City of Angels Camp

2019 Water and Wastewater Rate Cost of Service Study

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SECTION 1: INTRODUCTION

Executive Summary

The City of Angels Camp ("the City") retained Bartle Wells Associates ("BWA") to develop a financial plan and cost of service study for the City's water and wastewater rates to ensure financial stability over the next five years (FY 2019/20 to FY 2023/24). The City last increased rates in 2010. **Table 1** shows the current and proposed rates resulting from this study.

Table 1
City of Angels Camp
Current and Proposed Rates

Current & Proposed Water Rates (Monthly)

Meter Size (Monthly Rate)	Current Meter + UWPA Fee	8/21/2019 Meter + UWPA Fee	7/1/2020 Meter + UWPA Fee	7/1/2021 Meter + UWPA Fee	7/1/2022 Meter + UWPA Fee	7/1/2023 Meter + UWPA Fee
5/8"	$40.75	$47.10	$50.18	$53.48	$57.03	$60.84
3/4"	$48.39	$70.65	$75.26	$80.22	$85.54	$91.26
1"	$63.66	$117.76	$125.44	$133.69	$142.56	$152.10
1 1/2"	$79.45	$235.51	$250.88	$267.39	$285.13	$304.20
2"	$121.09	$376.82	$401.40	$427.82	$456.20	$486.71
3"	$229.13	$706.53	$752.63	$802.16	$855.38	$912.59
4"	$345.08	$1,177.56	$1,254.39	$1,336.93	$1,425.64	$1,520.98
6"	$503.11	$2,355.11	$2,508.77	$2,673.86	$2,851.27	$3,041.97
Construction Meter	$46.68	$70.65	$75.26	$80.22	$85.54	$91.26

Volumetric Rates	Current	8/21/2019	7/1/2020	7/1/2021	7/1/2022	7/1/2023
All use, $/hcf*		$1.24	$1.34	$1.45	$1.56	$1.69
Tier 1 (0 to 10 hcf)	$0.00					
Tier 2 (11 to 15 hcf)	$1.08					
Tier 3 (>15 hcf)	$1.63					

Current & Proposed Wastewater Rates (Monthly)

Residential User Class	Current	8/21/2019	7/1/2020	7/1/2021	7/1/2022	7/1/2023
			Current and Proposed Monthly Rates			
Single Family ($/Unit)	$71.92	$78.01	$84.61	$91.76	$99.53	$107.95
Mobile Home ($/Unit)	$71.92	$78.01	$84.61	$91.76	$99.53	$107.95
Multi-Family ($/Unit)	$71.92	$78.01	$84.61	$91.76	$99.53	$107.95
Commercial & Industrial (per establishment)	$90.95	$98.61	$106.93	$115.94	$125.71	$136.30
Other Institutional (per gallon, winter use)	$0.0149	$0.0159	$0.0170	$0.0182	$0.0195	$0.0208
Six Mile Village (per gallon of flow)	$0.0142	$0.0142	$0.0143	$0.0143	$0.0143	$0.0144

**HCF = Hundred Cubic Feet or approximately 748 gallons*

UWPA Fee is based on Water Year 3; additional costs will pass through Water Years 4-6, based on the UWPA contribution, divided by meter equivalents. Large meters will pay proportionally more based on metered capacity.

Background

The City has a population of approximately 3,800. The water utility provides service for 2,029 customers, 92% of those customers are residential. The sewer utility serves 1,905 customers, with 91% residential. The cost for operating both water and sewer includes operating costs, pension and other postemployment benefits (OPEB) unfunded liability, capital expenses, and debt service.

Water Supply

The City's water supply is provided through a Joint Powers Agreement (JPA) between the City of Angels and Union Public Utility District (UPUD). The JPA, known as Utica Water and Power Authority (UWPA), has served the City and its partner agency since 1995, when local officials purchased 27-miles of flumes and ditches and two powerhouses from PG&E. The purchase, led by CCWD, secured valuable, pre-1914 water rights.

From 1995 to 2013, communities served by UWPA received water from the North Fork Stanislaus River at little to no cost. This low-cost water was dependent upon three factors. The first factor is water availability in good water years for hydro-power generation (i.e., no drought conditions). Water availability is outside of human control and dependent upon snowpack within a given year. Less water results in less power generation, which results in less revenue to supplement water service expenses. This leads to the second factor, power generation. The ability to sell power is not only affected by the amount of Sierra snowpack, but also by the energy markets. The system, while previously innovative, has been disrupted by advances in renewable energy sources and competition from natural gas. The third factor influencing low cost water is the lack of investment in the maintenance and security of the gold-mine era distribution system.

Today, deferred maintenance is no longer an option for reducing costs. UWPA faces critical challenges, such as funding mandatory Federal Energy Regulation Commission relicensing, which will require a substantial financial investment, and the changing energy markets.

While residents have enjoyed a low-cost water source for decades, that model is no longer sustainable. The system experienced unprecedented dry years between the years of 2012-2015, which, combined with the three factors previously discussed, have drained UWPA's reserves.

Since 1995, the UWPA fees collected from City rate payers have remained one dollar ($1.00) per month. In 2014, UWPA required member agencies to contribute additional funds towards the JPA. Further, wholesale water costs increase during periods of drought. The City's contributions to UWPA fluctuate depending on drought conditions and are dependent on the water year tier, as declared by the Department of Water Resources. Water Year tiers range

from Water Year 1 through Water Year 6 (severe drought conditions). UWPA has reported deficits by water year ranging from $500,000, in a Water Year No. 1, to a projected $1.3 million deficit, in a Water Year No. 6. Member agencies, including the City of Angels, have the responsibility to ensure the financial viability of the JPA. The additional contributions come directly from the City's water operations budget, thereby reducing the City's capacity to invest in the operations and maintenance of its distribution system.

City Water Distribution

The City acquired the water treatment plant from PG&E in 1984. A 2.5-million-gallon tank located at the water treatment plant is the only existing storage tank within the City's water system. Water distribution system is powered by the original PG&E transmission line, which is believed to be greater than 50 years old. The City maintains 167,000 linear feet of pipelines, with diameters ranging from 2 to 14 inches. The system includes 300 hydrants, 30 air relieve valves, 14 blow-off valves, ten pressure reducing valves, and one surge valve. Certain segments of pipe are estimated to be more than 50 years old. The City water system serves 2,029 customers.

Sewer Distribution and Collection

The existing wastewater system serves approximately 1,905 connections; approximately 91% of the connections are residential. The system is comprised of six pump stations, 4.5 miles of forced main lines, and 22.5 miles of gravity sewer lines. The system is comprised of three district sub-systems: Altaville, Downtown, and Angel Oaks/Greenhorn.

The Water Treatment Plant consists of headworks, an equalization basin, three sequencing batch reactors, an intermediate storage basin, four filters ultraviolet disinfection facilities, a diversion storage basin, two aerobic digesters, belt filter press, eight sludge drying beds, and a storage reservoir. Recycled water is used to irrigate a 136-acre sprayfield adjacent to Holman Reservoir and the 110-acre golf course at Greenhorn Creek.

SECTION 2: LEGAL REQUIREMENTS

Constitutional Rate Requirements

The California Constitution includes two key articles that directly govern or impact the City's water and wastewater rates: Article 10 and Article 13D. The rates developed in this study were designed to comply with both of these constitutional mandates as well as various provisions of the California Water Code and Government Code that support and add further guidance for implementing these constitutional requirements. In accordance with the constitutional provisions, the proposed rates are designed to: (a) recover the City's cost of providing water and wastewater service; (b) allocate costs in proportion to the cost for serving each customer class; and (c) promote conservation and discourage waste.

Article 10, Section 2

Article 10, Section 2 of the California Constitution was established by voter-approval in 1976 and requires public agencies to maximize the beneficial use of water, prevent waste, and encourage conservation. Section 2 states that:

> *It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare.*

Article 13D, Section 6

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, including ongoing utility service charges for water, sewer, and garbage. Article 13D, Section 6, establishes procedural requirements and substantive requirements for imposing or increasing property-related charges.

The substantive requirements of Article 13D, Section 6, require the City's water and wastewater rates to meet the following conditions:

1) Revenues derived from the fee or charge shall not exceed the funds required to provide the property related service.
2) 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.
3) 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.

4) No fee or charge may be imposed for a service unless that service is actually used by, or immediately available to, the owner of the property in question.

5) 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.

Use of Generally Accepted Rate-Making Principles

The rates developed in this report 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 water rates, charges, and fees established in the American Water Works Association (AWWA) M1 Manual. In developing water rates, it is important to know that there is no "one-size-fits-all" approach for establishing cost-based water rates, "the (M1 Manual) is aimed at outlining the basic elements involved in water rates and suggesting alternative rules of procedure for formulating rates, thus permitting the exercise of judgment and preference to meet local conditions and requirements." [1]

[1] AWWA Manual M1 Manual, Principles of Water Rates, Fees, and Charges, Sixth Edition, 2012, page 5.

SECTION 3: WATER RATES

Current Water Rates

As shown in **Table 2**, the current rate structure includes a monthly meter service charge, a tiered volumetric rate based upon usage, and an additional UWPA charge of $1.00. BWA proposes eliminating the additional charge per unit and the outside city charge and moving to a uniform rate for all usage to ensure equity and reflect updated cost estimates.

