 218. Revised rates are based on FY 2016 flow and loading data, along with standards for flow and loading (Biochemical Oxygen Demand, Total Suspended Solids) amounts by customer class according to State Revenue Guidelines. This proposed restructure would increase bills for Commercial users relative to Single Family users, who would only see a small increase in the first year. Full rate calculations can be seen in Appendix A: Wastewater Tables. Table 1 is shown again below to display current and proposed wastewater rates using the maximum proposed rate increases as shown on Table 5.

Table 1 (revisited): Current and Proposed Wastewater Rates

Current Wastewater Rates			Proposed Wastewater Rates (Restructured)				
User Category	Basis	Charge	15.00% Mar-18	13.00% Jan-19	10.00% Jan-20	10.00% Jan-21	3.00% Jan-22
Residential Rates							
Single Family Residential	Flat Monthly	\$65.25	\$69.49	\$78.53	\$86.38	\$95.02	\$97.87
Multi-Family Residential	Flat Monthly per meter	\$54.90	\$58.37	\$65.96	\$72.56	\$79.81	\$82.21
Mobile Home	Flat Monthly per meter	\$35.46	\$37.53	\$42.40	\$46.65	\$51.31	\$52.85
Transient Rates							
Transient General	Per hcf water use	\$13.35	\$14.19	\$16.03	\$17.63	\$19.40	\$19.98
Spa	Per hcf water use	\$13.35	\$14.19	\$16.03	\$17.63	\$19.40	\$19.98
Campground	Per hcf water use	\$13.35	\$14.19	\$16.03	\$17.63	\$19.40	\$19.98
Bed & Breakfast	Per hcf water use	\$13.35	\$14.19	\$16.03	\$17.63	\$19.40	\$19.98
Other Non-Residential Rates							
Commercial General	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21
Restaurant/Bakery	Per hcf water use	\$22.92	\$24.75	\$27.97	\$30.76	\$33.84	\$34.85
Laundry	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21
Public Building	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21
Medical Care	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21
Brewery/Winery	Per hcf water use	\$1.48	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21
School	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21
Service Station	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21
Industrial & Bottling Works							
Measured Flow Rate	Per mg	\$10,330.19	\$10,338.55	\$11,682.56	\$12,850.82	\$14,135.90	\$14,559.98
Calculated BOD Rate	Per pound	\$1.69	\$1.88	\$2.12	\$2.33	\$2.56	\$2.64
Calculated SS Rate	Per pound	\$1.31	\$1.42	\$1.60	\$1.76	\$1.94	\$1.99
Groundwater Discharge Rates							
Spa	Per hcf of Water Use	\$4.15	\$4.77	\$5.39	\$5.93	\$6.53	\$6.72
Residential Spa/Commercial	Per hcf of Groundwater	\$8.61	\$9.90	\$11.19	\$12.31	\$13.54	\$13.94
Other Rates							
Wastewater Capacity Allocation Minimum Rate for All Non- Residential User Categories	Flat Monthly	\$41.19	\$47.37	\$53.53	\$58.88	\$64.77	\$66.71
Residential User Categories	Flat Monthly	\$35.46	\$40.78	\$46.08	\$50.69	\$55.76	\$57.43

2.8 Regional Wastewater Survey

Figure 4 shows the proposed rates in the context of water rates in the Napa/Sonoma Area. The City's bill is approximately equal to the average rate in the area and will maintain its position with the proposed rate increase. Other Napa/Sonoma agencies such as Napa, St. Helena and Yountville have adopted wastewater rate increases effective early 2018.



2.9 Single Family Residential Bill Impacts

Single family bills are projected to increase \$4.24 in the first year with the proposed rate restructure, and increase according to the proposed rate increases thereafter. All residential users will see a smaller rate increase in the first year to facilitate the proposed structure change and re-balance bills between customer classes according to flow and loading impact on the wastewater system.

3 Conclusion and Recommendations

3.1 Conclusion

This wastewater rate study report presents a comprehensive review of the City of Calistoga's wastewater revenue requirements, cost allocations, and rate structures. The City last conducted a comprehensive cost of service review in 2012. Since then, the City has identified needed capital improvements and experienced significant revenue shortfalls. Current rates are unbalanced now that consumption has changed and no longer accurately reflect the cost of service. These factors were considered in the rate study to fairly develop rates for customers.

3.2 Recommendations

BWA recommends that the City adopt the rates shown in this report. Rates were developed as part of a collaborative process that included Ad-Hoc committee review with Council members and Staff.

At minimum, BWA recommends that the City review and update its water rate study every five years and/or concurrent with Master Plan Updates. Proposition 218 allows public agencies to adopt rates over a five-year planning period. Any further rate increases must be supported by a comprehensive rate study.

Appendix A: Wastewater Tables

City of Calistoga Rate Study 2017



Wastewater Final Tables 2/20/2018



BARTLE WELLS ASSOCIATES
Independent Public Finance Advisors

Table 1
City of Calistoga
Wastewater Rates

rates effective January 1, 2017

User Category	Basis	Charge
Residential Rates		
Single Family Residential	Flat Monthly	\$65.25
Multi-Family Residential	Flat Monthly per meter	\$54.90
Mobile Home	Flat Monthly per meter	\$35.46
Transient Rates		
Transient General	Per hcf water use	\$13.35
Spa	Per hcf water use	\$13.35
Campground	Per hcf water use	\$13.35
Bed & Breakfast	Per hcf water use	\$13.35
Other Non-Residential Rates		
Commercial General	Per hcf water use	\$5.17
Restaurant/Bakery	Per hcf water use	\$22.92
Laundry	Per hcf water use	\$5.17
Public Building	Per hcf water use	\$5.17
Medical Care	Per hcf water use	\$5.17
Brewery/Winery	Per hcf water use	\$1.48
School	Per hcf water use	\$5.17
Service Station	Per hcf water use	\$5.17
Industrial & Bottling Works Rates		
Measure Flow Rate	Per mg of Measured Flow	\$10,330.19
Calculated BOD Rate	Per Pound	\$1.69
Calculated SS Rate	Per Pound	\$1.31
Groundwater Discharge Rates		
Spa	Per hcf of Water Use	\$4.15
Residential Spa/Commercial	Per hcf of Groundwater Measured Flow Only	\$8.61
Other Rates		
Wastewater Capacity Allocation	Flat Monthly	\$41.19
Minimum Rate for All Non-Residential User Categories	Flat Monthly	\$35.46

