

STAFF REPORT

DATE: December 5, 2017

TO: City Council

FROM: Robert A. Clarke, Public Works Director
Stan Gryczko, Assistant Public Works Director

SUBJECT: Water Cost of Service 2017 Update Memorandum

Recommendation

1. Approve staff recommendation for Council to affirm currently adopted water rate increases of 14% and 9% in January 2018 and 2019 respectively.
2. Direct staff to pay off I-Bank debt associated with the East Area Water Tank project.

Fiscal Impact

1. Rate increase effective January 2018 provides approximately \$1.2 million in additional annual rate revenue. Rate increase effective January 2019 provides approximately \$800,000 in additional annual rate revenue.
2. \$8.4 million of Water Fund balance will be used to pay off I-Bank debt, which will save approximately \$3.9 million in interest payments. The Water Fund balance can support this expenditure. Annual debt service payments will be reduced by approximately \$583,000.

Council Goal(s)

This item does not relate to any specific City Council Objective but does support the goals to Ensure Fiscal Resilience and Fund, Maintain and Improve Infrastructure.

Background and Analysis

In 2013, Bartle Wells Associates (BWA) prepared a Water Rate Cost of Service Study, which was the basis for water rates adopted in March 2014. Measure P repealed those adopted water rates in June 2014. In 2014, staff tasked BWA with revising portions of the 2013 study to update assumptions and identify different rate structures. Council adopted rates beginning November 2014, based on the 2014 Water Cost of Service Study Update (Update), with annual increases each January through 2019. In February 2017, staff tasked BWA with reviewing the 2014 Update. The goal of the attached 2017 Memorandum (Memo) is to assess the need for the final two years of adopted water rate increases scheduled for January 1, 2018 (14%) and 2019 (9%) as recommended in the 2014 Update. The Memo primarily focused on updating financial information and did not review or evaluate the previously adopted rate structure.

Future costs presented in the 2017 Memo past Fiscal Year 19/20 are only for scenario modeling and not reflective of any actual recommendation for future rate increases; but do serve as a guide for the potential increases necessary depending on what Council determines regarding the final two years of adopted rate increases. A new comprehensive water cost of service study will be performed in CY 2019 to prepare a proposal for another 5-year rate adoption process. Similarly, the reserve fund

balance components and target amounts in this 2017 Memo were set based on the City's recent wastewater rate study. The reserve fund criteria and amounts are only provided to indicate fund balance health and are not recommended as final criteria. A separate effort to recommend an Enterprise Fund reserve policy, including Finance and Budget and Utility Rate Advisory Commission involvement, is currently in process and will be brought back to Council in early 2018 for Council consideration and action.

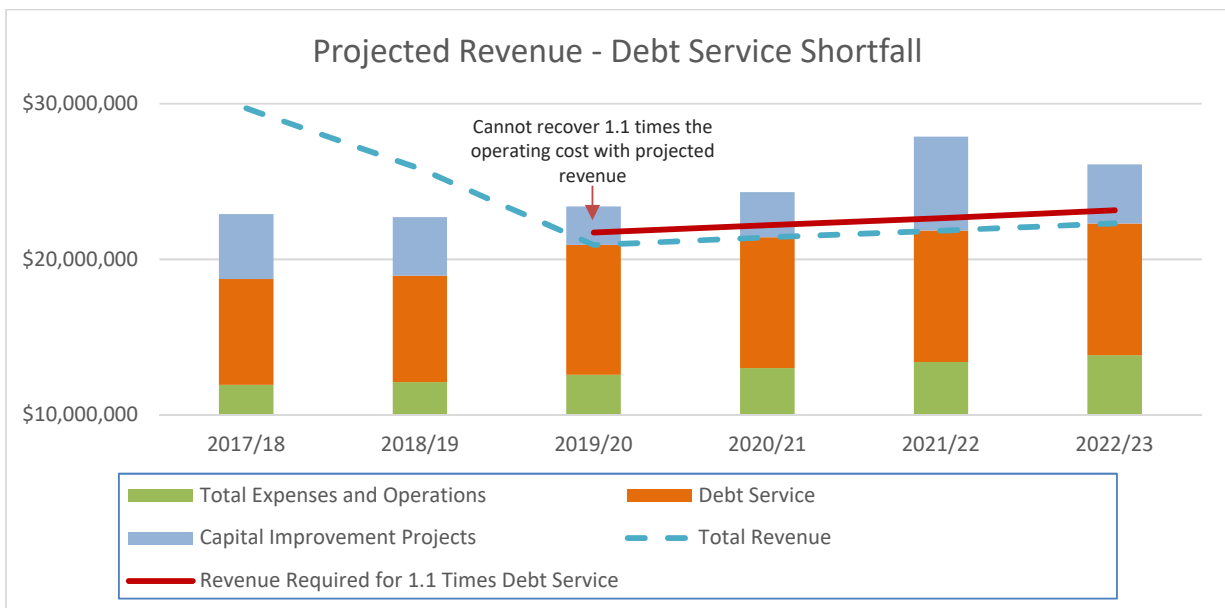
The 2017 Memo provides a comparison between the 2014 Update projections and actual revenue and expenditures experienced, and provides new projections of revenue and expenditures for future years. The Memo includes FY17/18 adopted budget data including anticipated revenue, capital improvements, and operating expenses. New financial information available since the 2014 Update includes:

1. *Increased water conservation resulting in a reduction of rate revenue* – Rate revenue anticipated for FY 17/18 is down approximately \$3.7 million from the 2014 Report. The majority of this reduction in rate revenue is from greater than anticipated reductions in water consumption associated with the drought and mandatory water restrictions placed on water purveyors and consumers over the past four years.
2. *Establishment of a State Revolving Fund (SRF) Loan to pay for the treated surface water plant and local infrastructure improvements* – Debt service anticipated for FY 17/18 is down approximately \$2.2 million from the 2014 Report estimate. There are two primary reasons for this reduction; procuring a SRF loan to fund the improvements resulted in a lower interest rate and consequently a lower annual debt service payment, and local SRF-funded improvements are not yet completed. Until the improvements are completed, (anticipated in FY 19/20) debt service payments will not begin.
3. *Finalized construction and operating costs for the treated surface water plant and local infrastructure improvements* – The 2017 Memo has finalized costs for both infrastructure improvements associated with the surface water project and updated cost projections for ongoing operations and maintenance (contract operations with CH2MHill).
4. *University of California, Davis (UCD) becoming a partner in the Woodland Davis Clean Water Agency* – UCD bought into the surface water project with a one-time payment of approximately \$2.6 million and ongoing annual payments of approximately \$100,000.
5. *Modified operating expenses due to the shut-down of several intermediate wells* –
 - a) Power costs have been reduced (approximately \$600,000 annually) in operating program 7522 associated with a reduction in the use of wells to provide potable water.
 - b) In the next few years, decommissioning of up to ten water wells is planned. This will incur some cost for decommissioning (approx. \$20,000 per well) but may be offset by selling of some of the properties now held by the City. Staff will develop a well decommissioning plan in early 2018.
 - c) It is anticipated that in addition to the power costs, other operating costs, primarily labor and chemical, will also change as a result of the decommissioning of wells. However, the magnitude of these potential savings are estimated to be between \$100,000 and \$200,000 annually and may be offset by increased operating costs for

the new six miles of surface water transmission line. Any potential future costs savings beyond power will not be experienced until after the wells have been decommissioned and will be accounted for in a future water rate analysis.

In aggregate terms, rate revenues are \$3.7 million lower and expenditures are \$4.3 million lower than anticipated in the 2014 Report. What does this mean for the Water Enterprise?

There are four critical needs a utility rate revenue funds: Operations and Maintenance (O&M), Capital Improvement Projects (CIP), the debt service (loan payment) associated with some CIPs, and the requirement by debt providers for rate revenue to exceed the total amount of O&M and debt service by 1.1 times. The water fund balance is healthy, projected to be approximately \$41 million at the beginning of FY 18/19 (primarily from SRF loan reimbursements for the surface water project) but existing rate revenue generated is not sufficient to fund the ongoing cost of the water enterprise. Graph 1 provides a summary of rate revenue vs. planned expenditures. As shown in the graph below, FYs 17/18 and 18/19 have sufficient revenue, with the addition of anticipated SRF loan reimbursements, to recover 1.1 times the operating cost of the water enterprise but beginning in FY 19/20 rate revenue is not sufficient to recover 1.1 times the operating cost.



Based on this information, the primary driver for water rate increases is maintaining required debt service coverage via rate revenue generation. Water Fund balance, if it exists, can be used to make up any shortfall in the revenue requirement for debt service coverage. This “rate stabilization” fund is modeled in the Memo scenarios to ensure the City meets all financial obligations associated with debt service coverage beginning in FY 19/20 but recognizes that the existing approved rate increases for 2018 and 2019 are necessary for the long term health of the Water Enterprise.

Scenarios Modeled in 2017 Memo

BWA modeled three scenarios for water rate increases as part of the 2017 Memo. The scenarios projected out five years to FY 22/23 only for the purpose of showing the impacts of modifying the next two approved water rate adjustments (January 2018 -14% and January 2019 - 9%). A new full water rate study is planned for 2019 to ascertain what increases are necessary beginning in January 2020. Table 1 summarizes the scenarios modeled in the Memo.

Rate Adoption Date	projected rate increases				
	2017/18 1-Jan-18	2018/19 1-Jan-19	2019/20 1-Jan-20	2020/21 1-Jan-21	2021/22 1-Jan-22
Scenario 1 - Maximum Rates	14.0%	9.0%	1.7%	1.7%	1.7%
Scenario 2 - Max Rates, 1x Debt Service Coverage (recommended)	14.0%	9.0%	10.5%	4.0%	3.5%
Scenario 3 - Reduced Rates, 1x Debt Service Coverage	7.0%	7.0%	20.0%	4.0%	3.5%

Scenario 1 and 2 provide the impact of different projected rate increases after implementing approved rate increases for 2018 and 2019. As mentioned in detail above, while the water fund is healthy, rate revenue is not sufficient to meet debt service coverage requirements. Scenario 1 (limited increases in FY 19/20, 20/21 and 21/22) exacerbates this issue and is not recommended for the long term health of the Water Enterprise. Scenario 2 projects the anticipated increases needed in FY 19/20, 20/21 and 21/22 to maintain rate revenue at the same level as anticipated O&M and debt service expenditures. A “rate stabilization” fund is still necessary to maintain required revenue for debt service coverage. Scenario 3 shows the impact if approved rates are lowered for the next two years. As seen for FY 19/20, the increase necessary to maintain rate revenue equal to anticipated O&M and debt service expenditures is large, not currently approved via a Proposition 218 process, and is not recommended. Increasing water rates as planned over the next two years will not alleviate the need for additional increases to meet debt service coverage but will smooth out the necessary increases in future years. Scenarios 1-3 are detailed in tabular and graphical form in Tables 11, 13, and 15 of the 2017 Memo.

Utility Rate Advisory Commission (URAC) Discussion and Recommendation

The URAC discussed the 2017 Memo at its’ September and October meetings. Staff was requesting a recommendation for Council consideration on what, if any, changes should be made to the final two years of adopted water rate increases. The goal of the September meeting was to familiarize URAC with the draft Memo details and introduce three potential scenarios for the final two years of adopted water rate increases, solicit initial feedback on the information, and prepare the final draft Memo for the October meeting. At the October meeting, staff and BWA presented updated

information based on initial feedback, from Commission members and the public, with the discussion primarily focused on the scenarios for rate increases. Members of the URAC asked to model a modified scenario of 11.5% and 11.5% rate increases (essentially equal to the adopted 14% and 9% rates) that would smooth out the increases over the next two years. After reviewing the modified scenario, which had the effect of lowering revenue slightly in 2018 and recovering the reduced amount in 2019, discussion centered on the legality of modifying the adopted rates and if the modification was within the legal requirements of Proposition 218. Staff committed to seeking a determination from the City's legal team.

After further deliberation, URAC recommended the following for Council consideration:

“Water rate increases of 11.5% and 11.5% each year for 2018 and 2019, subject to legal review. If the recommended increases are not acceptable after legal review, the commission moves to approve staff recommendation to keep currently approved water rate increases of 14% in 2018 and 9% in 2019.”