Table 2
City of Angels Camp
Water Rates

		Monthly Meter Rate		Volumetric Rates		
Year	**Meter Size**	**City Charge**	**Outside City Charge**			
	3/4" x 5/8"	$39.75	$75.31			
	3/4"	$47.39	$85.87	**All Customers**	**Monthly Tiers**	**$/hcf**
	1"	$62.66	$117.45	Tier 1	0 to 10 hcf	$0.000
Current (Aug 2009)	1 1/2"	$78.45	$149.08	Tier 2	11 to 15 hcf	$1.083
	2"	$120.09	$236.05	Tier 3	> 16 hcf	$1.626
	3"	$228.13	$454.68	**Each additional residential unit**		**Monthly**
	4"	$344.08	$686.56	Each additional unit		$27.91
	6"	$502.11	$1,002.74			
Additional Charge				**Ag Rate**	All use, per hcf	$1.50
UWPA Charge		$1	per account			

Outstanding Debt

Table 3 shows the water enterprise outstanding debt service.

Table 3
City of Angels Camp
Water Debt Service

State Department of Water Resources (Water)			
Fiscal Year Ended June 30,	**Principal**	**Interest**	**Total Repayment**
2018	$74,468	$0	$74,468
2019	$74,468	$0	$74,468
2020	$74,468	$0	$74,468
2021	$74,468	$0	$74,468
2022	$74,468	$0	$74,468
2023 - 2024	$74,468	$0	$74,468
Totals	$446,808	$0	$446,808

Capital Plan

Table 4 shows the water enterprise 5-year capital improvement program. The 10-year capital plan for the water system, competed in 2013, identified 22 projects with more than $14.1 million in associated costs. The 5-year Capital Improvement Plan (CIP) has identified project costs in the amount of $5.68 million, or $1.14 million per year of the 5-year rate study. The projects aim to increase the safety and security of the system and to promote regulatory compliance. Deferred maintenance and lack of investment in the water system is becoming problematic with cost avoidance measures becoming an increasing liability.

Table 4
City of Angels Camp
Water Capital Program

	2019-2020	**2020-2021**	**2021-2022**	**2022-2023**	**2023-2024**	**Total**
Water Transmission Main Augmentation Program					165,000	**165,000**
Water Treatment Plant Backwash Handling Improvements	130,000	1,490,000				**1,620,000**
Water Treatment Plant Filter Replacement / Expansion			270,000	1,555,000	1,555,000	**3,380,000**
Water System Replacement Program, Phase 1	125,000					**125,000**
Water System Replacement Program, Phase 2			390,000			**390,000**
Total	**255,000**	**1,490,000**	**660,000**	**1,555,000**	**1,720,000**	**5,680,000**

Cash Flow Projection

Table 5 shows the water enterprise 10-year cash flow projection. BWA determined that the City needs to increase revenue from rates (excluding the UWPA fee) by 8% per year to meet the goal of funding the City's operating and capital needs. The UWPA charges are recommended to be increased to fully cover projected Utica Water and Power contributions. Current FY 2018/19 rate revenues of $1.5 MM are significantly below projected operating expenses of $1.9 MM in FY 2019/20. To fund the City's substantial capital needs, the water enterprise fund balance is projected to be drawn down from $6.2 MM, as of July 1, 2019 to $2.6 MM, by June 30, 2024.

Table 5
City of Angels Camp
Water Cash Flow Projection - Projected Rate Increases ($1MM/Year Pay-as-you-go Capital)

		Projected									
	2017/18	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**
% Water Service Charge Increase			***8%***	***8%***	***8%***	***8%***	***8%***	***8%***	***8%***	***8%***	***8%***
Growth - %			*0.0%*	*0.5%*	*0.5%*	*0.5%*	*0.5%*	*0.5%*	*0.5%*	*0.5%*	*0.5%*
REVENUES											
Water Rate Revenue											
Water Service Charges	$1,473,321	$1,473,321	$1,591,187	$1,727,074	$1,874,566	$2,034,654	$2,208,414	$2,397,012	$2,601,717	$2,823,904	$3,065,065
UWPA Charges	24,348	24,348	405,068	417,220	429,737	442,629	455,908	469,585	483,672	498,183	513,128
Total Rate Revenues	$1,497,669	$1,497,669	$1,996,255	$2,144,294	$2,304,303	$2,477,283	$2,664,321	$2,866,597	$3,085,390	$3,322,086	$3,578,193
Misc Operating Revenues[1]											
Water Capital Improvement Fee	$197,653	$215,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000
Interest	69,879	27,000	27,000	27,000	27,000	27,000	27,000	27,000	27,000	27,000	27,000
Misc. Revenue	49,248	39,000	39,000	39,000	39,000	39,000	39,000	39,000	39,000	39,000	39,000
Total Misc Operating Revenues	$316,780	$281,000	$266,000	$266,000	$266,000	$266,000	$266,000	$266,000	$266,000	$266,000	$266,000
Non Operating Revenues											
Transfer In	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Total Non Operating Revenues	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL REVENUES	$1,814,450	$1,778,669	$2,262,255	$2,410,294	$2,570,303	$2,743,283	$2,930,321	$3,132,597	$3,351,390	$3,588,086	$3,844,193
EXPENSES											
Operating Expenses											
Salaries & Wages	$569,661	$529,936	$551,133	$573,179	$596,106	$619,950	$644,748	$670,538	$697,359	$725,254	$754,264
Benefits, Insurances & Taxes	340,489	318,704	331,452	344,710	358,499	372,839	387,752	403,262	419,393	436,169	453,615
Water UL	95,068	78,906	64,443	73,338	83,642	92,382	97,295	102,862	117,128	133,383	151,902
Utica Water And Power Contribution	64,200	125,000	405,068	417,220	429,737	442,629	455,908	469,585	483,672	498,183	513,128
Sprayfield Expenditures	0	0	0	0	0	0	0	0	0	0	0
Rents, Leases, & Utilities	23,749	24,400	25,132	25,886	26,663	27,462	28,286	29,135	30,009	30,909	31,836
Repairs & Maintenance	14,974	23,050	23,742	24,454	25,187	25,943	26,721	27,523	28,349	29,199	30,075
Tools & Equipment	5,318	11,400	11,742	12,094	12,457	12,831	13,216	13,612	14,021	14,441	14,874
Professional Services	7,599	145,243	149,600	154,088	158,711	163,472	168,377	173,428	178,631	183,990	189,509
Materials & Supplies	64,601	86,650	89,250	91,927	94,685	97,525	100,451	103,465	106,569	109,766	113,059
Other Services & Charges	66,247	100,050	103,052	106,143	109,327	112,607	115,985	119,465	123,049	126,740	130,543
O&M Cost Allocations	152,798	133,983	138,003	142,143	146,407	150,799	155,323	159,983	164,782	169,726	174,818
Total Operating Expenses	$1,404,704	$1,577,322	$1,892,617	$1,965,182	$2,041,420	$2,118,440	$2,194,062	$2,272,857	$2,362,962	$2,457,758	$2,557,623
Non Operating Expenses											
Vehicle Replacement Set Aside	-	-	$24,286	$24,286	$24,286	$24,286	$24,286	$24,286	$24,286	$24,286	$24,286
Low Income Discount Program			20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
SDWR Loan Debt Service	74,468	74,468	74,468	74,468	74,468	74,468	74,468	0	0	0	0
Repairs & Replacement (Not in CIP)	-	-	9,150	9,150	9,150	9,150	9,150	9,150	9,150	9,150	9,150
Capital Improvement Projects	54,933	394,722	255,000	1,490,000	660,000	1,555,000	1,720,000	1,000,000	1,030,000	1,060,900	1,092,727
Total Non Operating Expenses	$129,401	$469,190	$382,904	$1,617,904	$787,904	$1,682,904	$1,847,904	$1,053,436	$1,083,436	$1,114,336	$1,146,163
TOTAL EXPENSES	$1,534,105	$2,046,512	$2,275,521	$3,583,086	$2,829,324	$3,801,344	$4,041,966	$3,326,293	$3,446,398	$3,572,094	$3,703,786
NET REVENUES FOR DEBT SERVICE/CAPITAL	$409,746	$201,347	$369,638	$445,112	$528,883	$624,843	$736,259	$859,740	$988,428	$1,130,328	$1,286,570
NET INCOME	$280,345	($267,843)	($13,266)	($1,172,792)	($259,021)	($1,058,061)	($1,111,645)	($193,696)	($95,008)	$15,992	$140,407
Ending Fund Balance	$6,487,633	$6,219,790	$6,206,524	$5,033,732	$4,774,711	$3,716,650	$2,605,005	$2,411,309	$2,316,301	$2,332,293	$2,472,701
Recom. Min Fund Target (180 days O&M)	$702,352	$788,661	$946,308	$982,591	$1,020,710	$1,059,220	$1,097,031	$1,136,428	$1,181,481	$1,228,879	$1,278,811
Target Met	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Debt Service Coverage (Min. 1.20x)	5.50	2.70	4.96	5.98	7.10	8.39	9.89	N/A	N/A	N/A	N/A
Target Met	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*

1 - Connection Fees, Inspections, Water Meter Charge, Utility Processing Fee, Door Hanger Fee, Restoration Fee, Interest, Utility Late Fee, Other

Current Customer Base & Revenue Estimate

Table 6 shows the current number of customers for the water enterprise by meter size and projected rate revenue under current rates. BWA proposes aligning the meter cost ratio based on AWWA standard ratios. Under this approach, the City has 2,678 equivalent 5/8" meter customers. Excluding UWPA Fee charges, the water enterprise current collects approximately 72% of rate revenue from fixed meter charges and 28% from volumetric charges. Total usage amounted to 389,305 hundred cubic feet in FY 2017/18. Under a uniform rate structure, each unit is estimated to cost an average of $1.06 per one hundred cubic feet (hcf).