Table 2
City of Calistoga
10-year Wastewater CIP Plan, Updated January 2017

Project	FY16/17	FY17/18	FY18/19	FY19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	Total Cost	Known Grant Funding
Critical Priority												
Sewer Trunk Line	\$2,986,970										\$2,986,970	\$2,548,075
Pine Street Lift Station Replacement	1,163,883	275,000									1,438,883	947,778
Riverside Pond & Headworks Project	100,000	250,000	2,000,000	1,645,852							3,995,852	2,996,889
Geothermal Meters Project	50,000	180,000	270,000								500,000	
THM Compliance Improvements		250,000									250,000	
Inflow and Infiltration (Testing and Repairs)	75,000	100,000	100,000								275,000	
Remove Grit from Aeration Basins		500,000									500,000	
Total Critical Priority	\$4,375,853	\$1,555,000	\$2,370,000	\$1,645,852	\$0	\$0	\$0	\$0	\$0	\$0	\$9,946,705	\$6,492,742
High Priority												
Loop Recycle Water System - Pipe Improvements		\$150,000	\$500,000	\$700,000							\$1,350,000	
Recycle Booster Pump Station				150,000	700,000	750,000					1,600,000	
Palisades Lift Station Re-lining			250,000								250,000	
Lift Station Mobile SCADA			150,000								150,000	
Utility Survey/Mobile GIS		75,000									75,000	
Calibrate Sewer Model/Develop Master Plan		150,000									150,000	
Replacement Sewer Mains/MH's		275,000	280,000	290,000	300,000	305,000	315,000	320,000	325,000	335,000	2,745,000	
Grit Removal System at Headworks			750,000								750,000	
Sludge Dewatering				850,000							850,000	
Filter Improvements						1,200,000					1,200,000	
Total High Priority	\$0	\$650,000	\$1,930,000	\$1,990,000	\$1,000,000	\$2,255,000	\$315,000	\$320,000	\$325,000	\$335,000	\$9,120,000	\$0
Normal Priority												
Advanced Treatment-Boron Removal					\$200,000		\$3,000,000	\$500,000			\$3,700,000	
Expand Recycle Water Distribution							500,000	500,000			1,000,000	
PLC Upgrade									1,000,000		1,000,000	
SCADA Upgrade						250,000	50,000				300,000	
Controls Upgrades							100,000	100,000	100,000		300,000	
Total Normal Priority	\$0	\$0	\$0	\$0	\$200,000	\$250,000	\$3,550,000	\$1,100,000	\$1,100,000	\$100,000	\$6,300,000	\$0
Total Critical Priority CIP	\$4,375,853	\$1,163,883	\$2,370,000	\$1,645,852	\$0	\$0	\$0	\$0	\$0	\$0	\$9,946,705	\$6,492,742
Total Critical and High Priority CIP	\$4,375,853	\$2,205,000	\$4,300,000	\$3,635,852	\$1,000,000	\$2,255,000	\$315,000	\$320,000	\$325,000	\$335,000	\$19,066,705	\$6,492,742
Total All CIP	\$4,375,853	\$2,205,000	\$4,300,000	\$3,635,852	\$1,200,000	\$2,505,000	\$3,865,000	\$1,420,000	\$1,425,000	\$435,000	\$25,366,705	\$6,492,742

Table 3
City of Calistoga
Wastewater Expenses

Title	Actual FY14-15	Final Budget FY15-16	Actual FY15-16	Revised Budget FY16-17	Adopted Budget FY17-18	Escalation ¹	Projected			
							FY18-19	FY19-20	FY20-21	FY21-22
WASTEWATER COLLECTION										
Personnel Services										
Full-Time Salaries	\$212,373	\$222,084	\$218,986	\$235,811	\$307,749	4.0%	\$320,059	\$332,861	\$346,176	\$360,023
Overtime	12,304	19,291	9,701	12,172	13,649	4.0%	14,195	14,763	15,353	15,967
FICA/Medicare	17,880	22,799	18,276	22,414	26,398	4.0%	27,454	28,552	29,694	30,882
Part-Time Salaries	3,026	3,812	3,602	4,591	4,966	4.0%	5,165	5,371	5,586	5,810
Special Pay	12,278	17,198	12,917	18,333	18,710	4.0%	19,458	20,237	21,046	21,888
PERS	45,313	58,339	58,160	69,475	75,379	4.0%	78,394	81,530	84,791	88,183
Medical/Dental	43,911	45,011	39,146	39,653	75,357	4.0%	78,371	81,506	84,766	88,157
Workers Comp	15,405	17,077	17,022	18,286	19,773	4.0%	20,564	21,386	22,242	23,132
Other Benefits	919	888	3,525	1,165	1,279	4.0%	1,330	1,383	1,439	1,496
Housing Allowance	0	1,225	1,225	1,575	0	4.0%	0	0	0	0
Total Personnel Services	\$363,409	\$407,724	\$382,560	\$423,475	\$543,260		\$564,990	\$587,590	\$611,094	\$635,537
Services & Supplies										
Materials & Supplies	\$4,906	\$1,000	\$1,034	\$8,108	\$6,900	4.0%	\$7,176	\$7,463	\$7,762	\$8,072
Contract Services	9,319	13,681	10,009	37,705	56,150	4.0%	58,396	60,732	63,161	65,688
Utilities	4,888	5,170	5,917	7,050	7,800	4.0%	8,112	8,436	8,774	9,125
Repairs & Maintenance	4,384	1,803	1,802	7,000	7,280	4.0%	7,571	7,874	8,189	8,517
Training & Seminars - Staff	742	475	936	777	800	4.0%	832	865	900	936
Uniform Allowance	1,275	2,427	2,427	2,000	3,450	4.0%	3,588	3,732	3,881	4,036
Postage	0	50	13	0	50	4.0%	52	54	56	58
Fuel & Oil	5,123	2,500	2,038	2,743	2,850	4.0%	2,964	3,083	3,206	3,334
Pension Expense	-99,741	0	72,580	40,000	40,000	4.0%	41,600	43,264	44,995	46,794
Health & Safety	139	300	252	300	1,040	4.0%	1,082	1,125	1,170	1,217
Dues & Subscriptions	0	0	0	0	120	4.0%	125	130	135	140
Fees	2,088	3,215	3,575	2,088	3,750	4.0%	3,900	4,056	4,218	4,387
Repairs & Maintenance	3,507	3,600	10,003	4,420	0	4.0%	0	0	0	0
Training & Seminars - Management	0	0	0	0	520	4.0%	541	562	585	608
Equipment Fund Rental	23,769	25,723	26,526	29,030	32,634	4.0%	33,939	35,297	36,709	38,177
Total Services & Supplies	-\$39,601	\$59,944	\$137,112	\$141,221	\$163,344		\$169,878	\$176,673	\$183,740	\$191,089
Other										
Vehicles	0	0	0	0	\$30,000	4.0%	\$31,200	\$32,448	\$33,746	\$35,096
Misc Field Equipment	11,284	56,000	33,888	51,063	23,335	4.0%	24,268	25,239	26,249	27,299
Computer Equipment	0	0	0	4,968	0	4.0%	0	0	0	0
Total Other	\$11,284	\$56,000	\$33,888	\$56,031	\$53,335		\$55,468	\$57,687	\$59,995	\$62,394
TOTAL WASTEWATER COLLECTION	\$335,092	\$523,668	\$553,560	\$620,727	\$759,939		\$790,337	\$821,950	\$854,828	\$889,021
WASTEWATER TREATMENT										
Personnel Services										
Full-Time Salaries	\$283,751	\$303,949	\$295,426	\$360,591	\$449,584	4.0%	\$467,567	\$486,270	\$505,721	\$525,950
Overtime	18,450	36,426	26,387	38,588	49,888	4.0%	51,884	53,959	56,117	58,362
FICA/Medicare	24,249	36,114	26,283	34,013	41,222	4.0%	42,871	44,586	46,369	48,224
Part-Time Salaries	3,026	13,812	11,138	14,591	4,966	4.0%	5,165	5,371	5,586	5,810
Special Pay	20,814	34,314	24,231	24,920	34,415	4.0%	35,792	37,223	38,712	40,261
PERS	57,513	79,688	79,118	88,930	81,290	4.0%	84,542	87,923	91,440	95,098
Medical/Dental	69,034	68,927	67,967	67,382	112,535	4.0%	117,036	121,718	126,587	131,650