Staff consulted with the City Attorney's office following the October URAC meeting. Based on Proposition 218 guidelines, legal counsel felt that adjusting the adopted water rates would potentially violate the law and therefore, staff's recommendation to maintain the adopted water rate increases is consistent with URAC's recommendation.

Debt Service Reduction

Staff presented an additional question at the October URAC meeting. Staff proposed exploring the early payoff of debt service associated with the East Area Water Storage Tank project (I- Bank Loan). This loan has \$8.4 million remaining in principal and is currently being paid with annual payments of approximately \$583,000 with a 4% interest rate. If the current Water Fund balance is used to pay off this loan, the interest saved over the life of the loan will equate to approximately \$3.9 million. If the model for Scenario 2 is adjusted to account for the early payoff, the resulting reduction in the Water Fund balance is still projected to remain roughly \$8 million above the reserve target balance in FY 22/23 vs. a projected \$10 million balance above the reserve target if the loan is paid per the original terms. The primary benefit of the early payoff is the reduction in annual debt service payments by \$583,000, which assists in maintaining the required revenue vs. debt service coverage of 1.1 times. This scenario is detailed in tabular and graphical form in Attachment 2. Staff recommends early payoff of the I-Bank Loan.

Attachments

1. Water Cost of Service Update Memorandum
2. Scenario detail of I-Bank Loan Early Payoff



BARTLE WELLS ASSOCIATES
INDEPENDENT PUBLIC FINANCE ADVISORS

1889 Alcatraz Avenue
Berkeley, CA 94703
T: 510-653-3399
www.bartlewells.com

DATE: November 16, 2017
TO: Stan Gryczko, Assistant Public Works Director
FROM: Douglas Dove, President
Abigail Seaman, Financial Analyst
SUBJECT: 2017 Water Rate Study Update and Recommendations

MEMORANDUM

Introduction

Bartle Wells Associates (BWA) has been retained by the City of Davis (City) to update the water rate study conducted by BWA in 2014 considering new financial information. Changes since the 2014 update include:

- increased water conservation resulting in a reduction of rate revenue
- the establishment of an SRF Loan to pay for the treated surface water plant and local infrastructure improvements
- finalized construction and operating costs for the treated surface water plant and local infrastructure improvements
- the University of California, Davis becoming a partner in Woodland Davis Clean Water Agency (Agency)
- modified operating expenses due to the shut-down of several intermediate wells

This memo presents a comparison of BWA's 2014 financial projections through 2019 and BWA's recommendations for the present day considering current revenue and expenditures with updated projections of revenue generation, capital improvements, and operating expenses. The full 2017 Water Rate Study Update is provided following this memo.

The overall goal of this updated memo is to inform the City Council's decision to keep or reduce the maximum adopted rates through 2019. Projected rates through 2022/23 are provided to show the impact of the 2019 rates on the future, but will not be formally recommended until the next full water rate study, in conjunction with a new Proposition 218 process, in 2019.

Current Water Rates

The City's current water rates are shown on **Table 1**. A multi-year rate schedule was established in the 2014 Rate Study, which includes a cost allocation to fixed and variable charges. Fixed rates include a meter replacement charge, administrative billing charge, and readiness to serve charge. Variable rates are based on peak and average impact on the water system for each customer class. Rates are effective on January 1st each year, midway through the fiscal year.

Table 1
Current Rates

Rates effective January 1, 2017

Fixed Charge		Volumetric Charge	
Meter Size	Monthly Charge	Customer Class	\$/ccf
5/8" and 3/4"	\$10.97	Single Family Residence	\$3.98
1"	\$16.66	Multi Family Residence	\$4.02
1 1/2"	\$29.71	Commercial	\$3.87
2"	\$46.91	Irrigation	\$4.93
3"	\$85.95		
4"	\$131.59		
6"	\$254.96		
8"	\$401.67		

Low Income Discount Available at \$10 reduction per bill

Maximum Adopted Rates 2018 and 2019

BWA's 2014 Rate Study established maximum rates through January 1, 2019 as shown on Table 2. These rates are based on assumptions of water conservation, price elasticity, and estimated future financial obligations of the water enterprise. The proposed rate adjustments would create a 14% rate revenue increase in calendar year (CY) 2018 and a 9% rate revenue increase in CY 2019. BWA has used the most recent data from the City's water consumption and financial data to update the City's financial status and discuss the potential to reduce maximum adopted rates.

Table 2
Maximum Adopted Rates

Fixed Charge	<i>January 1, 2018</i> <i>January 1, 2019</i>		Volumetric Charge	<i>January 1, 2018</i> <i>January 1, 2019</i>	
	Meter Size	Monthly Charge		Customer Class	\$/ccf
5/8" and 3/4"	\$12.20	\$13.07	Single Family Residence	\$4.61	\$5.01
1"	\$18.53	\$19.86	Multi Family Residence	\$4.66	\$5.07
1 1/2"	\$33.15	\$35.57	Commercial	\$4.47	\$4.88
2"	\$52.28	\$56.06	Irrigation	\$5.71	\$6.23
3"	\$96.25	\$103.49	% change from prev year	16%	9%
4"	\$147.49	\$158.65			
6"	\$286.31	\$308.37			
8"	\$451.53	\$486.41			
% change from prev year	11%	7%			

Water Enterprise Updates

Since BWA's 2014 Water Rate Study, the City's water enterprise has undergone several major developments, including the reduction of water consumption beyond original predictions, the addition of revenue from the UC Davis buy-in to the Agency, the issuance of an SRF loan to pay for the treated surface water plant and local infrastructure improvements, and the removal of several intermediate wells.

I. Water Users and Consumption

Table 3 displays the City’s current users compared to the 2016 projected number of users in the 2014 Rate Study Update (including estimated annual growth). Though the number of users in 2014 did not include City accounts (which are included in this update), there has been a reduction of 264 accounts and 1,551 meter equivalent units compared to BWA’s original estimate. The water rate study update presented in this memo incorporates the most recent meter data provided by the City.

Table 3
Customers by Meter Size

	Total 2016 Meter Count		Total Equivalent Meters		
	Total # Meters	Compare to Total 2015	Total Meter Equivalent Units	Compare to Total 2015	
5/8 or 3/4"	12,223	12,570	5/8 or 3/4"	12,223	12,570
1"	3,647	3,559	1"	6,078	5,932
1-1/2"	467	379	1-1/2"	1,556	1,263
2"	323	166	2"	1,720	885
3"	96	347	3"	960	3,470
4"	43	41	4"	715	683
6"	3	3	6"	100	100
8"	4	4	8"	213	213
Total	16,805	17,069	Total	23,566	25,117

The City’s water consumption is shown in **Table 4** compared to assumptions in the 2014 Rate Study, which were created using a three-year average from 2011-2013, less 10% for estimated future conservation. The City’s three-year average consumption from 2014-2016 exceeded conservation predictions by 13%. This reduction in consumption has precipitated a loss of rate revenue.

Table 4
Water Consumption by Customer Class

2014-2016 3-Year Average Water Consumption and Peaking Ratios by Customer Class (ccf) - Monthly Billing

Customer Class	Total	% of Total	Peak	Average	Peak Ratio
Single Family Residential	1,849,206	47.2%	242,118	154,101	1.57
Multi Family Residential	890,618	22.7%	94,014	74,218	1.27
Commercial	569,681	14.5%	72,357	47,473	1.52
Irrigation	607,297	15.5%	127,818	50,608	2.53
Total	3,916,803	100.0%	501,206	326,400	1.54
Percent of Total	100.0%				
Previous Rate Study Base Year Assumption ¹	4,509,418		583,352	375,785	1.55
Percent Change from Prev Rate Study Assumption	-13%		-14%	-13%	-1%

Commercial usage includes City Domestic usage, Irrigation usage includes City Irrigation usage
 1 - Previous estimated future water usage = three-year average 2011-2013 less 10 percent (calculated on a bimonthly basis, does not include City use)

II. Revenue

Table 5 summarizes BWA’s revenue projections based on the Council-adopted FY 17/18 budget. This table includes several new developments contributing to the City’s water revenue, including SRF reimbursements of \$23.3 and \$10.8 million in FY 2017 for the surface water plant and local improvements, \$2.9 million in UCD reimbursements and \$7.8 million in SRF financing for local improvements in FY 2018, and \$5.9 million in SRF financing for local improvements in FY 2019. Rate revenue is approximately \$15.2 million per year, expected to increase 5% in the next fiscal year (including expected revenue from the maximum adopted rate adjustment on January 1, 2018). Total revenue is expected to drop in FY 2019/20 once SRF loans have been disbursed as planned.

Estimated capacity fee revenue is included in Total Non-Operating Revenue, equal to \$1.2 million in 2017/18 and escalated to \$1.4 million in 2021/23 assuming 0.5% growth (conservative slow-growth estimate) and 3.0% fee escalation per year according to the annual increase in the San Francisco Engineering News Record Construction Cost Index.

Category			Projected				
	Actual 16-17	Budget 17-18	18-19	19-20	20-21	21-22	22-23
% Growth (for rate revenue)			0.50%	0.50%	0.50%	0.50%	0.50%
% Investment Earnings			2.00%	2.00%	2.00%	2.00%	2.00%
% All Other Earnings			0.50%	0.50%	0.50%	0.50%	0.50%
Total Rate Revenue (No Rate Increases)	15,240,333	16,176,962	16,257,847	16,339,136	16,420,832	16,502,936	16,585,451
All Other Operating Revenue ¹	322,083	259,500	260,298	261,099	261,904	262,714	263,528
Total Operating Revenue	15,562,416	16,436,462	16,518,144	16,600,235	16,682,736	16,765,650	16,848,978
% change		5.62%	0.50%	0.50%	0.50%	0.50%	0.50%
Total Investment Income	129,642	157,100	160,242	163,447	166,716	170,050	173,451
All Other Non-Operating Revenue ²	35,405,383	11,928,008	7,206,062	1,301,796	1,347,554	1,394,921	1,443,953
Total Non-Operating Revenue	35,535,025	12,085,108	7,366,304	1,465,243	1,514,270	1,564,971	1,617,404
% change		-65.99%	-39.05%	-80.11%	3.35%	3.35%	3.35%
Total Revenue	\$51,097,441	\$28,521,570	\$23,884,448	\$18,065,478	\$18,197,006	\$18,330,621	\$18,466,382
% change	103.64%	-44.18%	-16.26%	-24.36%	0.73%	0.73%	0.74%

1 - Includes UCD annual revenue, \$100k approximate value
2 - Includes SRF reimbursement in 2016/17. Transfer of remaining funds from CIP 8224

III. Operations Expenses

Projections for Fund 511 Operations Expenses are summarized in **Table 6**. Expense escalation percentages are derived from the 2014 study and City staff input. BWA incorporated a 3.8% annual escalation of salary expenses and 3.0% annual escalation for all other expenses except those associated with the Woodland Davis Clean Water Agency operations expenses, which are determined by the Agency’s 10-year budget. Current projected Agency operations expenses are higher than estimated in the 2014 study. The latest 10-year budget expenses show an expected decrease in 2018/19 expenses and an expense increase of 2-4% each year thereafter.

Table 6
 City of Davis
 Expense Projection - Fund 511 (Water Operations & Maintenance)

Title	Base Year		2018/19	2019/20	2020/21	2021/22	2022/23
	2017/18 Budget	Escalation % ¹					
Total Water Operating Expenses	\$11,921,018		\$12,097,841	\$12,559,508	\$12,993,127	\$13,387,812	\$13,820,590
Total Salaries and Wages	\$3,212,131	3.8%	\$3,334,192	\$3,460,891	\$3,592,405	\$3,728,917	\$3,870,615
WDCWA Water Operations	\$3,923,500	Varies	\$3,834,700	\$4,021,800	\$4,171,600	\$4,272,900	\$4,402,400
All Other Baseline Expenses	\$4,785,387	3.0%	\$4,928,949	\$5,076,817	\$5,229,122	\$5,385,995	\$5,547,575

All categories totaled for Fund 511 across all City programs

1 - Assumptions derived from previous rate study and input from City staff

Source: 2017/18 Budget, WDCWA 10 Year Operations Budget Summary

IV. Current Debt

Annual debt service requirements are shown in **Table 7**. Since the 2014 Rate Study, the City has acquired an SRF loan with debt service equal to approximately \$1.5 million per year for local infrastructure improvements. Payments will begin in 2019/20. The City has a total debt service coverage requirement of 1.1x total debt service in each year. Debt service coverage is calculated in each year by subtracting total revenue from operating expenses, then dividing by total debt service.