Table 6
City of Angels Camp
Water Customers & Rate Revenue

Meter Size	Number of Customers	Monthly Meter Rate	Monthly Meter Revenue	Current Meter Cost Ratio	Proposed Meter Cost Ratio (AWWA)	5/8" Meter Equivalents
5/8"	1,861	$39.75	$73,975	1.0	1.0	1861
3/4"	36	$47.39	$1,706	1.2	1.5	54
1"	53	$62.66	$3,321	1.6	2.5	133
1 1/2"	24	$78.45	$1,883	2.0	5.0	120
2"	34	$120.09	$4,083	3.0	8.0	272
3"	10	$228.13	$2,281	5.7	15.0	150
4"	1	$344.08	$344	8.7	25.0	25
6"	1	$502.11	$502	12.6	50.0	50
Construction Meter	8	$45.68	$365	1.1	1.5	12
Marshall Penstock	1	$39.75	$40	1.0	1.0	1
	2,029		$88,500			2,678

Current Water Rate Revenue Estimate	
Annual Meter Revenue	$1,062,004
Estimated Total Rate Revenue (FY 2017/18)	$1,473,321
Estimated Volumetric Rate Revenue (FY 2017/18)	$411,317
Total Use (HCF) (FY 2017/18)	389,305
$/hcf	$1.06

Cost Allocation to Billing Components

In **Table 7**, BWA allocated projected FY 2019/20 costs (excluding UWPA costs) to billing components (meter versus usage charges). Costs which are more recurrent, such as debt service and salaries, are allocated more towards fixed meter charges. BWA recommends collecting approximately 70% of rate revenue based on meter charges and 30% based on usage charges.

Table 7
City of Angels Camp
Cost Allocation - 2019/20

	2019/20	Meter Charge		Usage Charge	
Operating Expenses					
Salaries & Wages	$551,133	70%	$385,793	30%	$165,340
Benefits, Insurances & Taxes	331,452	70%	232,017	30%	99,436
Water UL	64,443	70%	45,110	30%	19,333
Rents, Leases, & Utilities	25,132	65%	16,336	35%	8,796
Repairs & Maintenance	23,742	65%	15,432	35%	8,310
Tools & Equipment	11,742	65%	7,632	35%	4,110
Professional Services	149,600	65%	97,240	35%	52,360
Materials & Supplies	89,250	65%	58,012	35%	31,237
Other Services & Charges	103,052	65%	66,983	35%	36,068
O&M Cost Allocations	138,003	65%	89,702	35%	48,301
Total Operating Expenses	$1,487,549		$1,014,258		$473,291
Non Operating Expenses					
SDWR Loan Debt Service	$74,468	100%	$74,468	0%	$0
Vehicle Replacement Set Aside	$24,286	65%	$15,786	35%	$8,500
Repairs & Replacement (Not in CIP)	$9,150	65%	$5,948	35%	$3,203
Capital Improvement Projects	255,000	50%	127,500	50%	127,500
Total Non Operating Expenses	$362,904		$223,701		$139,203
TOTAL EXPENSES	$1,850,453		$1,237,959		$612,493
Adjustments					
Less: Non Rate Revenue	-$266,000	50%	-$133,000	50%	-$133,000
Plus: Net Income	6,734	50%	3,367	50%	3,367
Total Adjustments	-$259,266		-$129,633		-$129,633
Total Rate Revenue Requirement	**$1,591,187**	69.7%	**$1,108,327**	30.3%	**$482,860**

Meter Charges

Table 8 shows the development of the meter charges. The $1,108,327 of costs allocated to meter charges in **Table 7** is divided by estimated 5/8" meter equivalents of 2,678 to get an annual charge of $413.94, or $34.50 per month. Customers with meters larger than the 5/8" base would pay proportionally more based on the capacity of the meter.

Table 8
City of Angels Camp
Meter Cost Allocation - FY 2019/20

Align With AWWA Meter Equivalent Ratios

Meter Charge Allocation
$1,108,327

5/8" AWWA Meter Equivalents
2,678

Annual $ per 5/8" Meter Equivalent
$413.94

Monthly $/per 5/8" Meter Equivalent
$34.50

Meter Size	Current Cost Ratio	AWWA Meter Equivalents	Current	Proposed	Monthly $ Increase
5/8"	1.0	1.0	$39.75	$34.50	*-$5.25*
3/4"	1.2	1.5	$47.39	$51.74	*4.35*
1"	1.6	2.5	$62.66	$86.24	*23.58*
1 1/2"	2.0	5.0	$78.45	$172.48	*94.03*
2"	3.0	8.0	$120.09	$275.96	*155.87*
3"	5.7	15.0	$228.13	$517.43	*289.30*
4"	8.7	25.0	$344.08	$862.38	*518.30*
6"	12.6	50.0	$502.11	$1,724.75	*1,222.64*

UWPA Fee

Table 9 shows the development of the UWPA fee. Projected UWPA contributions are divided by total meter equivalents to get a cost per 5/8" meter. Larger meters pay proportionally more based on their metered capacity. The fee is designed to cover the costs of the City's water supply based on projected contribution amounts. The projected costs utilized to develop these fees are based on UWPA projected contributions necessary per water year. BWA recommends implementing a UWPA fee based on an average water year, or water year 3. Should contribution amounts be less than average, such as in the case of a water year 1 or 2, the City is recommended to save the additional amount in a balancing account that can be used to offset rate increases in bad years (water years 4, 5 or 6). BWA recommends that the City pass through UWPA contribution costs during a water year 4, 5 or 6, less any available funds in the balancing account.

Table 9
City of Angels Camp
UWPA Charge Meter Cost Allocation

Water Year 1	2019/20	2020/21	2021/22	2022/23	2023/24
Utica Water And Power Contribution	$250,000	$257,500	$265,225	$273,182	$281,377
Growth %	*0.0%*	*0.5%*	*0.5%*	*0.5%*	*0.5%*
Projected 5/8" Meter Equivalents	2,678	2,691	2,704	2,718	2,731
Meter Size	2019/20	2020/21	2021/22	2022/23	2023/24
5/8"	$7.78	$7.97	$8.17	$8.38	$8.58
3/4"	$11.67	$11.96	$12.26	$12.56	$12.88
1"	$19.45	$19.94	$20.43	$20.94	$21.46
1 1/2"	$38.90	$39.87	$40.86	$41.88	$42.92
2"	$62.25	$63.80	$65.38	$67.01	$68.68
3"	$116.71	$119.62	$122.59	$125.64	$128.77
4"	$194.52	$199.36	$204.32	$209.40	$214.61
6"	$389.04	$398.72	$408.64	$418.81	$429.22

Water Year 2	2019/20	2020/21	2021/22	2022/23	2023/24
Utica Water And Power Contribution	$328,133	$337,976	$348,116	$358,559	$369,316
Meter Size	2019/20	2020/21	2021/22	2022/23	2023/24
5/8"	$10.21	$10.47	$10.73	$10.99	$11.27
3/4"	$15.32	$15.70	$16.09	$16.49	$16.90
1"	$25.53	$26.17	$26.82	$27.48	$28.17
1 1/2"	$51.06	$52.33	$53.64	$54.97	$56.34
2"	$81.70	$83.73	$85.82	$87.95	$90.14
3"	$153.19	$157.00	$160.91	$164.91	$169.01
4"	$255.32	$261.67	$268.18	$274.85	$281.68
6"	$510.63	$523.33	$536.35	$549.70	$563.37

Water Year 3 (Average)	2019/20	2020/21	2021/22	2022/23	2023/24
Utica Water And Power Contribution	$405,068	$417,220	$429,737	$442,629	$455,908
Meter Size	2019/20	2020/21	2021/22	2022/23	2023/24
5/8"	$12.61	$12.92	$13.24	$13.57	$13.91
3/4"	$18.91	$19.38	$19.86	$20.36	$20.86
1"	$31.52	$32.30	$33.11	$33.93	$34.77
1 1/2"	$63.04	$64.60	$66.21	$67.86	$69.55
2"	$100.86	$103.37	$105.94	$108.57	$111.27
3"	$189.11	$193.81	$198.63	$203.57	$208.64
4"	$315.18	$323.02	$331.05	$339.29	$347.73
6"	$630.36	$646.04	$662.11	$678.58	$695.46

Water Year 4	2019/20	2020/21	2021/22	2022/23	2023/24
Utica Water And Power Contribution	$517,854	$533,390	$549,391	$565,873	$582,849
Meter Size	2019/20	2020/21	2021/22	2022/23	2023/24
5/8"	$16.12	$16.52	$16.93	$17.35	$17.78
3/4"	$24.18	$24.78	$25.39	$26.03	$26.67
1"	$40.29	$41.30	$42.32	$43.38	$44.46
1 1/2"	$80.59	$82.59	$84.65	$86.75	$88.91
2"	$128.94	$132.15	$135.43	$138.80	$142.26
3"	$241.76	$247.78	$253.94	$260.26	$266.73
4"	$402.94	$412.96	$423.23	$433.76	$444.55
6"	$805.87	$825.92	$846.46	$867.52	$889.10