Workers Comp	22,877	27,050	24,452	27,349	30,876	4.0%	32,111	33,395	34,731	36,121
Other Benefits	1,242	1,466	5,475	1,669	1,924	4.0%	2,001	2,081	2,164	2,251
Housing Allowance	0	1,400	1,400	1,800	0	4.0%	0	0	0	0
Total Personnel Services	\$500,956	\$603,146	\$561,877	\$659,833	\$806,700		\$838,968	\$872,527	\$907,428	\$943,725
Services & Supplies										
Materials & Supplies	\$135,447	\$157,642	\$136,404	\$173,000	\$134,300	4.0%	\$139,672	\$145,259	\$151,069	\$157,112
Contract Services	418,074	186,672	223,413	280,000	327,640	4.0%	340,746	354,375	368,550	383,292
Electricity	139,886	134,878	162,783	147,875	150,000	4.0%	156,000	162,240	168,730	175,479
Repairs & Maintenance	50,722	51,706	53,815	37,131	50,000	4.0%	52,000	54,080	56,243	58,493
Training & Seminars - Staff	3,077	1,199	1,541	2,800	3,550	4.0%	3,692	3,840	3,993	4,153
Uniform Allowance	3,263	2,627	3,552	3,105	4,800	4.0%	4,992	5,192	5,399	5,615
Advertising	86	0	0	0	150	4.0%	156	162	169	175
Postage	3,579	3,907	4,516	3,595	4,500	4.0%	4,680	4,867	5,062	5,264
Fuel & Oil	8,768	3,849	4,810	9,921	10,325	4.0%	10,738	11,168	11,614	12,079
Pension Expense	(126,595)	0	98,735	40,000	40,000	4.0%	41,600	43,264	44,995	46,794
Health & Safety	1,353	800	1,908	950	2,000	4.0%	2,080	2,163	2,250	2,340
Weeds / Pest Control	2,434	0	0	0	0	4.0%	0	0	0	0
Dues & Subscriptions	232	257	207	570	295	4.0%	307	319	332	345
Fees	20,414	21,498	22,024	28,767	26,050	4.0%	27,092	28,176	29,303	30,475
Repairs & Maintenance	5,284	29,155	28,181	14,353	14,925	4.0%	15,522	16,143	16,789	17,460
Central Serv. Overhead	82,500	82,500	82,500	82,500	82,500	4.0%	85,800	89,232	92,801	96,513
Lab Testing	54,396	64,640	50,004	59,075	50,000	4.0%	52,000	54,080	56,243	58,493
Water/Sewer Expense	431	370	444	500	700	4.0%	728	757	787	819
Training & Seminars - Management	127	0	13	0	1,000	4.0%	1,040	1,082	1,125	1,170
Equipment Fund Rental	73,603	75,260	79,645	80,540	82,771	4.0%	86,082	89,525	93,106	96,830
Total Services & Supplies	\$877,081	\$816,960	\$954,495	\$964,682	\$985,506		\$1,024,926	\$1,065,923	\$1,108,560	\$1,152,903
Other										
Misc Field Equipment	\$48,436	\$31,071	\$37,035	\$12,000	\$142,300		\$35,000	\$35,000	\$35,000	\$35,000
Misc Office Equipment	0	0	0	0	0	4.0%	0	0	0	0
Computer Equipment	0	0	0	0	0	4.0%	0	0	0	0
Total Other	\$48,436	\$31,071	\$37,035	\$12,000	\$142,300		\$35,000	\$35,000	\$35,000	\$35,000
TOTAL WASTEWATER TREATMENT	\$1,426,473	\$1,451,177	\$1,553,407	\$1,636,515	\$1,934,506		\$1,898,894	\$1,973,450	\$2,050,988	\$2,131,628
TOTAL WASTEWATER EXPENSES	\$1,761,565	\$1,974,845	\$2,106,967	\$2,257,242	\$2,694,445		\$2,689,231	\$2,795,400	\$2,905,816	\$3,020,649

1 - Escalation based on average yearly percent change in actual operating expenses FY2011-2016 (3.6%)
Expenses do not include Depreciation