Table 7
 Debt Service Schedule, 2016/17 - 2022/23

Debt Obligation	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
East Area Water Storage Tank Loan (I -Bank)	\$584,022	\$583,830	\$583,632	\$583,425	\$583,210	\$582,986	\$582,754
Wells Fargo Water Bonds	1,271,228	1,295,734	1,297,086	1,309,516	1,326,614	1,338,312	1,354,679
SRF 8019-110				1,488,982	1,498,100	1,498,100	1,498,100
WDCWA Water Quality Improvement Project - Davis Share	3,255,503	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000
WDCWA 2015 Water Revenue Bonds	<u>1,102,077</u>	<u>1,126,944</u>	<u>1,150,594</u>	<u>1,170,394</u>	<u>1,197,944</u>	<u>1,219,294</u>	<u>1,239,594</u>
Total Debt Expenditures	\$6,212,829	\$6,806,508	\$6,831,311	\$8,352,317	\$8,405,867	\$8,438,692	\$8,475,126

V. Capital Improvement Program

Table 8 displays a projection of capital improvement spending over the next 5 years. The most notable upcoming projects include water meter readers, deep well replacement, and water main rehabilitation. Capital spending in BWA’s cash flow projections extend to 2022/23 using an average of capital expenses from FY 16/17 to FY 2021/22.

Table 8
Capital Improvement Plan

Project Description	Estimated Capital Expenditures						Total
	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	FY 21/22	
CIP 8158 El Macero Valve Replacement			\$282,853				\$282,853
CIP 8174 Well #34 Surface Improvements	1,998,521						1,998,521
CIP 8187 Network Radio - Read Water Meters	7,045,443	1,328,008					8,373,451
CIP 8190 Water Main Rehabilitation	957,590	500,000	500,000	500,000	500,000	500,000	3,457,590
CIP 8224 Surface Water Pipelines Project							0
CIP 8230 Water Well Decommissionings			62,000				62,000
CIP 8256 L Street Improvements	500,000						500,000
CIP 8273 Well 11 Conversion to Irrigation Wells	150,000	987,342					1,137,342
CIP 8278 Water Well Standby Power Generator	45,077	361,275					406,352
CIP 8281 Tim Spencer Alley Reconstruction	129,500	284,165					413,665
CIP 8290 Replacement of Elevated Eight Street Water Tank		187,000	1,972,000				2,159,000
CIP 8310 SCADA Master Plan Implementation		522,798	546,308	528,970			1,598,076
CIP 8543 Davis Woodland Water Supply Project (JPA)	800,000						800,000
Aquifer Storage and Recovery			250,000				250,000
Replace Deep Wells/Surface Treatment				200,000	2,000,000	4,200,000	6,400,000
CIP 8186 Anode Installation				250,000	250,000	250,000	750,000
Additional Irrigation Well Conversions			150,000	1,000,000	150,000	1,100,000	2,400,000
Total	\$11,626,131	\$4,170,588	\$3,763,161	\$2,478,970	\$2,900,000	\$6,050,000	\$30,988,850

VI. Fund Balance

The City’s total fund balance as of the end of Fiscal Year 2017 is shown in **Table 9**. This fund balance is much higher than anticipated in the 2014 Rate Study due to recent SRF reimbursements.

Table 9
Fund Balances

Fund	Balance as of 6/30/2017 (Unaudited)
511 - Operations and Maintenance	\$5,754,524
512 - Capital Replacement Reserve	29,973,115
513 - Capital Expansion Reserve	(1,607,679)
Total	\$34,119,960

BWA Recommendations

I. Target Fund Balance

BWA and City staff have created a water target fund balance policy that matches the current wastewater target fund balance policy. The make-up of the proposed target fund balance is as follows: 3% of the City's asset value as of FY 2017, 3 months of Fund 511 operating expenses, and a full year of debt expenditures in each fiscal year. The overall recommended target can be used to estimate fund balance needs in a financial emergency.

Table 10
Fund Reserve Target

Category	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
3% Asset Value	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480
3 Months Operating Expenses	2,980,255	3,024,460	3,139,877	3,248,282	3,346,953	3,455,148
1 Year of Debt Service	6,806,508	6,831,311	8,352,317	8,405,867	8,438,692	8,475,126
Total Fund Reserve Target	\$13,486,243	\$13,555,252	\$15,191,674	\$15,353,629	\$15,485,125	\$15,629,754

II. Debt Service Coverage

The greatest driver of the City's water rates is its debt service coverage requirement of 1.1x operating net revenue (total revenue less operating expenses divided by debt service payments in each year). One way to mitigate the impact of the debt service coverage requirement on rates is to create a rate stabilization fund to meet the 1.1x debt service coverage requirement in each year. Any rate stabilization money used for coverage above 1x can be re-used for coverage in subsequent years, but we have shown the total required balance decreasing as a conservative estimate of the financial projection. It is important to note that the City may face some difficulty acquiring new debt issuances if the rate stabilization fund is being used to meet debt service coverage. A rate stabilization fund is shown in each cash flow scenario below, with the total amount varying in each scenario depending on rate stabilization needs. Alternately, the City may choose to pre-pay a portion of their outstanding debt issuance pending legal approval.

III. Cash Flow Projections

Each of the above sections have been combined to form cash flow financial projections through fiscal year 2022/23. This projection presents the most current financial data available to the City. Revenue and expense projections in this cash flow can generally be compared to the 2014 cash flow projections through FY 2018/19 although the categories for expenses were separated out in a different manner in 2014 primarily to highlight the treated surface water project estimated costs.

2016/17 revenue projections based on the 2013/14 budget are much higher than actual 2016/17 revenues. The difference between the previously projected revenues and actual revenues is approximately \$3.5 million. This discrepancy has not been fully resolved, but one contributing factor is reduced water sales due to decreased water consumption and number of meter equivalent units. Expenses are also lower than previously projected. The difference between the previously projected expenses and actual expenses is approximately \$4 million.

BWA used the updated cash flow projection to create rate increase scenarios that would maintain the financial health of the water enterprise while minimizing impact on ratepayers. Each scenario uses the fund balance exceeding the fund reserve target to reduce rates. Rate increase scenarios include:

- A. keeping the current maximum rate increases with inflationary increases in the next 5 years
- B. keeping the current maximum adopted rate increases while maintaining all financial targets including at least 1x debt service from annual revenue (recommended approach),
- C. reducing the maximum adopted rates while maintaining all financial targets including at least 1x debt service from annual revenue

Since rates are adopted each January, rate increases would only generate additional income for the last 6 months of the fiscal year. Rates conservatively assume 0.5% growth per year.

A. Scenario 1: Keep 2018 and 2019 Maximum Adopted Rates

The first scenario explored keeps the maximum adopted rates with only inflationary increases (1.7% annual increase) in outer years. Proposed increases after the maximum adopted rates would simply escalate the current rates by the proposed increase rather than re-allocate costs in each year. The proposed rate increases are as follows:

Rate Revenue Increase (Jan 1 Adoption)	Adopted		Projected			
	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
	14.0%	9.0%	1.7%	1.7%	1.7%	1.7%

The rate stabilization fund required for this scenario is \$7,800,000. In 2022/23, the fund balance is projected to be \$16,556,236, approximately \$900,000 above the fund reserve target, but the City will not be meeting 1x debt service coverage without the proposed rate stabilization fund. The full cash flow projection is shown in **Tables 11 and 12** below.

Table 11
Cash Flow Projection - Scenario 1 (maximum adopted rates)

	2017/18	2018/19	Projected			
	2019/20	2020/21	2021/22	2022/23		
Rate Revenue Increase (Jan 1 Adoption)	14.0%	9.0%	1.7%	1.7%	1.7%	1.7%
Interest Earnings Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Beginning Fund Balance	\$34,119,960	\$40,921,907	\$36,239,939	\$32,960,023	\$29,024,752	\$21,768,734
REVENUE						
Operating Revenue						
Rate Revenue (Pro-Rated for Jan 1 Adoption)	\$17,355,454	\$18,183,743	\$18,384,537	\$18,587,548	\$18,792,801	\$19,000,320
All Other Operating Revenue	<u>259,500</u>	<u>260,298</u>	<u>261,099</u>	<u>261,904</u>	<u>262,714</u>	<u>263,528</u>
Total Operating Revenue	\$17,614,954	\$18,444,040	\$18,645,636	\$18,849,452	\$19,055,515	\$19,263,848
Non-Operating Revenue						
Interest Income	\$157,100	\$160,242	\$163,447	\$166,716	\$170,050	\$173,451
All Other Non-Operating Revenue	<u>11,928,008</u>	<u>7,206,062</u>	<u>1,301,796</u>	<u>1,347,554</u>	<u>1,394,921</u>	<u>1,443,953</u>
Total Non-Operating Revenue	\$12,085,108	\$7,366,304	\$1,465,243	\$1,514,270	\$1,564,971	\$1,617,404
TOTAL REVENUE	\$29,700,062	\$25,810,344	\$20,110,879	\$20,363,723	\$20,620,486	\$20,881,252
EXPENSES						
Operating Expenses						
Total Salaries and Wages	\$3,212,131	\$3,334,192	\$3,460,891	\$3,592,405	\$3,728,917	\$3,870,615
WDCWA Water Operations	3,923,500	3,834,700	4,021,800	4,171,600	4,272,900	4,402,400
All Other Baseline Expenses	<u>4,785,387</u>	<u>4,928,949</u>	<u>5,076,817</u>	<u>5,229,122</u>	<u>5,385,995</u>	<u>5,547,575</u>
Total Operating Expenses	\$11,921,018	\$12,097,841	\$12,559,508	\$12,993,127	\$13,387,812	\$13,820,590
Non-Operating Expenses						
Capital Improvement Program	\$4,170,588	\$3,763,161	\$2,478,970	\$2,900,000	\$6,050,000	\$3,798,033
Transfer Out - Rate Stabilization Fund		\$7,800,000				
East Area Water Storage Tank Loan (I -Bank)	583,830	583,632	583,425	583,210	582,986	582,754
Wells Fargo Water Bonds	1,295,734	1,297,086	1,309,516	1,326,614	1,338,312	1,354,679
SRF 8019-110			1,488,982	1,498,100	1,498,100	1,498,100
WDCWA Water Quality Improvement Project - Davis Share	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000
WDCWA 2015 Water Revenue Bonds	<u>1,126,944</u>	<u>1,150,594</u>	<u>1,170,394</u>	<u>1,197,944</u>	<u>1,219,294</u>	<u>1,239,594</u>
Total Non-Operating Expenses	\$10,977,096	\$18,394,472	\$10,831,287	\$11,305,867	\$14,488,692	\$12,273,158
TOTAL EXPENSES	\$22,898,114	\$30,492,313	\$23,390,795	\$24,298,994	\$27,876,504	\$26,093,749
Operating Net Revenue	\$5,693,936	\$6,346,200	\$6,086,127	\$5,856,326	\$5,667,703	\$5,443,258
Total Net Revenue	\$6,801,947	(\$4,681,968)	(\$3,279,916)	(\$3,935,271)	(\$7,256,018)	(\$5,212,497)
Ending Fund Balance	\$40,921,907	\$36,239,939	\$32,960,023	\$29,024,752	\$21,768,734	\$16,556,236
Fund Reserve Target						
3% Asset Value	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480
3 Months Operating Expenses	2,980,255	3,024,460	3,139,877	3,248,282	3,346,953	3,455,148
1 Year of Debt Service	6,806,508	6,831,311	8,352,317	8,405,867	8,438,692	8,475,126
Total Fund Reserve Target	\$13,486,243	\$13,555,252	\$15,191,674	\$15,353,629	\$15,485,125	\$15,629,754
Target Met	yes	yes	yes	yes	yes	yes
Debt Service Coverage (Minimum 1.10x) ¹	2.61	2.01	0.90	0.88	0.86	0.83
Transfer In - Rate Stabilization Fund			\$1,600,000	\$1,900,000	\$2,050,000	\$2,250,000
<i>Debt Service Coverage with Transfer</i>	2.61	2.01	1.10	1.10	1.10	1.10