Water Year 5	2019/20	2020/21	2021/22	2022/23	2023/24
Utica Water And Power Contribution	$589,910	$607,607	$625,836	$644,611	$663,949
Meter Size	2019/20	2020/21	2021/22	2022/23	2023/24
5/8"	$18.36	$18.82	$19.28	$19.76	$20.26
3/4"	$27.54	$28.23	$28.93	$29.65	$30.38
1"	$45.90	$47.04	$48.21	$49.41	$50.64
1 1/2"	$91.80	$94.08	$96.42	$98.82	$101.28
2"	$146.88	$150.53	$154.28	$158.12	$162.05
3"	$275.40	$282.25	$289.27	$296.47	$303.84
4"	$459.00	$470.42	$482.12	$494.12	$506.41
6"	$918.00	$940.84	$964.24	$988.23	$1,012.81

Water Year 6	2019/20	2020/21	2021/22	2022/23	2023/24
Utica Water And Power Contribution	$635,234	$654,291	$673,920	$694,137	$714,961
Meter Size	2019/20	2020/21	2021/22	2022/23	2023/24
5/8"	$19.77	$20.26	$20.77	$21.28	$21.81
3/4"	$29.66	$30.39	$31.15	$31.92	$32.72
1"	$49.43	$50.66	$51.92	$53.21	$54.53
1 1/2"	$98.85	$101.31	$103.83	$106.42	$109.06
2"	$158.17	$162.10	$166.13	$170.27	$174.50
3"	$296.56	$303.94	$311.50	$319.25	$327.19
4"	$494.27	$506.56	$519.16	$532.08	$545.32
6"	$988.54	$1,013.13	$1,038.33	$1,064.16	$1,090.63

Proposed Rates

Table 10 shows the current and proposed water rates based on an average water year. The uniform rate of $1.24 per hcf in FY 2019/20 was determined by dividing the costs allocated to usage charges ($482,860, as listed in **Table 7)** by total system water use of 389,305 hcf.

Table 10
City of Angels Camp
Proposed Water Rates

Water Year 3 (Average Contribution)

	Current Monthly Meter Rate		2019/20		2020/21		2021/22		2022/23		2023/24	
Meter Size	Meter Charge	UWPA Fee	Meter Charge	UWPA Fee	Meter Charge	UWPA Fee	Meter Charge	UWPA Fee	Meter Charge	UWPA Fee	Meter Charge	UWPA Fee
5/8"	$39.75	$1.00	$34.50	$12.61	$37.25	$12.92	$40.24	$13.24	$43.45	$13.57	$46.93	$13.91
3/4"	$47.39	$1.00	$51.74	$18.91	$55.88	$19.38	$60.35	$19.86	$65.18	$20.36	$70.40	$20.86
1"	$62.66	$1.00	$86.24	$31.52	$93.14	$32.30	$100.59	$33.11	$108.63	$33.93	$117.33	$34.77
1 1/2"	$78.45	$1.00	$172.48	$63.04	$186.27	$64.60	$201.18	$66.21	$217.27	$67.86	$234.65	$69.55
2"	$120.09	$1.00	$275.96	$100.86	$298.04	$103.37	$321.88	$105.94	$347.63	$108.57	$375.44	$111.27
3"	$228.13	$1.00	$517.43	$189.11	$558.82	$193.81	$603.53	$198.63	$651.81	$203.57	$703.95	$208.64
4"	$344.08	$1.00	$862.38	$315.18	$931.37	$323.02	$1,005.88	$331.05	$1,086.35	$339.29	$1,173.25	$347.73
6"	$502.11	$1.00	$1,724.75	$630.36	$1,862.73	$646.04	$2,011.75	$662.11	$2,172.69	$678.58	$2,346.51	$695.46
Construction Meter	$45.68	$1.00	$51.74	$18.91	$55.88	$19.38	$60.35	$19.86	$65.18	$20.36	$70.40	$20.86

	Volumetric Rates	2019/20	2020/21	2021/22	2022/23	2023/24
All use, $/hcf		$1.24	$1.34	$1.45	$1.56	$1.69
Tier 1 (0 to 10 hcf)	$0.00					
Tier 2 (11 to 15 hcf)	$1.08					
Tier 3 (>15 hcf)	$1.63					

Water Bill Impacts

Table 11 and **Chart A** shows the bill impacts of the proposed water rates on a variety of usage levels for a typical residential user. **Table 12** and **Chart B** shows projected bill impacts for a commercial user with a 2" meter on a variety of usage levels. **Chart C** shows a regional rate survey for a typical single-family home.

Table 11
City of Angels Camp
Water Bill Projections - Single Family Residential

	Use (hcf)	Monthly Total Bill Current
Current Rates (Includes 10 HCF/Month Free)		
Single Family Residences		
Minimum	0	**$40.75**
Low Use	7	**$40.75**
Average	14	**$45.08**
Moderate Use	21	**$55.92**
Excessive Use	50	**$103.08**

	Use (hcf)	Monthly Bill Impacts *projected monthly bills*					
Water Year 3 (Average Contribution)							
Single Family Residences		**Current**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**
Minimum	0	$40.75	$47.10	$50.18	$53.48	$57.03	$60.84
Low Use	7	$40.75	$55.78	$59.55	$63.60	$67.96	$72.65
Average	14	$45.08	$64.47	$68.93	$73.73	$78.90	$84.46
Moderate Use	21	$55.92	$73.15	$78.31	$83.86	$89.84	$96.28
Excessive Use	50	$103.08	$109.12	$117.15	$125.81	$135.15	$145.21

*assumes 5/8" meter

Table 12
City of Angels Camp
Water Bill Projections - Commercial

	Use (hcf)	Monthly Bill Impacts					
		projected monthly bills					
Water Year 3 (Average Contribution)							
Commercial (2" Meter)							
		Current	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**
Minimum	0	$121.09	$376.82	$401.40	$427.82	$456.20	$486.71
Low Use	15	$126.51	$395.42	$421.50	$449.52	$479.64	$512.03
Average	33	$156.32	$418.16	$446.05	$476.04	$508.28	$542.96
Moderate Use	66	$209.43	$458.68	$489.81	$523.30	$559.32	$598.09
High Use	100	$264.72	$500.85	$535.36	$572.49	$612.45	$655.46

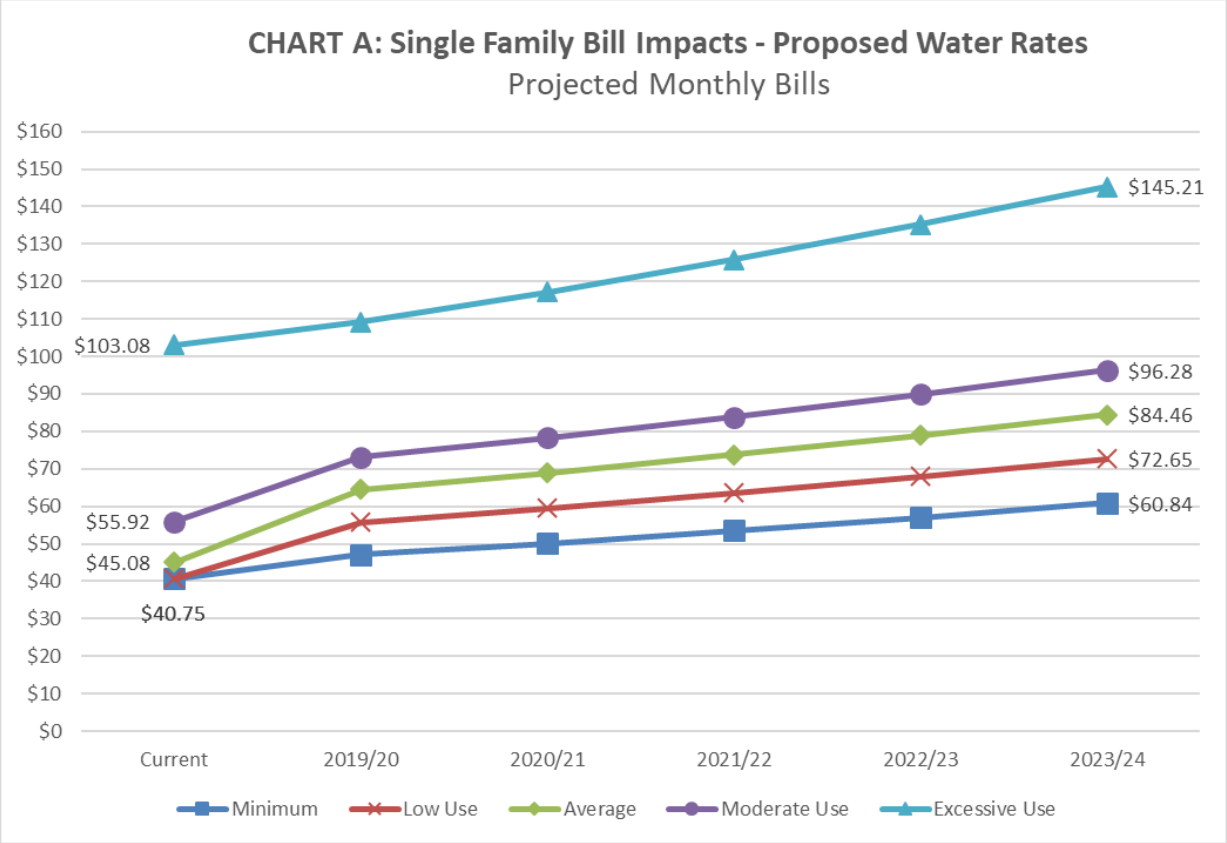
CHART A: Single Family Bill Impacts - Proposed Water Rates
Projected Monthly Bills
$160
$150
$140
$130
$120
$110
$100
$90
$80
$70
$60
$50
$40
$30
$20
$10
$0
$103.08
$145.21
$96.28
$84.46
$72.65
$60.84
$55.92
$45.08
$40.75
Current
2019/20
2020/21
2021/22
2022/23
2023/24
Minimum
Low Use
Average
Moderate Use
Excessive Use