Table 4
City of Calistoga
Wastewater Debt Service

		total payment (principal + interest and fees)										
	Fund	FY15/16	FY16/17	FY17/18	FY18/19	FY19/20	FY20/21	FY21/22	FY22/23	FY23/24	FY24/25	FY25/26
Installment Agreement	Wastewater Operations	\$225,068	\$225,198	\$224,983	\$224,341	\$223,319	\$222,041	\$220,506	\$223,588	\$221,375	\$219,000	\$221,250
2005 Certificates of Participation	Wastewater Operations	\$106,224	\$106,332	\$106,381	\$106,370	\$106,199	\$106,374	\$106,376	\$106,410	\$106,171	\$106,369	\$106,382
State Revolving Fund Loan	Wastewater Operations	\$363,591	\$363,591	\$363,591	\$363,591	\$363,591	\$363,591	\$363,591	\$363,591	\$0	\$0	\$0
Total Debt Service		\$694,883	\$695,121	\$694,954	\$694,301	\$693,109	\$692,005	\$690,473	\$693,588	\$327,546	\$325,369	\$327,632

Table 5
City of Calistoga
Wastewater Cash Flow Projection

	Actual 2015/16	Budget 2016/17	projected					
			2017/18	2018/19	2019/20	2020/21	2021/22	
Beginning Fund Balance								
Unrestricted Operating Fund	\$1,369,195	\$1,077,313	\$570,997	(\$188,860)	(\$200,470)	(\$144,872)	(\$17,437)	
Unrestricted Capital Fund	(\$95,139)	(\$101,713)	\$2,420,795	\$9,430,474	\$5,444,084	\$1,792,005	\$4,160,272	
Total Unrestricted Funds	\$1,274,056	\$975,600	\$2,991,792	\$9,241,614	\$5,243,614	\$1,647,134	\$4,142,835	
% Rate Revenue Increase January 1			15.0%	13.0%	10.0%	10.0%	3.0%	
% Capacity Fee Revenue Increase January 1			0.0%	0.0%	0.0%	0.0%	0.0%	
% Growth			0.2%	0.2%	0.2%	0.2%	0.2%	
<i>Typical Single Family Bimonthly Bill, Current Rate Structure</i>		\$130.50	\$150.08	\$169.58	\$186.54	\$205.20	\$211.35	
REVENUE								
Operations Fund Revenue								
Charges for Services								
Residential Sales	\$1,380,441	\$1,415,418	\$1,524,617	\$1,626,965	\$1,711,730	\$1,800,911	\$1,831,581	
Transient Sales	600,930	609,661	656,696	700,780	737,291	775,704	788,914	
Commercial Sales	308,671	311,238	335,250	357,755	376,394	396,005	402,749	
Industrial Sales	53,004	40,304	43,413	46,328	48,741	51,281	52,154	
Silver Rose Estimated Sales				251,605	264,714	278,506	283,249	
Calistoga Hills Estimated Sales				318,784	335,393	352,867	358,876	
Other Revenues	96,366	69,426	69,565	69,704	69,843	69,983	70,123	
Total Operating Revenues	\$2,439,412	\$2,446,047	\$2,629,542	\$3,371,922	\$3,544,107	\$3,725,256	\$3,787,645	
Capital Fund Revenue								
Connection/Impact Fees	\$79,724	\$3,026,708	\$282,864	\$642,645	\$642,645	\$642,645	\$642,645	
Interest Earnings	474	800	802	803	805	806	808	
General Fund Subsidy	105,946	0						
Recycled Water Grant	750,000	0						
Hazmat Grant	0	375,000						
Other Grants/Loans ¹		3,495,853						
Proposed Loan Proceeds ²			10,140,852			3,705,000		
Total Water Capital Fund Revenue	\$936,144	\$6,898,361	\$10,424,518	\$643,448	\$643,450	\$4,348,452	\$643,453	
TOTAL REVENUES	\$3,375,556	\$9,344,408	\$13,054,060	\$4,015,370	\$4,187,557	\$8,073,708	\$4,431,098	
Operations Fund Expenses								
Operating Expenses								
Wastewater Treatment	\$1,516,372	\$1,636,515	\$1,934,506	\$1,898,894	\$1,973,450	\$2,050,988	\$2,131,628	
Wastewater Collection	519,672	620,727	759,939	790,337	821,950	854,828	889,021	
Debt Service	695,250	695,121	694,954	694,301	693,109	692,005	690,473	
Total Operations Fund Expenses	\$2,731,294	\$2,952,363	\$3,389,399	\$3,383,532	\$3,488,509	\$3,597,821	\$3,711,121	
Capital Fund Expenses								
Capital Improvement Project ³	\$942,718	\$4,375,853	\$2,205,000	\$4,300,000	\$3,635,852	\$1,200,000	\$2,505,000	
Proposed Loan Debt Service ⁴			329,838	329,838	659,677	780,185	900,693	
Transfer Out - Rate Stabilization Fund			880,000					
Total Capital Expenses	\$942,718	\$4,375,853	\$3,414,838	\$4,629,838	\$4,295,529	\$1,980,185	\$3,405,693	
TOTAL EXPENSES	\$3,674,012	\$7,328,216	\$6,804,238	\$8,013,371	\$7,784,038	\$5,578,006	\$7,116,814	
Net Revenues - Operating Fund	(\$291,882)	(\$506,316)	(\$759,857)	(\$11,610)	\$55,598	\$127,435	\$76,524	
Net Revenues - Capital Fund	(\$6,574)	\$2,522,508	\$7,009,679	(\$3,986,390)	(\$3,652,079)	\$2,368,267	(\$2,762,239)	
NET REVENUES	(\$298,456)	\$2,016,192	\$6,249,822	(\$3,998,000)	(\$3,596,481)	\$2,495,702	(\$2,685,715)	
Ending Fund Balance								
Unrestricted Operating Fund	\$1,077,313	\$570,997	(\$188,860)	(\$200,470)	(\$144,872)	(\$17,437)	\$59,087	
Unrestricted Capital Fund	(\$101,713)	\$2,420,795	\$9,430,474	\$5,444,084	\$1,792,005	\$4,160,272	\$1,398,033	
Total Unrestricted Funds	\$975,600	\$2,991,792	\$9,241,614	\$5,243,614	\$1,647,134	\$4,142,835	\$1,457,120	
Total Unrestricted Fund Target (90 days O&M)	\$673,470	\$727,980	\$835,742	\$834,296	\$860,180	\$887,134	\$915,071	
# Days O&M Covered	130	370	995	566	172	420	143	
Debt Service Coverage (Min. 1.25x)	1.93	10.20	10.11	1.29	1.03	3.51	0.89	
Target Met	yes	yes	yes	yes	no	yes	no	
Rate Stabilization Fund Draw					\$300,000		\$580,000	
Debt Service Coverage					1.25		1.25	
Target Met								