1 - Total revenue minus operating expenses divided by total debt service - affected cells highlighted in green

Water Projected Revenue, Expenses & Reserves - Scenario 1 (Max Rates)

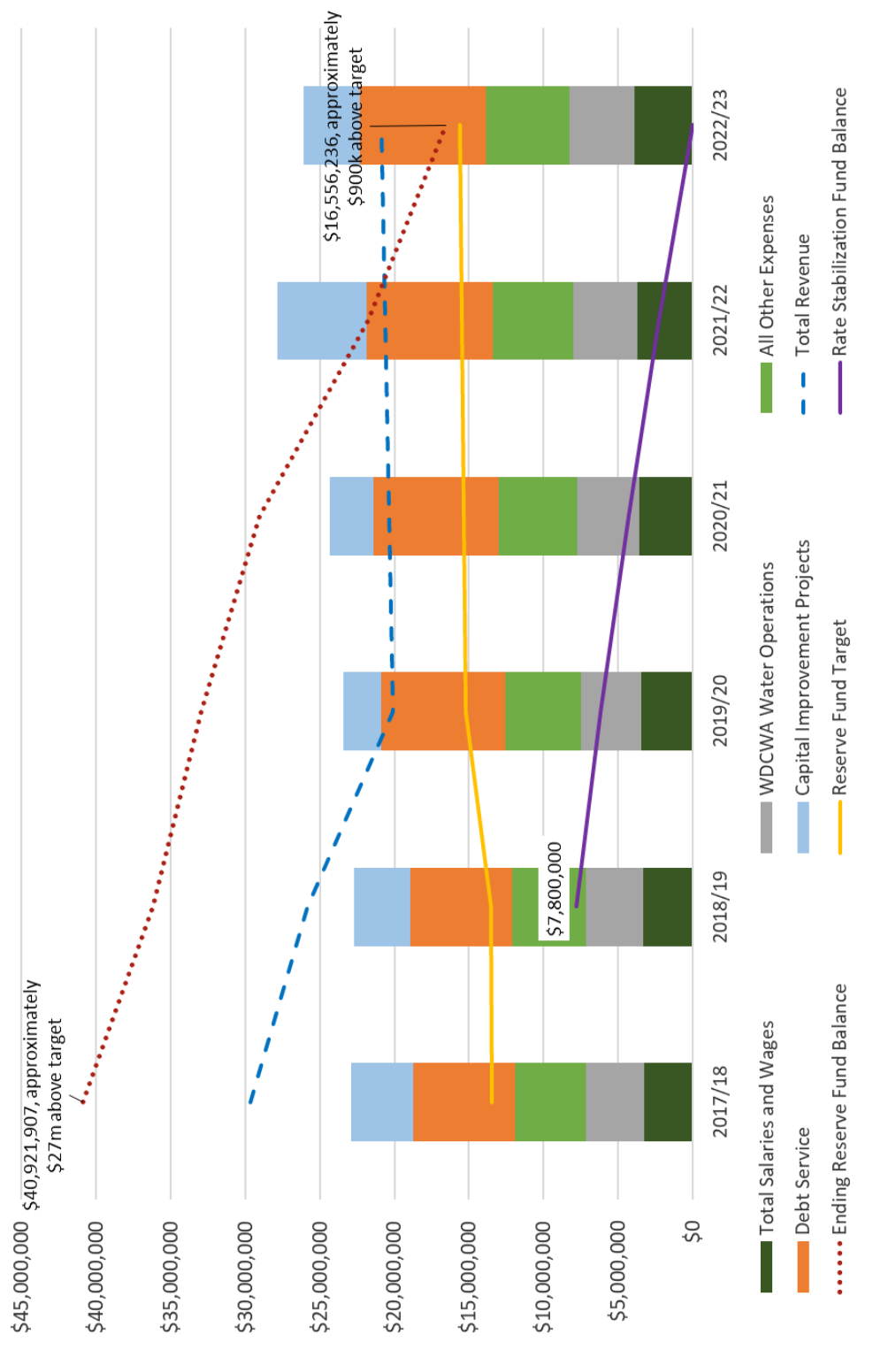


Table 12
 Projected Monthly Rates - Scenario 1 (Maximum Adopted Rates)

	Current	Future		<i>new projected rates (no structure change)</i>		
	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Rate Adoption Date	1-Jan-17	1-Jan-18	1-Jan-19	1-Jan-20	1-Jan-21	1-Jan-22
% Rate Increase		14.0%	9.0%	1.7%	1.7%	1.7%
Fixed Rates						
<u>Meter Size</u>	<u>(\$/Meter)</u>					
5/8" and 3/4"	\$10.97	\$12.20	\$13.07	\$13.29	\$13.52	\$13.75
1"	\$16.66	\$18.53	\$19.86	\$20.20	\$20.54	\$20.89
1 1/2"	\$29.71	\$33.15	\$35.57	\$36.17	\$36.79	\$37.42
2"	\$46.91	\$52.28	\$56.06	\$57.01	\$57.98	\$58.97
3"	\$85.95	\$96.25	\$103.49	\$105.25	\$107.04	\$108.86
4"	\$131.59	\$147.49	\$158.65	\$161.35	\$164.09	\$166.88
6"	\$254.96	\$286.31	\$308.37	\$313.61	\$318.94	\$324.37
8"	\$401.67	\$451.53	\$486.41	\$494.68	\$503.09	\$511.64
% Change		11%	7%	1.7%	1.7%	1.7%
Volumetric Rates						
<u>Customer Class</u>	<u>(\$/ccf)</u>					
Single Family Residence	\$3.98	4.61	5.01	\$5.10	\$5.18	\$5.27
Multi Family Residence	\$4.02	4.66	5.07	\$5.16	\$5.24	\$5.33
Commercial	\$3.87	4.47	4.88	\$4.96	\$5.05	\$5.13
Irrigation	\$4.93	5.71	6.23	\$6.34	\$6.44	\$6.55
% Change		16%	9%	1.7%	1.7%	1.7%

B. Scenario 2: Keep Maximum 2018 and 2019 Rates, Maintain All Targets

BWA's second rate increase scenario would keep the maximum adopted rates for 2018 and 2019 while maintaining at least 1x debt service coverage (funding all debt service payments from annual revenue) and using the rate stabilization fund to cover the additional 0.1x required coverage. With the addition of SRF loan payments in 2018/19, the City will need a rate increase in order to maintain at least 1x debt service coverage in that year. The proposed rate increases are as follows:

	Adopted		Projected			
	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Rate Revenue Increase (Jan 1 Adoption)	14.0%	9.0%	10.5%	4.0%	3.5%	3.5%

The rate stabilization fund required for this scenario is \$3,250,000. In 2022/23, the fund balance will be \$25,586,912, approximately \$10 million above the fund balance target. The full cash flow projection is shown in **Tables 13 and 14** below. BWA believes that this scenario is the best option for the overall financial health of the water enterprise.

Table 13

Cash Flow Projection - Scenario 2 (keep max rates, maintain at least 1x debt service)

	Projected					
	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Rate Revenue Increase (Jan 1 Adoption)	14.0%	9.0%	10.5%	4.0%	3.5%	3.5%
Interest Earnings Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Beginning Fund Balance	\$34,119,960	\$40,921,907	\$40,789,939	\$38,314,108	\$35,413,573	\$29,381,202
REVENUE						
Operating Revenue						
Rate Revenue (Pro-Rated for Jan 1 Adoption)	\$17,355,454	\$18,183,743	\$19,188,622	\$19,622,285	\$20,016,447	\$20,418,528
All Other Operating Revenue	259,500	260,298	261,099	261,904	262,714	263,528
Total Operating Revenue	\$17,614,954	\$18,444,040	\$19,449,721	\$19,884,189	\$20,279,161	\$20,682,055
Non-Operating Revenue						
Interest Income	\$157,100	\$160,242	\$163,447	\$166,716	\$170,050	\$173,451
All Other Non-Operating Revenue	11,928,008	7,206,062	1,301,796	1,347,554	1,394,921	1,443,953
Total Non-Operating Revenue	\$12,085,108	\$7,366,304	\$1,465,243	\$1,514,270	\$1,564,971	\$1,617,404
TOTAL REVENUE	\$29,700,062	\$25,810,344	\$20,914,964	\$21,398,459	\$21,844,132	\$22,299,459
EXPENSES						
Operating Expenses						
Total Salaries and Wages	\$3,212,131	\$3,334,192	\$3,460,891	\$3,592,405	\$3,728,917	\$3,870,615
WDCWA Water Operations	3,923,500	3,834,700	4,021,800	4,171,600	4,272,900	4,402,400
All Other Baseline Expenses	4,785,387	4,928,949	5,076,817	5,229,122	5,385,995	5,547,575
Total Operating Expenses	\$11,921,018	\$12,097,841	\$12,559,508	\$12,993,127	\$13,387,812	\$13,820,590
Non-Operating Expenses						
Capital Improvement Program	\$4,170,588	\$3,763,161	\$2,478,970	\$2,900,000	\$6,050,000	\$3,798,033
Transfer Out - Rate Stabilization Fund		\$3,250,000				
East Area Water Storage Tank Loan (I -Bank)	583,830	583,632	583,425	583,210	582,986	582,754
Wells Fargo Water Bonds	1,295,734	1,297,086	1,309,516	1,326,614	1,338,312	1,354,679
SRF 8019-110			1,488,982	1,498,100	1,498,100	1,498,100
WDCWA Water Quality Improvement Project - Davis Share	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000
WDCWA 2015 Water Revenue Bonds	1,126,944	1,150,594	1,170,394	1,197,944	1,219,294	1,239,594
Total Non-Operating Expenses	\$10,977,096	\$13,844,472	\$10,831,287	\$11,305,867	\$14,488,692	\$12,273,158
TOTAL EXPENSES	\$22,898,114	\$25,942,313	\$23,390,795	\$24,298,994	\$27,876,504	\$26,093,749
Operating Net Revenue	\$5,693,936	\$6,346,200	\$6,890,212	\$6,891,062	\$6,891,350	\$6,861,465
Total Net Revenue	\$6,801,947	(\$131,968)	(\$2,475,831)	(\$2,900,534)	(\$6,032,371)	(\$3,794,290)
Ending Fund Balance	\$40,921,907	\$40,789,939	\$38,314,108	\$35,413,573	\$29,381,202	\$25,586,912
Fund Reserve Target						
3% Asset Value	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480
3 Months Operating Expenses	2,980,255	3,024,460	3,139,877	3,248,282	3,346,953	3,455,148
1 Year of Debt Service	6,806,508	6,831,311	8,352,317	8,405,867	8,438,692	8,475,126
Total Fund Reserve Target	\$13,486,243	\$13,555,252	\$15,191,674	\$15,353,629	\$15,485,125	\$15,629,754
Target Met	yes	yes	yes	yes	yes	yes
Debt Service Coverage (Minimum 1.10x) ¹	2.61	2.01	1.00	1.00	1.00	1.00
Transfer In - Rate Stabilization Fund			\$800,000	\$800,000	\$800,000	\$850,000
Debt Service Coverage with Transfer	2.61	2.01	1.10	1.10	1.10	1.10

1 - Total revenue minus operating expenses divided by total debt service - affected cells highlighted in green

Water Projected Revenue, Expenses & Reserves - Scenario 2 (Max Rates, Maintain 1x Debt Service)