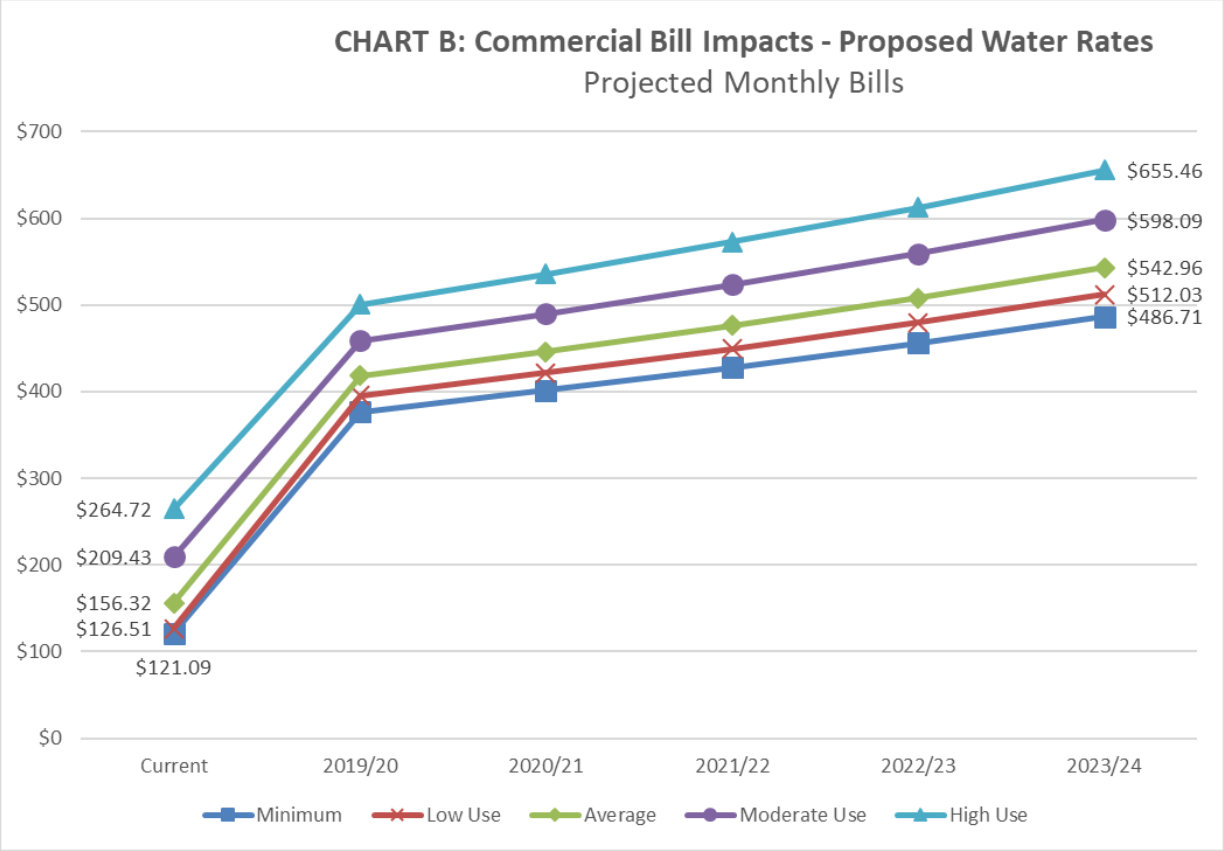
CHART B: Commercial Bill Impacts - Proposed Water Rates
Projected Monthly Bills
$700
$600
$500
$400
$300
$200
$100
$0
$655.46
$598.09
$542.96
$512.03
$486.71
$264.72
$209.43
$156.32
$126.51
$121.09
Current
2019/20
2020/21
2021/22
2022/23
2023/24
Minimum
Low Use
Average
Moderate Use
High Use

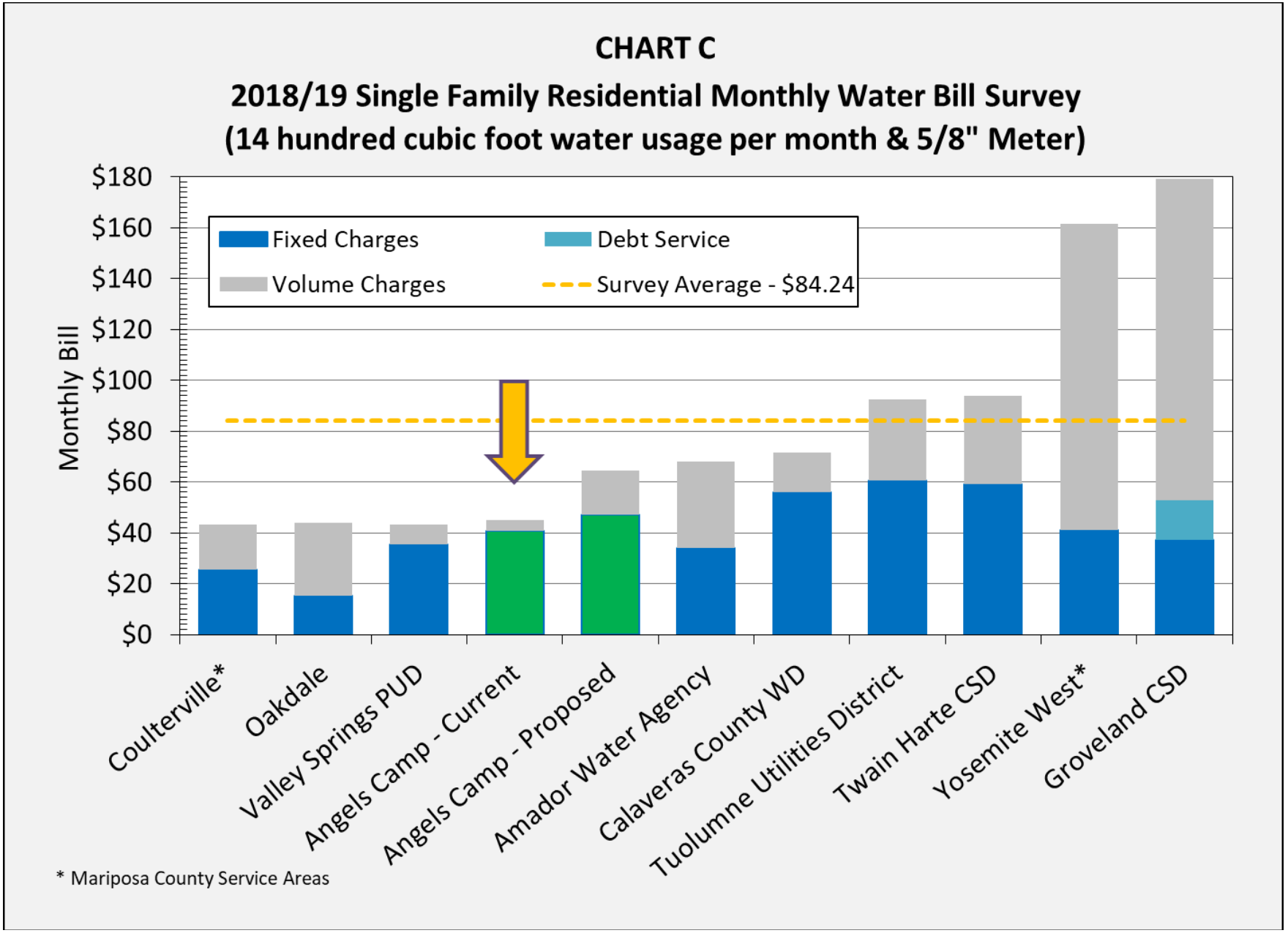
CHART C
2018/19 Single Family Residential Monthly Water Bill Survey
(14 hundred cubic foot water usage per month & 5/8" Meter)
Monthly Bill
$180
$160
$140
$120
$100
$80
$60
$40
$20
$0
Fixed Charges
Debt Service
Volume Charges
Survey Average - $84.24
Coulterville*
Oakdale
Valley Springs PUD
Angels Camp - Current
Angels Camp - Proposed
Amador Water Agency
Calaveras County WD
Tuolumne Utilities District
Twain Harte CSD
Yosemite West*
Groveland CSD
* Mariposa County Service Areas

Current Wastewater Rates

Table 13 shows the City's current wastewater rates. Current rates are based on dwelling units for single family and apartment houses and connections for commercial customers. Trailer courts and mobile home parks pay a commercial rate plus a charge per dwelling unit. Other institutions currently pay a cost per gallon for sewage treatment, with outside agencies paying an additional rate of 0.00127 per gallon. BWA recommends eliminating the outside city additional charge for other institutions. Additionally, BWA proposes eliminating the commercial charge for trailer courts and mobile home parks and solely charge a rate per dwelling unit.