1 - Known grant funding from CIP Table 2

2 - FY17/18 loan covers capital projects FY17/18 - FY18/19. FY19/20 loan covers capital projects FY19/20 - FY21/22

3 - Updated December 2016

4 - assumes 5% loan over 30 years, 1/2 payments first two years

Chart 1: Wastewater Projected Revenue, Expenses & Reserves

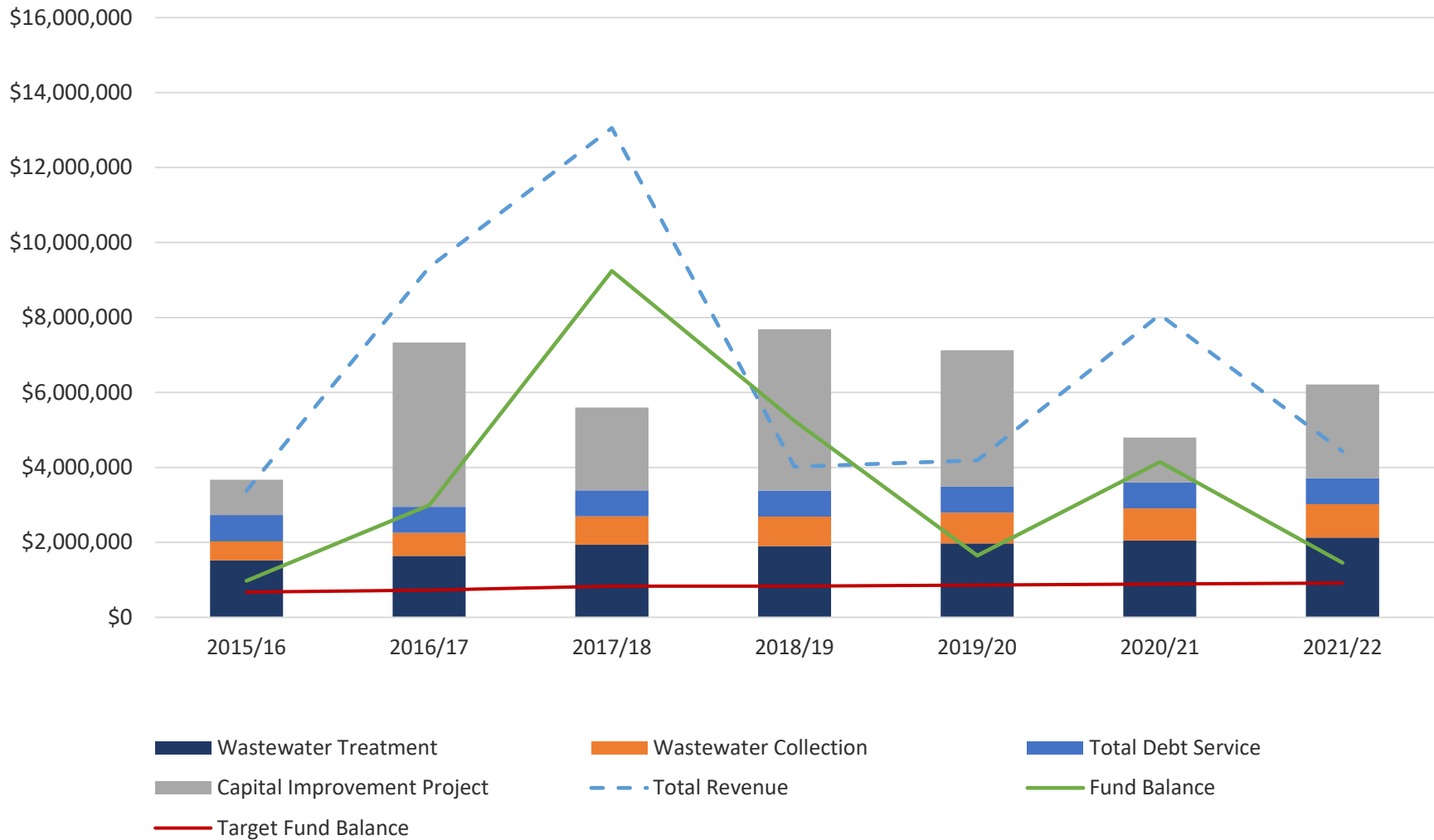


Table 6
City of Calistoga
Wastewater Cash Flow Projection Option 2 - All Prospective Grant Funding