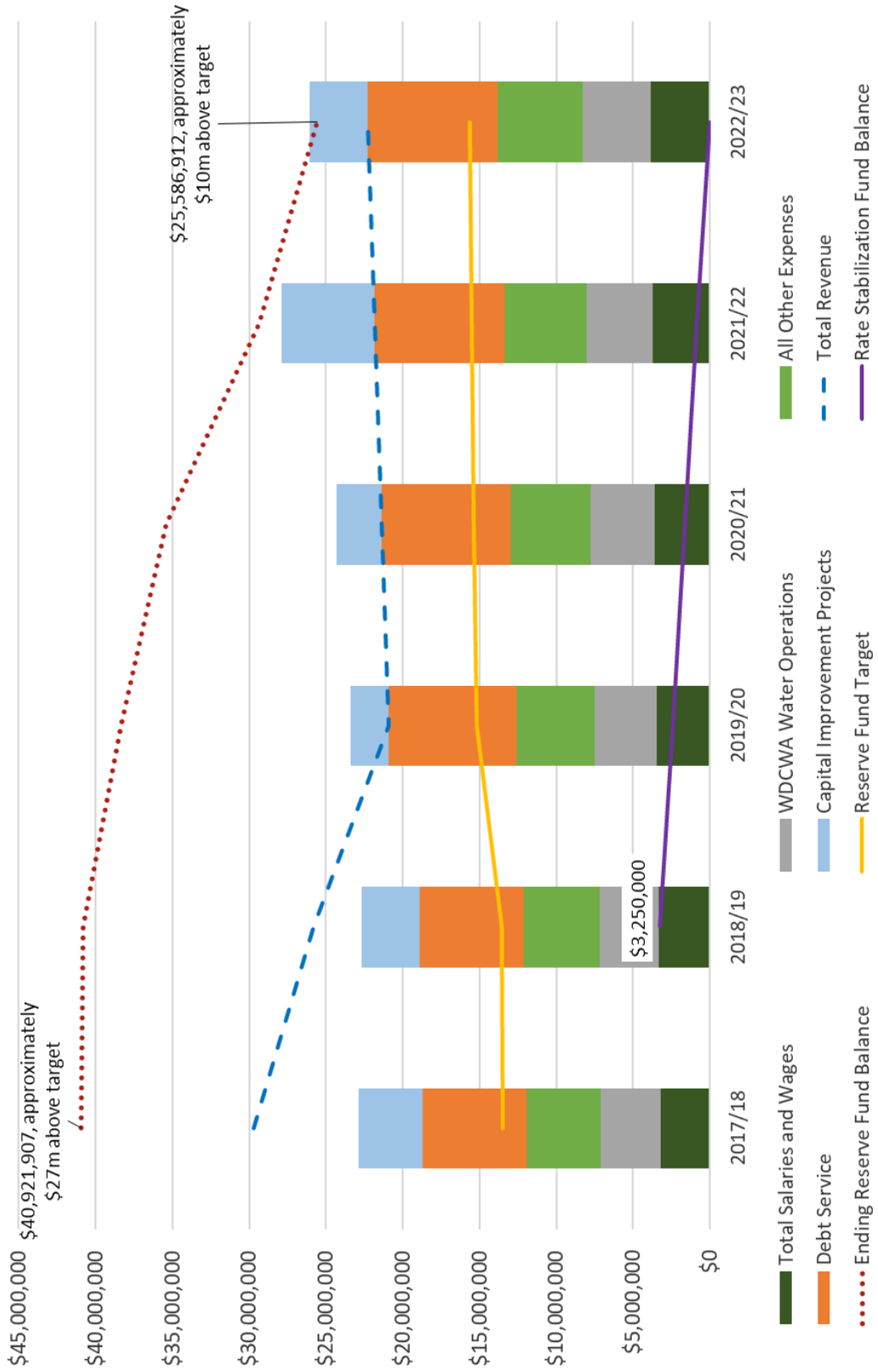


Table 14

Projected Monthly Rates - Scenario 2 (Maximum Adopted Rates, 1x Debt Service Coverage)

	Current	Future		<i>new projected rates (no structure change)</i>		
	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Rate Adoption Date	1-Jan-17	1-Jan-18	1-Jan-19	1-Jan-20	1-Jan-21	1-Jan-22
% Rate Increase		14.0%	9.0%	10.5%	4.0%	3.5%
Fixed Rates						
<u>Meter Size</u>	<u>(\$/Meter)</u>					
5/8" and 3/4"	\$10.97	\$12.20	\$13.07	\$14.44	\$15.02	\$15.55
1"	\$16.66	\$18.53	\$19.86	\$21.95	\$22.82	\$23.62
1 1/2"	\$29.71	\$33.15	\$35.57	\$39.30	\$40.88	\$42.31
2"	\$46.91	\$52.28	\$56.06	\$61.95	\$64.42	\$66.68
3"	\$85.95	\$96.25	\$103.49	\$114.36	\$118.93	\$123.09
4"	\$131.59	\$147.49	\$158.65	\$175.31	\$182.32	\$188.70
6"	\$254.96	\$286.31	\$308.37	\$340.75	\$354.38	\$366.78
8"	\$401.67	\$451.53	\$486.41	\$537.48	\$558.98	\$578.55
% Change		11%	7%	10.5%	4.0%	3.5%
Volumetric Rates						
<u>Customer Class</u>	<u>(\$/ccf)</u>					
Single Family Residence	\$3.98	4.61	5.01	\$5.54	\$5.76	\$5.96
Multi Family Residence	\$4.02	4.66	5.07	\$5.60	\$5.83	\$6.03
Commercial	\$3.87	4.47	4.88	\$5.39	\$5.61	\$5.80
Irrigation	\$4.93	5.71	6.23	\$6.88	\$7.16	\$7.41
% Change		16%	9%	10.5%	4.0%	3.5%

C. Scenario 3: Reduce 2018 and 2019 Rates, Maintain All Targets

Rate increase scenario 3 shows the impact of reducing the adopted rates through 2019 while maintaining at least 1x debt service coverage in each year. The proposed rate increases are as follows:

	Adopted		Projected			
	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Rate Revenue Increase (Jan 1 Adoption)	7.0%	7.0%	20.0%	4.0%	3.5%	3.5%

The addition of the SRF loan payments in 2019/20 will require a 20% rate increase in that year to maintain at least 1x debt service coverage.

The rate stabilization fund required for this scenario is \$3,250,000. In 2022/23, the fund balance will be \$24,353,681, approximately \$8,700,000 above the fund balance target. Compared to Scenario 2, expenditures for the rate stabilization fund will be the same and rates in 2022/23 will be slightly increased. The full cash flow projection is shown in **Tables 15 and 16** below.

Table 15

Cash Flow Projection - Scenario 3 (reduced maximum rates, maintain at least 1x debt service)

	2017/18	2018/19	2019/20	Projected		
			2020/21	2021/22	2022/23	
Rate Revenue Increase (Jan 1 Adoption)	7.0%	7.0%	20.0%	4.0%	3.5%	3.5%
Interest Earnings Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Beginning Fund Balance	\$34,119,960	\$40,352,883	\$39,456,029	\$37,004,576	\$34,128,971	\$28,122,030
REVENUE						
Operating Revenue						
Rate Revenue (Pro-Rated for Jan 1 Adoption)	\$16,786,429	\$17,418,858	\$19,213,000	\$19,647,214	\$20,041,877	\$20,444,469
All Other Operating Revenue	<u>259,500</u>	<u>260,298</u>	<u>261,099</u>	<u>261,904</u>	<u>262,714</u>	<u>263,528</u>
Total Operating Revenue	\$17,045,929	\$17,679,155	\$19,474,099	\$19,909,118	\$20,304,591	\$20,707,996
Non-Operating Revenue						
Interest Income	\$157,100	\$160,242	\$163,447	\$166,716	\$170,050	\$173,451
All Other Non-Operating Revenue	<u>11,928,008</u>	<u>7,206,062</u>	<u>1,301,796</u>	<u>1,347,554</u>	<u>1,394,921</u>	<u>1,443,953</u>
Total Non-Operating Revenue	\$12,085,108	\$7,366,304	\$1,465,243	\$1,514,270	\$1,564,971	\$1,617,404
TOTAL REVENUE	\$29,131,037	\$25,045,459	\$20,939,342	\$21,423,389	\$21,869,562	\$22,325,400
EXPENSES						
Operating Expenses						
Total Salaries and Wages	\$3,212,131	\$3,334,192	\$3,460,891	\$3,592,405	\$3,728,917	\$3,870,615
WDCWA Water Operations	3,923,500	3,834,700	4,021,800	4,171,600	4,272,900	4,402,400
All Other Baseline Expenses	<u>4,785,387</u>	<u>4,928,949</u>	<u>5,076,817</u>	<u>5,229,122</u>	<u>5,385,995</u>	<u>5,547,575</u>
Total Operating Expenses	\$11,921,018	\$12,097,841	\$12,559,508	\$12,993,127	\$13,387,812	\$13,820,590
Non-Operating Expenses						
Capital Improvement Program	\$4,170,588	\$3,763,161	\$2,478,970	\$2,900,000	\$6,050,000	\$3,798,033
Transfer Out - Rate Stabilization Fund		\$3,250,000				
East Area Water Storage Tank Loan (I -Bank)	583,830	583,632	583,425	583,210	582,986	582,754
Wells Fargo Water Bonds	1,295,734	1,297,086	1,309,516	1,326,614	1,338,312	1,354,679
SRF 8019-110			1,488,982	1,498,100	1,498,100	1,498,100
WDCWA Water Quality Improvement Project - Davis Share	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000
WDCWA 2015 Water Revenue Bonds	<u>1,126,944</u>	<u>1,150,594</u>	<u>1,170,394</u>	<u>1,197,944</u>	<u>1,219,294</u>	<u>1,239,594</u>
Total Non-Operating Expenses	\$10,977,096	\$13,844,472	\$10,831,287	\$11,305,867	\$14,488,692	\$12,273,158
TOTAL EXPENSES	\$22,898,114	\$25,942,313	\$23,390,795	\$24,298,994	\$27,876,504	\$26,093,749
Operating Net Revenue	\$5,124,911	\$5,581,315	\$6,914,591	\$6,915,992	\$6,916,780	\$6,887,406
Total Net Revenue	\$6,232,923	(\$896,853)	(\$2,451,453)	(\$2,875,605)	(\$6,006,941)	(\$3,768,349)
Ending Fund Balance	\$40,352,883	\$39,456,029	\$37,004,576	\$34,128,971	\$28,122,030	\$24,353,681
Fund Reserve Target						
3% Asset Value	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480
3 Months Operating Expenses	2,980,255	3,024,460	3,139,877	3,248,282	3,346,953	3,455,148
1 Year of Debt Service	6,806,508	6,831,311	8,352,317	8,405,867	8,438,692	8,475,126
Total Fund Reserve Target	\$13,486,243	\$13,555,252	\$15,191,674	\$15,353,629	\$15,485,125	\$15,629,754
Target Met	yes	yes	yes	yes	yes	yes
Debt Service Coverage (Minimum 1.10x) ¹	2.53	1.90	1.00	1.00	1.01	1.00
Transfer In - Rate Stabilization Fund			\$800,000	\$800,000	\$800,000	\$850,000
Debt Service Coverage with Transfer	2.53	1.90	1.10	1.10	1.10	1.10

1 - Total revenue minus operating expenses divided by total debt service - affected cells highlighted in green

Water Projected Revenue, Expenses & Reserves - Scenario 3 (Reduced Max Rates, Maintain 1x Debt Service)