Table 13
City of Angels Camp
Current Wastewater Rates

	$/Dwelling Unit/Month
Single Family Residences	$71.92
*for each residential unit for single family occupancy	
Commercial Establishments	$90.95
*for each commercial establishment, with exceptions listed below	
Premises Outside City	
*pay same charge as those located inside	
Apartment Houses	
*pay residential charge for each rentable unit	
Trailer Courts and Mobile Home Parks	
*equal to one commercial rate for each commercial structure plus 1 residential rate for each sewer outlet available for connection	
Combined Establishments	
*pay multiple fees for each type of use	
Other Instituitions	cost per gallon for sewage treatment
I. Outside Agencies Receiving Treatment Services from the City	(cost per gallon for sewage treatment) + 0.00127
J. All Unspecified Places of Employment Not Listed Elsewhere	
*proportional to each user's average monthly water consumption for preceeding 5 month period of Nov, Dec, Jan, Feb, & March with exception of the "Outside Agencies Receiving Treatment Services from the City"	=

Outstanding Debt

Table 14 shows the outstanding debt obligations of the wastewater enterprise.

Table 14
City of Angels Camp
Wastewater Debt Service

2017 USDA Refinancing Loan Agreement (Wastewater)			
Repayment Date	**Loan**	**Interest**	**Total Repayment**
Sept. 1, 2017	$119,510.00	$35,877.95	$155,387.95
Mar. 1, 2018	$119,511.00	$53,565.53	$173,076.53
Sept. 1, 2018	$113,769.00	$51,934.21	$165,703.21
Mar. 1, 2019	$113,768.00	$50,381.26	$164,149.26
Sept. 1, 2019	$114,970.00	$48,828.33	$163,798.33
Mar. 1, 2020	$114,970.00	$47,258.99	$162,228.99
Sept. 1, 2020	$118,722.00	$45,689.65	$164,411.65
Mar. 1, 2021	$118,722.00	$44,069.09	$162,791.09
Sept. 1, 2021	$122,469.00	$42,448.54	$164,917.54
Mar. 1, 2022	$122,470.00	$40,776.84	$163,246.84
Sept. 1, 2022	$126,213.00	$39,105.12	$165,318.12
Mar. 1, 2023	$126,214.00	$37,382.31	$163,596.31
Sept. 1, 2023	$129,953.00	$35,659.49	$165,612.49
Mar. 1, 2024	$129,954.00	$33,885.63	$163,839.63
Sept. 1, 2024	$133,690.00	$32,111.76	$165,801.76
Mar. 1, 2025	$133,689.00	$30,286.89	$163,975.89
Sept. 1, 2025	$137,420.00	$28,462.04	$165,882.04
Mar. 1, 2026	$137,421.00	$26,586.26	$164,007.26
Sept. 1, 2026	$141,147.00	$24,710.46	$165,857.46
Mar. 1, 2027	$141,148.00	$22,783.80	$163,931.80
Sept. 1, 2027	$144,870.00	$20,857.13	$165,727.13
Mar. 1, 2028	$144,870.00	$18,879.66	$163,749.66
Sept. 1, 2028	$148,587.00	$16,902.18	$165,489.18
Mar. 1, 2029	$148,589.00	$14,873.97	$163,462.97
Sept. 1, 2029	$152,301.00	$12,845.73	$165,146.73
Mar. 1, 2030	$152,301.00	$10,766.82	$163,067.82
Sept. 1, 2030	$156,009.00	$8,687.91	$164,696.91
Mar. 1, 2031	$156,009.00	$6,558.39	$162,567.39
Sept. 1, 2031	$162,230.00	$4,428.87	$166,658.87
Mar. 1, 2032	$162,229.00	$2,214.43	$164,443.43
TOTALS:	$4,043,725.00	$888,819.24	$4,932,544.24

State Department of Water Resources (Wastewater)			
Fiscal Year Ended June 30,	**Principal**	**Interest**	**Total Repayment**
2018	$13,858	$2,071	$15,929
2019	$13,996	$1,933	$15,929
2020	$14,136	$1,793	$15,929
2021	$14,278	$1,651	$15,929
2022	$14,420	$1,509	$15,929
2023 - 2027	$74,294	$5,351	$79,645
2028 - 2031	$62,155	$1,561	$63,716
Totals	$207,137	$15,869	$223,006

Capital Plan

The 10-year capital plan for the wastewater enterprise identified 14 projects, totaling $6.8 million in estimated costs. As shown on **Table 15**, the 5-year CIP estimated project costs in the mount of $2.27 million, or $454,000 per year of the 5-year study. Previously deferred maintenance and lack of investment into the wastewater enterprise threatens the safety and reliably of the system. The projects aim to increase the safety and reliably of the system and to enhance regulatory compliance.

Table 15
City of Angels Camp
Wastewater Capital Program

	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	Total
East Trunk Sewer Phase 1 / Vallecito Road Sewer Replacement	55,000	690,000	630,000			**1,375,000**
Phase 1, Main Street, Church Street-Vallecito Road	500,000					**500,000**
Phase 2, Gardner Lane, Easy Street	115,000					**115,000**
Phase 3, Raspberry Lane, Lee Lane			280,000			**280,000**
Total	**670,000**	**690,000**	**910,000**	**0**	**0**	**2,270,000**

Cash Flow Projection

Table 16 shows the wastewater enterprise 10-year cash flow projection. BWA determined that the City needs to raise rate revenue by 8% per year for the next 5 years to meet the goal of funding the City's operating and capital needs. BWA estimates that the wastewater enterprise will need to obtain an approximately $1.2 MM loan in FY 2020/21 to fund the projected capital program.

Table 16
City of Angels Camp
Wastewater Cash Flow Projection - Projected Rate Increases ($150k/Yr Additional Repairs & Replacement)

			Projected									
	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
% Rate Revenue Increase				***8.0%***	***8.0%***	***8.0%***	***8.0%***	***8.0%***	***3.0%***	***3.0%***	***3.0%***	***3.0%***
Growth - %				*0.0%*	*0.5%*	*0.5%*	*0.5%*	*0.5%*	*0.5%*	*0.5%*	*0.5%*	*0.5%*
REVENUES												
Wastewater Rate Revenue												
Wastewater Service Charges	$1,885,007	$2,129,533	$2,129,533	$2,299,895	$2,496,306	$2,709,491	$2,940,882	$3,192,033	$3,304,233	$3,420,377	$3,540,603	$3,665,055
Misc Operating Revenues[1]												
Sewer Connection Fee - Capital	$213,371	$204,578	$188,000	$188,000	$188,000	$188,000	$188,000	$188,000	$188,000	$188,000	$188,000	$188,000
Door Hanger Fee	4,775	6,860	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Restoration Fee	0	0	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Utility Late Fees	19,478	5,033	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Utility Processing Fee	2,910	0	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Interest Income	12,868	18,093	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000
Other Revenues	3,203	0	0	0	0	0	0	0	0	0	0	0
Total Misc Operating Revenues	$256,604	$234,564	$227,000	$227,000	$227,000	$227,000	$227,000	$227,000	$227,000	$227,000	$227,000	$227,000
Non Operating Revenues												
Projected Loan (5%, 20 Years)					$1,250,000							
Transfers	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Non Operating Revenues	$0	$0	$0	$0	$1,250,000	$0	$0	$0	$0	$0	$0	$0
TOTAL REVENUES	$2,142,000	$2,364,097	$2,356,533	$2,526,895	$3,973,306	$2,936,491	$3,167,882	$3,419,033	$3,531,233	$3,647,377	$3,767,603	$3,892,055
EXPENSES												
Operating Expenses												
Salaries & Wages	$591,852	$627,941	$585,718	$609,147	$633,513	$658,853	$685,207	$712,615	$741,120	$770,765	$801,596	$833,659
Benefits, Insurances & Taxes	411,185	351,949	358,165	372,491	387,391	402,887	419,002	435,762	453,193	471,320	490,173	509,780
Sewer UL	20,109	92,982	77,174	63,029	71,729	81,806	90,355	95,160	100,604	114,558	130,456	148,568
Rents, Leases, & Utilities	14,138	7,819	110,100	113,403	116,805	120,309	123,919	127,636	131,465	135,409	139,471	143,656
Repairs & Maintenance	20,989	14,173	66,950	68,959	71,027	73,158	75,353	77,613	79,942	82,340	84,810	87,355
Tools & Equipment	10,162	20,710	13,350	13,751	14,163	14,588	15,026	15,476	15,941	16,419	16,911	17,419
Professional Services	28,611	28,416	170,593	175,711	180,982	186,412	192,004	197,764	203,697	209,808	216,102	222,585
Materials & Supplies	120,121	144,525	179,550	184,937	190,485	196,199	202,085	208,148	214,392	220,824	227,449	234,272
Other Services & Charges	173,995	120,687	144,500	148,835	153,300	157,899	162,636	167,515	172,541	177,717	183,048	188,540
O&M Cost Allocations	146,957	171,441	130,819	134,744	138,786	142,950	147,238	151,656	156,205	160,891	165,718	170,690
Sprayfield Expenditures	196,260	175,505	57,500	59,225	61,002	62,832	64,717	66,658	68,658	70,718	72,839	75,024
Total Operating Expenses	$1,734,378	$1,756,146	$1,894,420	$1,944,231	$2,019,183	$2,097,893	$2,177,542	$2,256,004	$2,337,758	$2,430,769	$2,528,574	$2,631,548
Non Operating Expenses												
Projected Loan Debt Service (5%, 20 Years)					$50,904	$101,808	$101,808	$101,808	$101,808	$101,808	$101,808	$101,808
Interfund Debt	$0	$63,100	$62,100	$61,100	$60,100	$59,100	$58,100	$57,100	$56,100	$55,100	$54,100	$53,100
USDA Loan[1]	291,783	328,464	329,852	326,027	327,203	328,164	328,914	329,452	329,778	329,889	329,789	329,477
SWRCB Loan	15,929	15,929	15,929	15,929	15,929	15,929	15,929	15,929	15,929	15,929	15,929	15,929
Repairs & Replacement (Not in CIP)	-	-	-	153,530	153,530	153,530	153,530	153,530	153,530	153,530	153,530	153,530
Vehicle Set Aside - Wastewater	-	-	-	38,831	38,831	38,831	38,831	38,831	38,831	38,831	38,831	38,831
Low Income Discount				20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Capital Improvement Projects	143,803	77,440	422,685	670,000	690,000	910,000	0	0	500,000	515,000	530,450	546,364
Total Non Operating Expenses	$451,515	$484,933	$830,566	$1,285,417	$1,356,497	$1,627,362	$717,112	$716,650	$1,215,975	$1,230,087	$1,244,437	$1,259,038
TOTAL EXPENSES	$2,185,893	$2,241,079	$2,724,986	$3,229,648	$3,375,679	$3,725,255	$2,894,654	$2,972,654	$3,553,733	$3,660,856	$3,773,011	$3,890,586
NET REVENUES FOR DEBT SERVICE	$407,232	$607,950	$462,113	$582,665	$704,124	$838,598	$990,340	$1,163,029	$1,193,475	$1,216,607	$1,239,029	$1,260,507
NET INCOME	($43,893)	$123,017	($368,453)	($702,753)	$597,627	($788,764)	$273,228	$446,379	($22,500)	($13,480)	($5,408)	$1,469
Ending Fund Balance	$2,194,328	$2,317,345	$1,948,892	$1,246,139	$1,843,766	$1,055,002	$1,328,230	$1,774,608	$1,752,108	$1,738,628	$1,733,220	$1,734,689
Recom. Min Fund Target (180 days O&M)	$867,189	$878,073	$947,210	$972,115	$1,009,591	$1,048,946	$1,088,771	$1,128,002	$1,168,879	$1,215,385	$1,264,287	$1,315,774
Target Met	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Debt Service Coverage (Min. 1.20x)	1.32	1.77	1.34	1.70	1.79	1.88	2.22	2.60	2.67	2.72	2.77	2.82
Target Met	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*