	Actual 2015/16	Budget 2016/17	projected				
			2017/18	2018/19	2019/20	2020/21	2021/22
Beginning Fund Balance							
Unrestricted Operating Fund	\$1,369,195	\$1,077,313	\$570,997	(\$188,860)	(\$264,597)	(\$357,582)	(\$503,102)
Unrestricted Capital Fund	(\$95,139)	(\$101,713)	\$2,520,795	\$3,986,064	\$2,191,115	\$5,994,201	\$4,892,288
Total Unrestricted Funds	\$1,274,056	\$975,600	\$3,091,792	\$3,797,204	\$1,926,518	\$5,636,619	\$4,389,186
% Rate Revenue Increase January 1			15.0%	8.0%	5.0%	3.0%	3.0%
% Capacity Fee Revenue Increase January 1			0.0%	0.0%	0.0%	0.0%	0.0%
% Growth per Fiscal Year			0.2%	0.2%	0.2%	0.2%	0.2%
<i>Typical Single Family Bimonthly Bill, Current Rate Structure</i>		\$130.50	\$150.08	\$162.08	\$170.19	\$175.29	\$180.55
REVENUE							
Operations Fund Revenue							
Charges for Services							
Residential Sales	\$1,380,441	\$1,415,418	\$1,524,617	\$1,588,773	\$1,631,750	\$1,659,538	\$1,687,800
Transient Sales	600,930	609,661	656,696	684,330	702,841	714,811	726,984
Commercial Sales	308,671	311,238	335,250	349,357	358,807	364,918	371,132
Industrial Sales	53,004	40,304	43,413	45,240	46,464	47,255	48,060
Silver Rose Estimated Sales				251,605	258,411	262,812	267,288
Calistoga Hills Estimated Sales				318,784	327,407	332,983	338,654
Other Revenues	96,366	69,426	69,565	69,704	69,843	69,983	70,123
Total Operating Revenues	\$2,439,412	\$2,446,047	\$2,629,542	\$3,307,795	\$3,395,524	\$3,452,300	\$3,510,041
Capital Fund Revenue							
Connection/Impact Fees	\$79,724	\$3,026,708	\$282,864	\$642,645	\$642,645	\$642,645	\$642,645
Interest Earnings	474	800	802	803	805	806	808
General Fund Subsidy	105,946	0	0	0	0	0	0
Recycled Water Grant	750,000	0	0	0	0	0	0
Hazmat Grant	0	375,000	0	0	0	0	0
Other Grants/Loans ¹		3,595,853	250,000	2,000,000	646,889		
Proposed Loan Proceeds ²			4,255,000		6,693,963		
Total Water Capital Fund Revenue	\$936,144	\$6,998,361	\$4,788,666	\$2,643,448	\$7,984,302	\$643,452	\$643,453
TOTAL REVENUES	\$3,375,556	\$9,444,408	\$7,418,208	\$5,951,243	\$11,379,826	\$4,095,752	\$4,153,495
Operations Fund Expenses							
Operating Expenses							
Wastewater Treatment	\$1,516,372	\$1,636,515	\$1,934,506	\$1,898,894	\$1,973,450	\$2,050,988	\$2,131,628
Wastewater Collection	519,672	620,727	759,939	790,337	821,950	854,828	889,021
Debt Service	695,250	695,121	694,954	694,301	693,109	692,005	690,473
Total Operations Fund Expenses	\$2,731,294	\$2,952,363	\$3,389,399	\$3,383,532	\$3,488,509	\$3,597,821	\$3,711,121
Capital Fund Expenses							
Capital Improvement Project ³	\$942,718	\$4,375,853	\$2,205,000	\$4,300,000	\$3,635,852	\$1,200,000	\$2,505,000
Proposed Loan Debt Service ⁴			138,397	138,397	545,364	545,364	712,246
Transfer Out - Rate Stabilization Fund			980,000				
Total Capital Expenses	\$942,718	\$4,375,853	\$3,323,397	\$4,438,397	\$4,181,216	\$1,745,364	\$3,217,246
TOTAL EXPENSES	\$3,674,012	\$7,328,216	\$6,712,796	\$7,821,929	\$7,669,725	\$5,343,185	\$6,928,367
Net Revenues - Operating Fund	(\$291,882)	(\$506,316)	(\$759,857)	(\$75,737)	(\$92,985)	(\$145,521)	(\$201,080)
Net Revenues - Capital Fund	(\$6,574)	\$2,622,508	\$1,465,269	(\$1,794,948)	\$3,803,086	(\$1,101,913)	(\$2,573,792)
NET REVENUES	(\$298,456)	\$2,116,192	\$705,412	(\$1,870,686)	\$3,710,101	(\$1,247,433)	(\$2,774,873)
Ending Fund Balance							
Unrestricted Operating Fund	\$1,077,313	\$570,997	(\$188,860)	(\$264,597)	(\$357,582)	(\$503,102)	(\$704,182)
Unrestricted Capital Fund	(\$101,713)	\$2,520,795	\$3,986,064	\$2,191,115	\$5,994,201	\$4,892,288	\$2,318,496
Total Unrestricted Funds	\$975,600	\$3,091,792	\$3,797,204	\$1,926,518	\$5,636,619	\$4,389,186	\$1,614,313
Total Unrestricted Fund Target (90 days O&M)	\$673,470	\$727,980	\$835,742	\$834,296	\$860,180	\$887,134	\$915,071
# Days O&M Covered	130	382	409	208	590	445	159
Debt Service Coverage (Min. 1.25x)	1.93	10.34	5.67	3.92	6.93	0.96	0.81
Target Met	yes	yes	yes	yes	yes	no	no
Rate Stabilization Fund Draw						\$360,000	\$620,000
Debt Service Coverage						1.25	1.25

1 - Known grant funding from CIP Table 2

2 - FY17/18 loan covers capital projects FY17/18 - FY18/19 minus existing grant funding. FY19/20 loan covers capital projects FY19/20 - FY21/22 minus existing grant funding

3 - Updated December 2016

4 - assumes 5% loan over 30 years, 1/2 payments first two years

Table 7
City of Calistoga
Wastewater Flows and Loadings

	# of Sewer Meters	Est. Mo Flow (hcf) Per EDU	Annual Use	Projected Wastewater Flow			Strength (mg/l)		Loadings (lbs)	
				hcf	mg	gpd	BOD	SS	BOD	SS
Residential										
Single Family	1,130	5.00		67,800	50.72	138,953	300	300	127,000	127,000
Multi-Family	600	4.20		30,240	22.62	61,976	300	300	56,644	56,644
Mobile Home	<u>555</u>	2.70		<u>17,982</u>	<u>13.45</u>	<u>36,853</u>	300	300	<u>33,683</u>	<u>33,683</u>
Total Residential	2,285			116,022	86.79	237,782			217,328	217,328
Transient										
Transient General			25,443	25,443	19.03	52,144	400	200	63,545	31,773
Spa			11,822	11,822	8.84	24,229	400	200	29,526	14,763
Campground			3,613	3,613	2.70	7,405	400	200	9,024	4,512
Bed & Breakfast			<u>2,223</u>	<u>2,223</u>	<u>1.66</u>	<u>4,556</u>	400	200	<u>5,552</u>	<u>2,776</u>
Total Transient			43,101	43,101	32	88,334			107,647	53,823
Commercial										
Commercial General			7,484	7,484	5.60	15,338	80	80	3,738	3,738
Restaurant/Bakery			10,207	10,207	7.64	20,919	1000	600	63,731	38,239
Laundry			2,079	2,079	1.56	4,261	80	80	1,038	1,038
Public Building			1,673	1,673	1.25	3,429	80	80	836	836
Medical Care			584	584	0.44	1,197	80	80	292	292
Brewery/Winery (pre-treated)			405	405	0.30	830	80	80	202	202
School			2,696	2,696	2.02	5,525	80	80	1,347	1,347
Service Station			<u>392</u>	<u>392</u>	<u>0.29</u>	<u>803</u>	80	80	<u>196</u>	<u>196</u>
Total Commercial			25,520	25,520	19	52,302			71,380	45,888
Industrial & Bottling Works										
Measured Flow			1,671	<u>1,671</u>	<u>1.25</u>	<u>3,425</u>	350	100	<u>3,652</u>	<u>1,044</u>
				1,671	1.25	3,425			3,652	1,044
Groundwater Discharge										
Spa Discharge [1]			11,822	<u>11,822</u>	<u>8.84</u>	<u>24,229</u>	1	1	<u>74</u>	<u>74</u>
Total Groundwater Discharge				11,822	8.84	24,229			74	74
Total						198,136			400,081	318,156