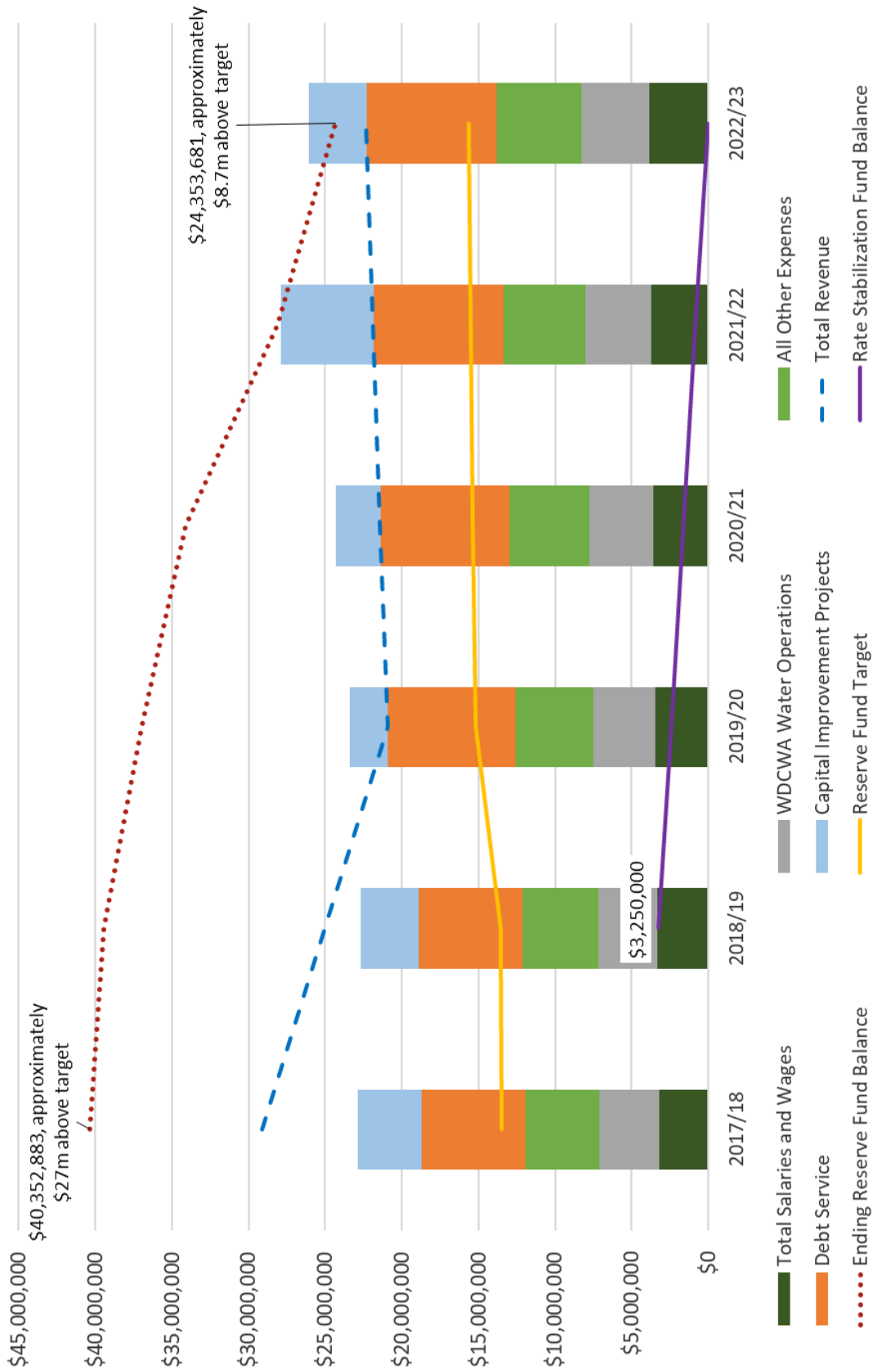


Table 16

Projected Monthly Rates - Scenario 3 (Reduced Maximum Adopted Rates, 1x Debt Service Coverage)

Rate Adoption Date	Current	<i>new projected rates (no structure change)</i>				
	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
	1-Jan-17	1-Jan-18	1-Jan-19	1-Jan-20	1-Jan-21	1-Jan-22
% Rate Increase		7.0%	7.0%	20.0%	4.0%	3.5%
Fixed Rates						
<u>Meter Size</u>	<u>(\$/Meter)</u>					
5/8" and 3/4"	\$10.97	\$11.74	\$12.56	\$15.07	\$15.67	\$16.22
1"	\$16.66	\$17.83	\$19.07	\$22.89	\$23.80	\$24.64
1 1/2"	\$29.71	\$31.79	\$34.01	\$40.82	\$42.45	\$43.94
2"	\$46.91	\$50.19	\$53.71	\$64.45	\$67.03	\$69.37
3"	\$85.95	\$91.97	\$98.40	\$118.08	\$122.81	\$127.11
4"	\$131.59	\$140.80	\$150.66	\$180.79	\$188.02	\$194.60
6"	\$254.96	\$272.81	\$291.90	\$350.28	\$364.30	\$377.05
8"	\$401.67	\$429.79	\$459.87	\$551.85	\$573.92	\$594.01
% Change		7.0%	7.0%	20.0%	4.0%	3.5%
Volumetric Rates						
<u>Customer Class</u>	<u>(\$/ccf)</u>					
Single Family Residence	\$3.98	\$4.26	\$4.56	\$5.47	\$5.69	\$5.89
Multi Family Residence	\$4.02	\$4.30	\$4.60	\$5.52	\$5.74	\$5.94
Commercial	\$3.87	\$4.14	\$4.43	\$5.32	\$5.53	\$5.72
Irrigation	\$4.93	\$5.28	\$5.64	\$6.77	\$7.04	\$7.29
% Change		7.0%	7.0%	20.0%	4.0%	3.5%

Conclusion

Bartle Wells Associates has worked closely with City Staff to update the projections from our 2014 Water Rate Study considering recent developments such as reduced consumption, reduced operating expenses, additional debt service, and additional reimbursement funding. A summary of the proposed rate increase scenarios is provided in **Table 17**.

Table 17

Summary of Rate Increase Scenarios

Rate Adoption Date	<i>projected rate increases</i>				
	2017/18	2018/19	2019/20	2020/21	2021/22
	1-Jan-18	1-Jan-19	1-Jan-20	1-Jan-21	1-Jan-22
Scenario 1 - Maximum Rates	14.0%	9.0%	1.7%	1.7%	1.7%
Scenario 2 - Max Rates, 1x Debt Service Coverage (recommended)	14.0%	9.0%	10.5%	4.0%	3.5%
Scenario 3 - Reduced Rates, 1x Debt Service Coverage	7.0%	7.0%	20.0%	4.0%	3.5%

Our ultimate finding is that while the maximum adopted rate increases for January 1, 2018 and January 1, 2019 can be reduced, it is in the City's best interest to keep the maximum adopted rates in order to maintain the overall financial stability of the water enterprise and avoid greater

rate increases in the future. Reducing rates for the next two years will require a larger rate increase once the City begins making SRF payments in 2019/20, as shown in Scenario 3.

The City may choose to use their fund balance above the proposed target to create a rate stabilization fund that covers the additional 0.1x coverage requirement. Using this option, BWA recommends that the City meet at least 1x debt service coverage from annual revenue (Scenarios 2 and 3). Alternatively, this fund balance may be used to pre-pay a portion of outstanding debt pending legal approval.

Our findings are shown in detail in the Rate Study Update enclosed, using Scenario 2 for the cash flow projection since this is our ultimate recommendation. We have enjoyed working with the City on this project and welcome any questions or feedback.

Sincerely,

A handwritten signature in black ink, appearing to read "Douglas R. Dove". The signature is fluid and cursive, with the first name being the most prominent.

Douglas R. Dove
President, Bartle Wells Associates

**City of Davis
Water Rate Study Update
November
2017**



Tables



BARTLE WELLS ASSOCIATES
Independent Public Finance Advisors

Table 1
City of Davis
Current Rates

Rates effective January 1, 2017

Fixed Charge		
Meter Size	Monthly Charge	Factor
5/8" and 3/4"	\$10.97	1.00
1"	\$16.66	1.52
1 1/2"	\$29.71	2.71
2"	\$46.91	4.28
3"	\$85.95	7.84
4"	\$131.59	12.00
6"	\$254.96	23.24
8"	\$401.67	36.62

Volumetric Charge		
Customer Class	\$/ccf	Factor
Single Family Residence	\$3.98	1.00
Multi Family Residence	\$4.02	1.01
Commercial	\$3.87	0.97
Irrigation	\$4.93	1.24

Low Income Discount Available at \$10 reduction per bill

Current Adopted Maximum Rates

	January 1, 2018	January 1, 2019
Fixed Charge		
Meter Size	Monthly Charge	
5/8" and 3/4"	\$12.20	\$13.07
1"	\$18.53	\$19.86
1 1/2"	\$33.15	\$35.57
2"	\$52.28	\$56.06
3"	\$96.25	\$103.49
4"	\$147.49	\$158.65
6"	\$286.31	\$308.37
8"	\$451.53	\$486.41
<i>% change from prev year</i>	11%	7%
Volumetric Charge		
Customer Class	\$/ccf	
Single Family Residence	\$4.61	\$5.01
Multi Family Residence	\$4.66	\$5.07
Commercial	\$4.47	\$4.88
Irrigation	\$5.71	\$6.23
<i>% change from prev year</i>	16%	9%

Table 2
City of Davis
Customers by Meter Size

Total 2016 Meter Count	Single Family Residential	Multi-Family Residential	Commercial	City Domestic	Irrigation	City Irrigation	Total
5/8 or 3/4"	11,624	84	158	5	328	25	12,223
1"	2,926	195	319	9	115	83	3,647
1-1/2"	96	101	168	7	72	23	467
2"	3	95	92	8	40	85	323
3"	0	46	25	3	0	22	96
4"	0	24	6	0	0	13	43
6"	0	0	3	0	0	0	3
8"	0	4	0	0	0	0	4
Total	14,649	549	771	32	554	251	16,805
% of Total	87%	3%	5%	0%	3%	1%	100%

Equivalent Factors

Equivalent Factors	Single Family Residential	Multi-Family Residential	Commercial	City Domestic	Irrigation	City Irrigation	Total
5/8 or 3/4"	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1"	1.67	1.67	1.67	1.67	1.67	1.67	1.67
1-1/2"	3.33	3.33	3.33	3.33	3.33	3.33	3.33
2"	5.33	5.33	5.33	5.33	5.33	5.33	5.33
3"	10.00	10.00	10.00	10.00	10.00	10.00	10.00
4"	16.67	16.67	16.67	16.67	16.67	16.67	16.67
6"	33.33	33.33	33.33	33.33	33.33	33.33	33.33
8"	53.33	53.33	53.33	53.33	53.33	53.33	53.33

Total Equivalent Meters

Total Equivalent Meters	Single Family Residential	Multi-Family Residential	Commercial	City Domestic	Irrigation	City Irrigation	Total
5/8 or 3/4"	11,624	84	158	5	328	25	12,223
1"	4,877	325	532	15	192	138	6,078
1-1/2"	320	337	559	23	239	78	1,556
2"	16	507	489	43	213	452	1,720
3"	0	460	250	29	0	221	960
4"	0	400	100	0	0	215	715
6"	0	0	100	0	0	0	100
8"	0	213	0	0	0	0	213
Total	16,836	2,325	2,188	115	972	1,129	23,566
% of Total	71%	10%	9%	0%	4%	5%	100%

Table 3

City of Davis
Water Consumption by Customer Class

Customer Class	2014 Water Consumption and Peaking Ratios by Customer Class (ccf) - Monthly Billing												Total	% of Total	Peak	Average	Peak Ratio
	January	February	March	April	May	June	July	August	September	October	November	December					
Single Family Residential	126,717	86,030	109,973	144,951	216,207	197,380	301,356	236,812	213,637	157,616	105,792	94,752	1,991,223	49.3%	301,356	165,935	1.82
Multi Family Residential	73,831	64,044	66,036	76,284	94,198	77,332	115,760	88,915	85,692	82,419	66,118	59,476	950,107	23.5%	115,760	79,175	1.46
Commercial	36,656	27,195	32,143	43,972	72,543	58,165	92,519	74,104	66,182	52,562	33,275	28,321	617,637	15.3%	92,519	51,470	1.80
Irrigation (Excluding City)	6,780	3,739	5,146	7,776	14,770	15,559	25,614	18,566	15,739	10,472	5,328	2,770	132,259	3.3%	25,614	11,022	2.32
City	<u>9,358</u>	<u>1,337</u>	<u>2,674</u>	<u>10,695</u>	<u>41,444</u>	<u>109,626</u>	<u>62,834</u>	<u>53,476</u>	<u>36,096</u>	<u>14,706</u>	<u>4,011</u>	<u>2,674</u>	<u>348,930</u>	8.6%	109,626	29,078	3.77
Total	253,342	182,345	215,972	283,678	439,162	458,062	598,083	471,873	417,346	317,775	214,524	187,993	4,040,154	100.0%	598,083	336,680	1.78
Percent of Total	6.3%	4.5%	5.3%	7.0%	10.9%	11.3%	14.8%	11.7%	10.3%	7.9%	5.3%	4.7%	100.0%				