1 - Debt service coverage requirement of 1.20x

Cost Allocation

Table 17 shows the projected wastewater flows and loadings of the City's wastewater customers. BWA estimates total flows to the wastewater system of 450,235 gallons per day or 219,685 hundred cubic feet annually. BWA estimated the strength loadings of various customer classes based on the State Water Resources Control Board Revenue Program Guidelines. Total annual estimated projected biochemical oxygen demand (BOD) amounts to 300,653 pounds and total estimated suspended solids (SS) amounts to 285,101 pounds.

Table 17
City of Angels Camp
Wastewater Flows and Loadings

	# of Sewer EDUs	Est. Mo Flow (hcf) Per EDU	Projected Water Use (hcf)	Projected Wastewater Flow			Strength (mg/l)		Loadings (lbs)	
				hcf	mg	gpd	BOD	SS	BOD	SS
Residential										
Single Family	1,489	8.00	N/A	142,944	106.93	292,958	200	200	178,505	178,505
Mobile Home	186	6.00	N/A	13,392	10.02	27,446	200	200	16,724	16,724
Multi Family	52	6.00	N/A	3,744	2.80	7,673	200	200	4,675	4,675
Total Residential	**1,727**			**160,080**	**119.75**	**328,077**			**199,903**	**199,903**
Commerical Fixed Rate										
Domestic Strength	124	9.50	N/A	14,136	10.57	28,971	200	200	17,653	17,653
High Strength	4	9.50	N/A	456	0.34	935	1000	600	2,847	1,708
Total Commercial	**128**			**14,592**	**10.92**	**29,906**			**20,500**	**19,361**
Other Institutional										
Domestic Strength	32	Varies	50,382	35,506	26.56	72,769	200	200	44,339	44,339
High Strength	17	Varies	9,508	5,554	4.15	11,382	1000	600	34,676	20,806
Total Institutional	**49**		**59,890**	**41,060**	**30.72**	**84,151**			**79,015**	**65,145**
Six Mile Village	**1**	**Varies**		**3,953**	**2.96**	**8,101**	50	28	**1,234**	**691**
Total	**1,905**			**219,685**	**164**	**450,235**			**300,653**	**285,101**

1 - BOD = biochemical oxygen demand
2 - SS = suspended solids
3 - strength based on State Revenue Program Guidelines

Table 18 shows an allocation of the various cost categories of the wastewater enterprise in FY 2019/20. BWA recommends recovering 70% of wastewater costs based on flow and 30% based on strength components. The totally rate revenue requirement in FY 2019/20 is $2,299,895, with a cost of $7.33 per hcf of flow, $1.15 per pound of BOD, and $1.21 per pound of SS.

Table 18
City of Angels Camp
FY 2019/20 Rate Revenue Requirements

Costs Allocated to All Customers	2019/20	Allocation %			Allocation $			Projected Loadings (lbs)		
		Flow	BOD	SS	Flow	BOD	SS	Flow (hcf)	BOD	SS
								219,685	300,653	285,101
Operating Cost Component										
Salaries & Wages	$609,147	70%	15%	15%	$426,403	$91,372	$91,372	$1.94	$0.30	$0.32
Benefits, Insurances & Taxes	372,491	70%	15%	15%	260,744	55,874	55,874	1.19	0.19	0.20
Sewer UL	63,029	70%	15%	15%	44,121	9,454	9,454	0.20	0.03	0.03
Rents, Leases, & Utilities	113,403	70%	15%	15%	79,382	17,010	17,010	0.36	0.06	0.06
Repairs & Maintenance	68,959	70%	15%	15%	48,271	10,344	10,344	0.22	0.03	0.04
Tools & Equipment	13,751	70%	15%	15%	9,625	2,063	2,063	0.04	0.01	0.01
Professional Services	175,711	70%	15%	15%	122,998	26,357	26,357	0.56	0.09	0.09
Materials & Supplies	184,937	70%	15%	15%	129,456	27,740	27,740	0.59	0.09	0.10
Other Services & Charges	148,835	70%	15%	15%	104,185	22,325	22,325	0.47	0.07	0.08
O&M Cost Allocations	134,744	70%	15%	15%	94,321	20,212	20,212	0.43	0.07	0.07
Sprayfield Expenditures	59,225	70%	15%	15%	41,458	8,884	8,884	0.19	0.03	0.03
Total Operating Expenses	**$1,944,231**				**$1,360,962**	**$291,635**	**$291,635**	**$6.20**	**$0.97**	**$1.02**
Capital Cost Component										
Interfund Debt	61,100	70%	15%	15%	$42,770	$9,165	$9,165	$0.19	$0.03	$0.03
USDA Loan	326,027	70%	15%	15%	228,219	48,904	48,904	1.04	0.16	0.17
SWRCB Loan	15,929	70%	15%	15%	11,150	2,389	2,389	0.05	0.01	0.01
Repairs & Replacement (Not in CIP)	153,530	70%	15%	15%	107,471	23,030	23,030	0.49	0.08	0.08
Vehicle Set Aside - Wastewater	38,831	70%	15%	15%	27,182	5,825	5,825	0.12	0.02	0.02
Capital Improvement Projects	670,000	70%	15%	15%	469,000	100,500	100,500	2.13	0.33	0.35
Total Capital Expenses	**$1,265,417**				**$885,792**	**$189,813**	**$189,813**	**$4.03**	**$0.63**	**$0.67**
Net Operating Revenue	**($682,753)**	70%	15%	15%	**($477,927)**	**($102,413)**	**($102,413)**	($2.18)	($0.34)	($0.36)
Less: Non-Rate Operating Revenue	($227,000)	70%	15%	15%	($158,900)	($34,050)	($34,050)	($0.72)	($0.11)	($0.12)
Revenue Requirement	**$2,299,895**	70%	15%	15%	**$1,609,927**	**$344,984**	**$344,984**	**$7.33**	**$1.15**	**$1.21**

Table 19 shows the calculation of costs for each customer class. To calculate the monthly rate for each residential dwelling unit, BWA divided the total costs allocated to the residential customers by the total number of residential dwelling units. To calculate the monthly rate for each commercial connection, BWA divided total costs allocated to commercial customers by total number of commercial connections. BWA divided costs to Other Institutional and Six Mile Village to determine a rate per gallon of estimated flow for each class.