1 - Same users as spas in Transient Rates

Strength based on State Revenue Guidelines, 2016 Industrial customer bills, and 2010 Sewer Rate Study

**Table 8
City of Calistoga
Rate Revenue Requirements**

Costs Allocated to All Customers	2016/17 Budget	Allocation %			Allocation \$			Projected Loadings (lbs)		
		Flow	BOD	SS	Flow	BOD	SS	Flow (hcf) 198,136	BOD 400,081	SS 318,156
Cost Component										
Wastewater Treatment	\$1,636,515	52%	30%	18%	\$850,988	\$490,955	\$294,573			
Wastewater Collection	\$620,727	100%	0%	0%	620,727	0	0			
Debt Service	\$695,121	52%	30%	18%	361,463	208,536	125,122			
CIP	\$4,375,853	52%	30%	18%	2,275,444	1,312,756	787,654			
Total Expenses	\$7,328,216				\$4,108,621	\$2,012,247	\$1,207,348			
Composite Percentages					56%	27%	16%			
Add: Net Revenue	\$2,016,192									
Less: Non-Rate Operating Revenue	(\$69,426)									
Less: Non-Operating Revenue	(6,898,361)									
Revenue Requirement	\$2,376,621	56%	27%	16%	\$1,332,471	\$652,594	\$391,556	\$6.73	\$1.63	\$1.23
						\$2,376,621				

Table 9
City of Calistoga
Flows and Loadings Summary

	# of Sewer Meters	Projected Water Use	Projected Wastewater Flow			Loadings (lbs)		FY 2016/17 Unit Rate Per Class			FY 2016/17 Cost Recovery			Restructured FY 2016/17 Monthly Rates
			hcf	mg	gpd	BOD	SS	\$/hcf	\$/lb BOD	\$/lb SS	\$/hcf	\$/lb BOD	\$/lb SS	\$/billing unit
Residential														
Single Family	1,130	0	67,800	50.72	138,953	127,000	127,000	\$6.73	\$1.63	\$1.23	\$455,956	\$207,157	\$156,300	\$60.43
Multi Family	600	0	30,240	22.62	61,976	56,644	56,644	\$6.73	\$1.63	\$1.23	203,365	92,396	69,712	\$50.76
Mobile Home	555	0	17,982	13.45	36,853	33,683	33,683	\$6.73	\$1.63	\$1.23	120,929	54,942	41,454	\$32.63
Transient														
Transient General	N/A	25,443	25,443	19.03	52,144	63,545	31,773	\$6.73	\$1.63	\$1.23	171,105	103,652	39,103	\$/hcf \$12.34
Spa	N/A	11,822	11,822	8.84	24,229	29,526	14,763	\$6.73	\$1.63	\$1.23	79,503	48,161	18,169	\$12.34
Campground	N/A	3,613	3,613	2.70	7,405	9,024	4,512	\$6.73	\$1.63	\$1.23	24,298	14,719	5,553	\$12.34
Bed & Breakfast	N/A	2,223	2,223	1.66	4,556	5,552	2,776	\$6.73	\$1.63	\$1.23	14,950	9,056	3,416	\$12.34
Commercial														
Commerical General	N/A	7,484	7,484	5.60	15,338	3,738	3,738	\$6.73	\$1.63	\$1.23	50,330	6,098	4,601	\$/hcf \$8.15
Restaurant/Bakery	N/A	10,207	10,207	7.64	20,919	63,731	38,239	\$6.73	\$1.63	\$1.23	68,642	103,955	47,061	\$21.52
Laundry	N/A	2,079	2,079	1.56	4,261	1,038	1,038	\$6.73	\$1.63	\$1.23	13,981	1,694	1,278	\$8.15
Public Building	N/A	1,673	1,673	1.25	3,429	836	836	\$6.73	\$1.63	\$1.23	11,251	1,363	1,028	\$8.15
Medical Care	N/A	584	584	0.44	1,197	292	292	\$6.73	\$1.63	\$1.23	3,927	476	359	\$8.15
Brewery/Winery	N/A	405	405	0.30	830	202	202	\$6.73	\$1.63	\$1.23	2,724	330	249	\$8.15
School	N/A	2,696	2,696	2.02	5,525	1,347	1,347	\$6.73	\$1.63	\$1.23	18,131	2,197	1,657	\$8.15
Service Station	N/A	392	392	0.29	803	196	196	\$6.73	\$1.63	\$1.23	2,636	319	241	\$8.15
Industrial & Bottling Works														
Industrial & Bottling Works	N/A	1,671	1,671	1.25	3,425	3,652	1,044	\$6.73	\$1.63	\$1.23	11,240	5,958	1,284	\$/mg \$8,990.05
														\$/BOD \$1.63
														\$/SS \$1.23
TOTAL	2,285	70,292	186,314	139.37	381,843	400,007	318,082				\$1,252,968	\$652,473	\$391,465	
Estimated Spa Discharge Revenue														\$79,714
Total Revenue														\$2,376,621