Customer Class	2015 Water Consumption and Peaking Ratios by Customer Class (ccf) - Monthly Billing												Total	% of Total	Peak	Average	Peak Ratio
	January	February	March	April	May	June	July	August	September	October	November	December					
Single Family Residential	86,186	82,888	127,005	136,364	152,406	181,818	187,166	189,840	181,818	153,743	94,920	88,235	1,662,389	47.0%	189,840	138,532	1.37
Multi Family Residential	57,011	56,767	80,214	74,866	78,777	80,214	78,877	80,214	81,551	82,888	58,824	50,802	861,104	24.4%	82,888	71,759	1.16
Commercial	26,060	26,328	41,444	42,781	48,128	53,476	54,813	57,487	54,813	50,802	28,075	28,401	509,607	14.4%	57,487	42,467	1.35
Irrigation (Excluding City)	3,411	2,790	6,684	8,021	10,695	13,369	14,706	14,706	12,032	10,695	5,348	8,021	110,479	3.1%	14,706	9,207	1.60
City	<u>1,337</u>	<u>1,337</u>	<u>6,684</u>	<u>13,369</u>	<u>36,096</u>	<u>65,508</u>	<u>61,497</u>	<u>81,551</u>	<u>64,171</u>	<u>25,401</u>	<u>32,086</u>	<u>2,674</u>	<u>391,711</u>	11.1%	81,551	32,643	2.50
Total	174,005	170,110	262,032	275,401	326,203	394,385	397,059	423,797	394,385	323,529	219,251	175,134	3,535,291	100.0%	423,797	294,608	1.44
Percent of Total	4.9%	4.8%	7.4%	7.8%	9.2%	11.2%	11.2%	12.0%	11.2%	9.2%	6.2%	5.0%	100.0%				

Customer Class	2016 Water Consumption and Peaking Ratios by Customer Class (ccf) - Monthly Billing												Total	% of Total	Peak	Average	Peak Ratio
	January	February	March	April	May	June	July	August	September	October	November	December					
Single Family Residential	76,507	85,932	94,533	143,302	195,693	230,963	237,834	265,743	220,776	148,116	101,889	92,720	1,894,007	48.6%	265,743	157,834	1.68
Multi Family Residential	53,659	56,988	58,072	71,706	83,955	84,351	87,405	91,394	85,339	76,764	61,326	49,686	860,645	22.1%	91,394	71,720	1.27
Commercial	23,439	24,230	25,796	46,831	58,989	54,411	65,715	70,303	60,648	44,305	27,493	26,938	529,108	13.6%	70,303	44,092	1.59
City Domestic	6,700	465	650	845	1,216	1,289	1,341	1,429	1,305	1,034	697	593	17,564	0.5%	6,700	1,464	4.58
Irrigation (Excluding City)	2,201	3,089	2,792	8,837	11,416	13,779	17,930	19,003	15,088	9,021	3,748	2,604	109,508	2.8%	19,003	9,126	2.08
City Irrigation	<u>1,208</u>	<u>863</u>	<u>1,455</u>	<u>39,692</u>	<u>63,374</u>	<u>53,828</u>	<u>73,301</u>	<u>77,652</u>	<u>46,011</u>	<u>117,755</u>	<u>3,494</u>	<u>11,250</u>	<u>489,881</u>	12.6%	117,755	40,823	2.88
Total	163,713	171,567	183,298	311,213	414,652	438,621	483,525	525,524	429,167	396,995	198,647	183,791	3,900,714	100.0%	525,524	325,059	1.62
Percent of Total	4.2%	4.4%	4.7%	8.0%	10.6%	11.2%	12.4%	13.5%	11.0%	10.2%	5.1%	4.7%	100.0%				

Customer Class	3-Year Average Water Consumption and Peaking Ratios by Customer Class (ccf) - Monthly Billing												Total	% of Total	Peak	Average	Peak Ratio
	January	February	March	April	May	June	July	August	September	October	November	December					
Single Family Residential	96,470	84,950	110,504	141,539	188,102	203,387	242,118	230,798	205,410	153,158	100,867	91,903	1,849,206	47.2%	242,118	154,101	1.57
Multi Family Residential	61,500	59,266	68,107	74,285	85,677	80,632	94,014	86,841	84,194	80,690	62,089	53,321	890,618	22.7%	94,014	74,218	1.27
Commercial ¹	35,418	26,383	33,778	45,373	61,106	56,640	72,357	68,727	61,853	50,257	30,311	27,480	569,681	14.5%	72,357	47,473	1.52
Irrigation	5,338	4,069	6,329	47,903	75,668	68,064	92,717	60,297	60,297	127,818	8,302	15,715	60,297	15.5%	127,818	50,608	2.53
Total	198,727	174,668	218,718	309,101	410,552	408,723	501,206	481,443	411,754	411,923	201,569	188,419	3,916,803	100.0%	501,206	326,400	1.54
Percent of Total	5.1%	4.5%	5.6%	7.9%	10.5%	10.4%	12.8%	12.3%	10.5%	10.5%	5.1%	4.8%	100.0%				

Previous Rate Study Base Year Assumption¹ 205,929 205,929 290,152 290,152 514,050 514,050 583,352 583,352 433,098 433,098 228,130 228,130 4,509,418 1.55
 Percent Change from Prev Rate Study Assumption -3% -15% -25% 7% -20% -20% -14% -17% -5% -5% -12% -17% -13% -14% -13% -1%

1 - Previous estimated future water usage = three-year average 2011-2013 less 10 percent (calculated on a bimonthly basis, does not include City use)

Total Water Consumption by Customer Class, CY2016 (Monthly Billing)

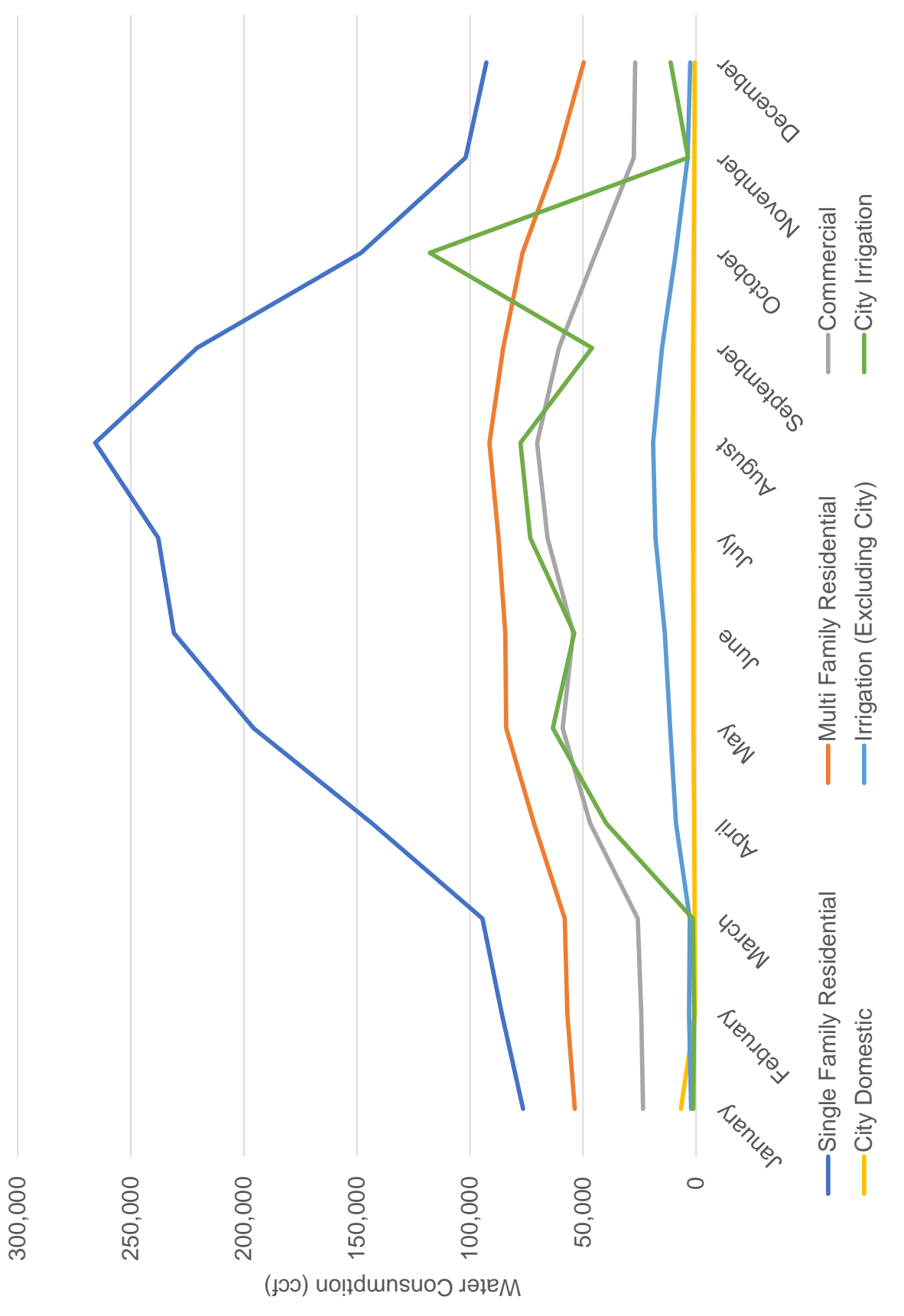


Table 4
City of Davis
Revenue Projection - Fund 511 (Water Operations & Maintenance)

Category	Actual 16-17	Budget 17-18	18-19	19-20	Projected 20-21	21-22	22-23
% Growth (for rate revenue)			0.50%	0.50%	0.50%	0.50%	0.50%
% Investment Earnings			2.00%	2.00%	2.00%	2.00%	2.00%
% All Other Earnings			0.50%	0.50%	0.50%	0.50%	0.50%
511 - Operations and Maintenance							
511-7520-325.50-75 Water Resources	\$25,766	\$0	\$0	\$0	\$0	\$0	\$0
511-0000-358.35-05 Water Sales/Inside City	14,900,000	15,606,562	15,684,595	15,763,018	15,841,833	15,921,042	16,000,647
511-0000-358.35-06 Water Sales/Outside City	340,333	530,400	533,052	535,717	538,396	541,088	543,793
511-0000-358.35-28 Repair Services	4,475	0	0	0	0	0	0
511-7522-358.35-05 Water Sales/Inside City - Irr. Well	0	40,000	40,200	40,401	40,603	40,806	41,010
Water Sales/UC Davis ¹	100,000	100,000	100,000	100,000	100,000	100,000	100,000
511-7523-358.35-10 Water Meter Installation Fee	29,124	15,000	15,075	15,150	15,226	15,302	15,379
511-7523-358.35-16 Water Shut Off/Reconn Fee	2,910	4,000	4,020	4,040	4,060	4,081	4,101
511-7523-358.35-26 Fire Hydrant Use Permit	37,888	20,000	20,100	20,201	20,302	20,403	20,505
511-7526-358.35-20 Cross Conn Cert Fee	8,011	10,000	10,050	10,100	10,151	10,202	10,253
511-7526-358.35-21 Encroachment Permit	256	500	503	505	508	510	513
511-7531-358.35-22 N Dav Meadows I Water Svc	111,611	110,000	110,550	111,103	111,658	112,217	112,778
511-0000-371.05-00 From Investments	9,389	36,630	37,363	38,110	38,872	39,649	40,442
511-0000-388.15-02 Other Reimbursements	1,695	0	0	0	0	0	0
511-0000-388.25-05 Sale Of Surplus/Salvage	324	0	0	0	0	0	0
511-7523-388.15-10 Employee Reimbursement	23	0	0	0	0	0	0
Total Fund 511	\$15,571,785	\$16,473,092	\$16,555,507	\$16,638,345	\$16,721,608	\$16,805,299	\$16,889,421
512 - Capital Replacement Reserve							
512-0000-371.05-00 From Investments	\$118,823	\$120,470	\$122,879	\$125,337	\$127,844	\$130,401	\$133,009
512-0000-371.20-00 Interest/Other	4	0	0	0	0	0	0
512-8224-388.15-72 Refund/Other	0	0	0	0	0	0	0
512-8543-388.15-79 From Participating Agcys ²	23,352,007	2,900,000	0	0	0	0	0
512-8187-390.50-65 Surface Water Financing	0	7,828,008	5,948,470	0	0	0	0
512-8224-390.50-65 Surface Water Financing	10,773,662	0	0	0	0	0	0
Total Fund 512	\$34,244,496	\$10,848,478	\$6,071,349	\$125,337	\$127,844	\$130,401	\$133,009
513 - Capital Expansion Reserve							
513-0000-371.05-00 From Investments	\$1,450	\$0	\$0	\$0	\$0	\$0	\$0
513-0000-381.50-15 Water Capacity Fees (See Table 5)	1,279,710	1,200,000	1,257,592	1,301,796	1,347,554	1,394,921	1,443,953
Total Fund 513	\$1,281,160	\$1,200,000	\$1,257,592	\$1,301,796	\$1,347,554	\$1,394,921	\$1,443,953
Total Rate Revenue (No Rate Increases)	15,240,333	16,176,962	16,257,847	16,339,136	16,420,832	16,502,936	16,585,451
All Other Operating Revenue	322,083	259,500	260,298	261,099	261,904	262,714	263,528
Total Operating Revenue	15,562,416	16,436,462	16,518,144	16,600,235	16,682,736	16,765,650	16,848,978
% change		5.62%	0.50%	0.50%	0.50%	0.50%	0.50%
Total Investment Income	129,642	157,100	160,242	163,447	166,716	170,050	173,451
All Other Non-Operating Revenue	35,405,383	11,928,008	7,206,062	1,301,796	1,347,554	1,394,921	1,443,953
Total Non-Operating Revenue	35,535,025	12,085,108	7,366,304	1,465,243	1,514,270	1,564,971	1,617,404
% change		-65.99%	-39.05%	-80.11%	3.35%	3.35%	3.35%
Total Revenue	\$51,097,441	\$28,521,570	\$23,884,448	\$18,065,478	\$18,197,006	\$18,330,621	\$18,466,362
% change	103.64%	-44.18%	-16.26%	-24.36%	0.73%	0.73%	0.74%