Table 19
City of Angels Camp
Flows and Loadings Summary

	# of Sewer EDUs	Est. Mo Flow (hcf) Per EDU	Projected Water Use	Projected Wastewater Flow hcf	mg	gpd	Loadings (lbs) BOD	SS	FY 2019/20 Unit Rate Per Class $/hcf	$/lb BOD	$/lb SS	FY 2019/20 Cost Recovery $/hcf	$/lb BOD	$/lb SS	FY 2019/20 Monthly
Residential															**$79.35**
Single Family	1,489	8	N/A	142,944	107	292,958	178,505	178,505	**$7.33**	**$1.15**	**$1.21**	$1,047,543	$204,825	$215,998	
Mobile Home	186	6	N/A	13,392	10	27,446	16,724	16,724	**$7.33**	**$1.15**	**$1.21**	$98,141	$19,189	$20,236	
Multi Family	52	6	N/A	3,744	3	7,673	4,675	4,675	**$7.33**	**$1.15**	**$1.21**	$27,437	$5,365	$5,657	
Total Residential	1,727														
Commerical Fixed Rate															**$100.19**
Domestic Strength	124	9.5	N/A	14,136	11	28,971	17,653	17,653	**$7.33**	**$1.15**	**$1.21**	$103,594	$20,256	$21,360	
High Strength	4	9.5	0	456	0	935	2,847	1,708	**$7.33**	**$1.15**	**$1.21**	$3,342	$3,267	$2,067	
Total Commercial	128														
															$/gallon
Other Institutional															**$0.0153**
Domestic Strength	32		50,382	35,506	27	72,769	44,339	44,339	**$7.33**	**$1.15**	**$1.21**	$260,203	$50,877	$53,653	
High Strength	17		9,508	5,554	4	11,382	34,676	20,806	**$7.33**	**$1.15**	**$1.21**	$40,699	$39,789	$25,176	
Total Institutional	49														
															$/gallon
Six Mile Village	1			3,953	3	8,101	1,234	691	**$7.33**	**$1.15**	**$1.21**	$28,968	$1,416	$836	**$0.0106**
TOTAL	**1,905**			**219,685**	**164**	**450,235**	**300,653**	**285,101**				**$1,609,927**	**$344,984**	**$344,984**	
													$2,299,895		

Proposed Rates & Bill Impact

Table 20 shows the calculation of the wastewater rates. The first set of rates shows a one-time structure change in FY 2019/20, with 8% increases thereafter. BWA proposes that the rate increases and structure changes be phased in over 5 years to reduce the initial impact to customers. **Chart D** shows a regional comparison of the current and proposed single family residential wastewater rate.

Table 20						
City of Angels Camp						
Proposed Wastewater Rates						
Wastewater Rates (Adjust Current Rate Structure)						
		2019/20	**2020/21**	**2021/22**	**2022/23**	**2023/24**
		projected monthly rates(recommended increases)				
Residential User Class	**$ / Dwelling / Unit / Month**	*Varies*	*8.0%*	*8.0%*	*8.0%*	*8.0%*
Single Family	$71.92	$79.35	$85.70	$92.55	$99.95	$107.95
Mobile Home	$71.92	$79.35	$85.70	$92.55	$99.95	$107.95
Multi-Family	$71.92	$79.35	$85.70	$92.55	$99.95	$107.95
Commercial & Industrial (per establishment)	$90.95	$100.19	$108.20	$116.86	$126.21	$136.30
Other Institutional (per gallon, winter use)	$0.0149	$0.0153	$0.0165	$0.0179	$0.0193	$0.0208
Six Mile Village (per gallon of flow)	$0.0142	$0.0106	$0.0114	$0.0123	$0.0133	$0.0144
Proposed Wastewater Rates (Phased In Rates)						
		2019/20	**2020/21**	**2021/22**	**2022/23**	**2023/24**
Residential User Class	**$ / Dwelling / Unit / Month**	*projected monthly rates*				
Single Family	$71.92	$78.01	$84.61	$91.76	$99.53	$107.95
Mobile Home	$71.92	$78.01	$84.61	$91.76	$99.53	$107.95
Multi-Family	$71.92	$78.01	$84.61	$91.76	$99.53	$107.95
Commercial & Industrial (per establishment)	$90.95	$98.61	$106.93	$115.94	$125.71	$136.30
Other Institutional (per gallon, winter use)	$0.0149	$0.0159	$0.0170	$0.0182	$0.0195	$0.0208
Six Mile Village (per gallon of flow)	$0.0142	$0.0142	$0.0143	$0.0143	$0.0143	$0.0144

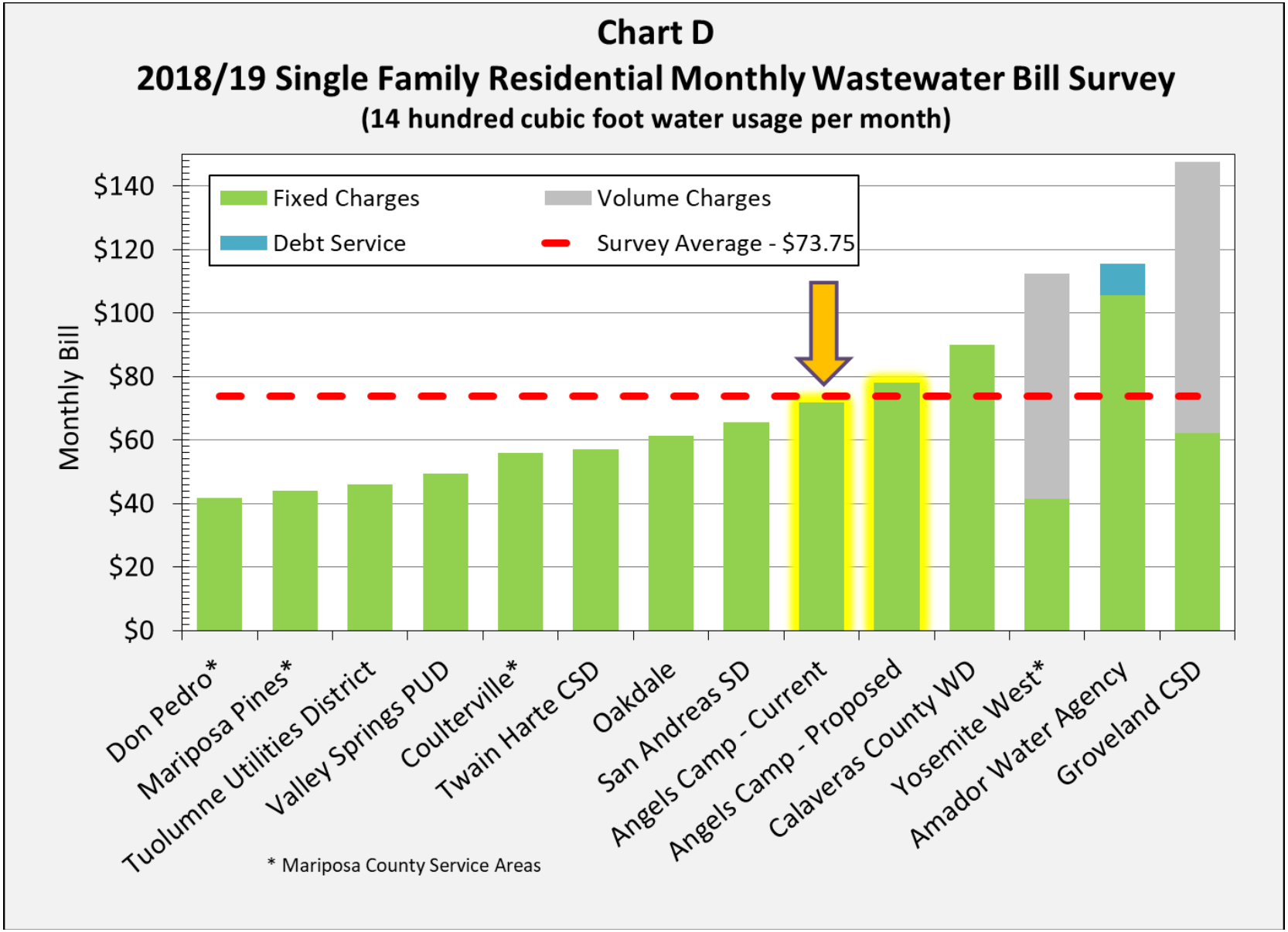
Chart D
2018/19 Single Family Residential Monthly Wastewater Bill Survey
(14 hundred cubic foot water usage per month)
Monthly Bill
$140
$120
$100
$80
$60
$40
$20
$0
Fixed Charges
Volume Charges
Debt Service
Survey Average - $73.75
Don Pedro*
Mariposa Pines*
Tuolumne Utilities District
Valley Springs PUD
Coulterville*
Twain Harte CSD
Oakdale
San Andreas SD
Angels Camp - Current
Angels Camp - Proposed
Calaveras County WD
Yosemite West*
Amador Water Agency
Groveland CSD
* Mariposa County Service Areas

SECTION 5: LOW-INCOME DISCOUNT

To help offset the impact of rate increases for low income customers, BWA proposes that the City establish a low-income discount program utilizing non-rate sources of revenue (e.g., late payment fees). Non-rate sources of revenue are estimated at approximately $20,000 per year for water and $20,000 per year for wastewater. To qualify for the low-income discount program, the applicant may only apply for their permanent residence, must be the customer of record, and must provide a copy of a current PG&E bill showing participation in the PG&E CARE Program, or other documentation verifying a household income at or below 200% of the federal poverty guidelines.

Once applicants are approved by City staff, they would receive the following credits (as funds are available):

- Water only customers: $2.68 per monthly billing period
- Wastewater only customers: $2.68 per monthly billing period
- Water & Wastewater customers: $5.36 per monthly billing period