**Table 10
City of Calistoga
Wastewater Rate Comparison**

User Category	Basis	Current Rate Structure	2017/18 Rate with First Year % Increase
Residential Rates			
Single Family Residential	Flat Monthly	\$65.25	\$69.49
Multi-Family Residential	Flat Monthly per meter	\$54.90	\$58.37
Mobile Home	Flat Monthly per meter	\$35.46	\$37.53
Transient Rates			
Transient General	Per hcf water use	\$13.35	\$14.19
Spa	Per hcf water use	\$13.35	\$14.19
Campground	Per hcf water use	\$13.35	\$14.19
Bed & Breakfast	Per hcf water use	\$13.35	\$14.19
Other Non-Residential Rates			
Commerical General	Per hcf water use	\$5.17	\$9.38
Restaurant/Bakery	Per hcf water use	\$22.92	\$24.75
Laundry	Per hcf water use	\$5.17	\$9.38
Public Building	Per hcf water use	\$5.17	\$9.38
Medical Care	Per hcf water use	\$5.17	\$9.38
Brewery/Winery (with pre-treatment)	Per hcf water use	\$1.48	\$9.38
School	Per hcf water use	\$5.17	\$9.38
Service Station	Per hcf water use	\$5.17	\$9.38
Industrial & Bottling Works Rates			
Measure Flow Rate	Per mg of Measured Flow	\$10,330.19	\$10,338.55
Calculated BOD Rate	Per Pound	\$1.69	\$1.88
Calculated SS Rate	Per Pound	\$1.31	\$1.42
Groundwater Discharge Rates			
Spa [1]	Per hcf of Water Use	\$4.15	\$4.77
Residential Spa/Commercial [1]	Per hcf of Groundwater Measured Flow Only	\$8.61	\$9.90
Other Rates			
Wastewater Capacity Allocation [1]	Flat Monthly	\$41.19	\$47.37
Minimum Rate for All Non-Residential User Categories [1]	Flat Monthly	\$35.46	\$40.78

[1] no structure change

Table 11
City of Calistoga
Proposed Wastewater Rates

Current Rate Structure			Proposed Rate Structure									
			Rate Escalation Scenario 1 - All Capital					Rate Escalation Scenario 2 - All Capital w/ All Grant Funding				
User Category	Basis	Charge	15.0%	13.0%	10.0%	10.0%	3.0%	15.0%	8.0%	5.0%	3.0%	3.0%
Residential Rates			2017/18	2018/19	2019/20	2020/21	2021/22	2017/18	2018/19	2019/20	2020/21	2021/22
Single Family Residential	Flat Monthly	\$65.25	\$69.49	\$78.53	\$86.38	\$95.02	\$97.87	\$69.49	\$75.05	\$78.81	\$81.17	\$83.60
Multi-Family Residential	Flat Monthly per meter	\$54.90	\$58.37	\$65.96	\$72.56	\$79.81	\$82.21	\$58.37	\$63.04	\$66.20	\$68.18	\$70.23
Mobile Home	Flat Monthly per meter	\$35.46	\$37.53	\$42.40	\$46.65	\$51.31	\$52.85	\$37.53	\$40.53	\$42.55	\$43.83	\$45.15
Transient Rates												
Transient General	Per hcf water use	\$13.35	\$14.19	\$16.03	\$17.63	\$19.40	\$19.98	\$14.19	\$15.32	\$16.09	\$16.57	\$17.07
Spa	Per hcf water use	\$13.35	\$14.19	\$16.03	\$17.63	\$19.40	\$19.98	\$14.19	\$15.32	\$16.09	\$16.57	\$17.07
Campground	Per hcf water use	\$13.35	\$14.19	\$16.03	\$17.63	\$19.40	\$19.98	\$14.19	\$15.32	\$16.09	\$16.57	\$17.07
Bed & Breakfast	Per hcf water use	\$13.35	\$14.19	\$16.03	\$17.63	\$19.40	\$19.98	\$14.19	\$15.32	\$16.09	\$16.57	\$17.07
Other Non-Residential Rates												
Commerical General	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21	\$9.38	\$10.13	\$10.63	\$10.95	\$11.28
Restaurant/Bakery	Per hcf water use	\$22.92	\$24.75	\$27.97	\$30.76	\$33.84	\$34.85	\$24.75	\$26.73	\$28.06	\$28.91	\$29.77
Laundry	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21	\$9.38	\$10.13	\$10.63	\$10.95	\$11.28
Public Building	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21	\$9.38	\$10.13	\$10.63	\$10.95	\$11.28
Medical Care	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21	\$9.38	\$10.13	\$10.63	\$10.95	\$11.28
Brewery/Winery	Per hcf water use	\$1.48	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21	\$9.38	\$10.13	\$10.63	\$10.95	\$11.28
School	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21	\$9.38	\$10.13	\$10.63	\$10.95	\$11.28
Service Station	Per hcf water use	\$5.17	\$9.38	\$10.60	\$11.66	\$12.82	\$13.21	\$9.38	\$10.13	\$10.63	\$10.95	\$11.28
Industrial & Bottling Works												
Measured Flow Rate	Per mg of Measured Flow	\$10,330.19	\$10,338.55	\$11,682.56	\$12,850.82	\$14,135.90	\$14,559.98	\$10,338.55	\$11,165.64	\$11,723.92	\$12,075.64	\$12,437.91
Calculated BOD Rate	Per pound	\$1.69	\$1.88	\$2.12	\$2.33	\$2.56	\$2.64	\$1.88	\$2.03	\$2.13	\$2.19	\$2.26
Calculated SS Rate	Per pound	\$1.31	\$1.42	\$1.60	\$1.76	\$1.94	\$1.99	\$1.42	\$1.53	\$1.60	\$1.65	\$1.70
Groundwater Discharge Rates												
Spa	Per hcf of Water Use Per hcf of Groundwater	\$4.15	\$4.77	\$5.39	\$5.93	\$6.53	\$6.72	\$4.77	\$5.15	\$5.41	\$5.57	\$5.74
Residential Spa/Commercial	Measured Flow Only	\$8.61	\$9.90	\$11.19	\$12.31	\$13.54	\$13.94	\$9.90	\$10.69	\$11.23	\$11.57	\$11.91
Other Rates												
Wastewater Capacity Allocation	Flat Monthly	\$41.19	\$47.37	\$53.53	\$58.88	\$64.77	\$66.71	\$47.37	\$51.16	\$53.72	\$55.33	\$56.99
Minimum Rate for All Non-Residential User Categories	Flat Monthly	\$35.46	\$40.78	\$46.08	\$50.69	\$55.76	\$57.43	\$40.78	\$44.04	\$46.24	\$47.63	\$49.06

Chart 2: Single Family Residential Monthly Wastewater Rates, FY16/17



*assumes 1 EDU, 5 hcf (Calistoga average monthly SFR water usage, FY16)