1 - Approximate Value
2 - SRF reimbursement in 2016/17, UCD transfer in 2017/18 as reimbursement for CIP 8224

Table 5
 City of Davis
 Capacity Fee Revenue Projection

	Budget	Projected				
	2017/18	2018/19	2019/20	2020/21	2021/22	2021/23
Est. Capacity Fee Increase ¹		3.0%	3.0%	3.0%	3.0%	3.0%
Est. Growth in Connections		0.5%	0.5%	0.5%	0.5%	0.5%
Capacity Fee per 3/4" connection	\$10,362	\$10,673	\$10,993	\$11,323	\$11,663	\$12,012
Total Estimated Meter Equivalent Units	23,566	23,684	23,802	23,921	24,041	24,161
New Meter Equivalent Units	116	118	118	119	120	120
Estimated Revenue	\$1,200,000	\$1,257,592	\$1,301,796	\$1,347,554	\$1,394,921	\$1,443,953

1 - Estimated annual increase of Engineering News Record Construction Cost Index (ENR CCI) for San Francisco

Table 6
City of Davis
Expense Projection - Fund 511 (Water Operations & Maintenance)

Account	Title	Base Year		2018/19	2019/20	2020/21	2021/22	2022/23
		2017/18 Budget	Escalation % ¹					
0101	Salaries/Wages	1,621,889	3.8%	1,683,521	1,747,495	1,813,899	1,882,828	1,954,375
0103	Benefits:Insurance	24,277	3.8%	25,200	26,157	27,151	28,183	29,254
0104	Benefits:Retirement	488,061	3.8%	506,607	525,858	545,841	566,583	588,113
0503	Accrued Comptime 1.5	\$19,692	3.8%	\$20,440	\$21,217	\$22,023	\$22,860	\$23,729
543	Membership Fees/Dues	53,633	3.0%	55,242	56,899	58,606	60,364	62,175
1040	Leave Fund Repayment	22,733	3.8%	23,597	24,494	25,424	26,390	27,393
1112	Standby Pay	34,074	3.8%	35,369	36,713	38,108	39,556	41,059
1113	Call Back Pay	6,100	3.8%	6,332	6,572	6,822	7,081	7,350
1201	Cafeteria Benefits	408,712	3.8%	424,243	440,364	457,098	474,468	492,498
1208	Special Assignment	1,566	3.0%	1,613	1,661	1,711	1,763	1,815
1215	Longevity Pay	33,966	3.8%	35,257	36,596	37,987	39,431	40,929
1217	Cellular Phone Stipend	675	3.8%	701	727	755	784	813
1310	Retiree Medical	361,393	3.8%	375,126	389,381	404,177	419,536	435,478
1311	Unemployment	10,663	3.8%	11,068	11,489	11,925	12,379	12,849
1312	Workers Compensation	152,510	3.8%	158,305	164,321	170,565	177,047	183,774
1999	Human Resources	532,943	3.0%	548,931	565,399	582,361	599,832	617,827
2310	M&S: General Office	3,000	3.0%	3,090	3,183	3,278	3,377	3,478
2315	M&S: Chem/Pnts/Solv/Lubr	116,000	3.0%	119,480	123,064	126,756	130,559	134,476
2320	M&S: Cleaning/Custodial	825	3.0%	850	875	901	929	956
2325	M&S: Communications	10,100	3.0%	10,403	10,715	11,037	11,368	11,709
2330	M&S: Electrical/Instrumnt	17,500	3.0%	18,025	18,566	19,123	19,696	20,287
2335	M&S: Food Supplies	950	3.0%	979	1,008	1,038	1,069	1,101
2340	M&S: Hort/Irrig/Grounds	50	3.0%	52	53	55	56	58
2350	M&S: Mechanical/Shop/Bldg	41,000	3.0%	42,230	43,497	44,802	46,146	47,530
2355	M&S: Public Safety	550	3.0%	567	583	601	619	638
2360	M&S: Recreation/Specvent	5,000	3.0%	5,150	5,305	5,464	5,628	5,796
2510	St&E: General Office	3,600	3.0%	3,708	3,819	3,934	4,052	4,173
2525	St&E: Communications	22,600	3.0%	23,278	23,976	24,696	25,436	26,200
2530	St&E: Electrical/Instrumnt	12,500	3.0%	12,875	13,261	13,659	14,069	14,491
2550	St&E: Mechanical/Shop/Bld	175,500	3.0%	180,765	186,188	191,774	197,527	203,453
2555	St&E: Public Safety	2,500	3.0%	2,575	2,652	2,732	2,814	2,898
2570	St&E: Other Sm Tools/Impl	250	3.0%	258	265	273	281	290
4101	Building Maintenance	123,763	3.0%	127,476	131,300	135,239	139,296	143,475
4110	Duplicating	50	3.0%	52	53	55	56	58
4111	Postal	620	3.0%	639	658	677	698	719
4112	Stores	69,382	3.0%	71,463	73,607	75,816	78,090	80,433
4115	Mis Services	79,263	3.0%	81,641	84,090	86,613	89,211	91,888
4125	Equip-City Vehicle	143,000	3.0%	147,290	151,709	156,260	160,948	165,776
4129	Equip-City Vehicle Repl	223,997	3.0%	230,717	237,638	244,768	252,111	259,674
4130	Equip Replacement - Is	8,190	3.0%	8,436	8,689	8,949	9,218	9,494
4132	Equip Rplcmnt-Pc Hardware	3,259	3.0%	3,357	3,457	3,561	3,668	3,778
4134	Software Replacement	5,447	3.0%	5,610	5,779	5,952	6,131	6,315
4137	Telephone Sys Replacement	4,503	3.0%	4,638	4,777	4,921	5,068	5,220
4141	Insurance - Property Chrg	4,512	3.0%	4,647	4,787	4,930	5,078	5,231
4142	Insurance - Liability Chg	50,807	3.0%	52,331	53,901	55,518	57,184	58,899
4145	Mail Rm Overhead Support	367	3.0%	378	389	401	413	425
4315	M&Rs: Communication Equip	3,000	3.0%	3,090	3,183	3,278	3,377	3,478
4320	M&Rs: Non-Office Equipment	2,500	3.0%	2,575	2,652	2,732	2,814	2,898
4330	M&Rs: Other Land Imprvmtnt	8,500	3.0%	8,755	9,018	9,288	9,567	9,854
4335	M&Rs: Util Svcs Infrastr	164,000	3.0%	168,920	173,988	179,207	184,583	190,121
4502	Legal	8,000	3.0%	8,240	8,487	8,742	9,004	9,274
4507	Advertising	12,000	3.0%	12,360	12,731	13,113	13,506	13,911
4516	Construction Service	9,800	3.0%	10,094	10,397	10,709	11,030	11,361
4530	Construction Contract	326,000	3.0%	335,780	345,853	356,229	366,916	377,923
4550	Other Professional Svcs	401,750	3.0%	413,803	426,217	439,003	452,173	465,738
4601	Lab Analysis Svc	185,900	3.0%	191,477	197,221	203,138	209,232	215,509
4602	Med-Lab Exam Svc	200	3.0%	206	212	219	225	232
4605	Printing & Binding	5,700	3.0%	5,871	6,047	6,229	6,415	6,608
4610	Mis (Outside Services)	30,000	3.0%	30,900	31,827	32,782	33,765	34,778
4802	Laundry Services	8,500	3.0%	8,755	9,018	9,288	9,567	9,854
4805	Gas & Electric	650,000	3.0%	669,500	689,585	710,273	731,581	753,528
4806	Telephone Service	4,138	3.8%	4,295	4,458	4,628	4,804	4,986
4808	Cellular Phone Service	11,318	3.8%	11,748	12,195	12,658	13,139	13,638
4811	Outside Postage/Delivery	2,410	3.0%	2,482	2,557	2,633	2,712	2,794
4910	Equip Oper Rent/Lease	5,000	3.0%	5,150	5,305	5,464	5,628	5,796
4920	Land/Facil Rent/Lease	471,826	3.0%	485,981	500,560	515,577	531,044	546,976
5008	Fees/Permits Required	60,000	3.0%	61,800	63,654	65,564	67,531	69,556

5010	Assmt Due Oth Agency	10,000	3.0%	10,300	10,609	10,927	11,255	11,593
5027	WDCWA Water Operations	3,923,500	Varies	3,834,700	4,021,800	4,171,600	4,272,900	4,402,400
5401	Driver License Fee	100	3.0%	103	106	109	113	116
5402	Education Reimbursement	800	3.0%	824	849	874	900	927
5405	Prof Lic/Apl/Fees	2,000	3.0%	2,060	2,122	2,185	2,251	2,319
5406	Subscription/Publications	800	3.0%	824	849	874	900	927
5407	Staff Developmnt/Training	28,000	3.0%	28,840	29,705	30,596	31,514	32,460
5409	Uniform Purch/Rent/Clean	11,930	3.8%	12,383	12,854	13,342	13,849	14,376
5930	Contributions	6,000	3.0%	6,180	6,365	6,556	6,753	6,956
5932	Reports To Citizens	500	3.0%	515	530	546	563	580
6100	Capoutly: Vehicles	18,500	3.0%	19,055	19,627	20,215	20,822	21,447
8801	Overhead Support	307,001	3.0%	316,211	325,697	335,468	345,532	355,898
9515	Other Resources	339,373	3.0%	349,554	360,041	370,842	381,967	393,426
9530	Contribution Transfers	0	3.0%	0	0	0	0	0
Total Water Operating Expenses		\$11,921,018		\$12,097,841	\$12,559,508	\$12,993,127	\$13,387,812	\$13,820,590
	Total Salaries and Wages	\$3,212,131	3.8%	\$3,334,192	\$3,460,891	\$3,592,405	\$3,728,917	\$3,870,615
	WDCWA Water Operations	\$3,923,500	Varies	\$3,834,700	\$4,021,800	\$4,171,600	\$4,272,900	\$4,402,400
	All Other Baseline Expenses	\$4,785,387	3.0%	\$4,928,949	\$5,076,817	\$5,229,122	\$5,385,995	\$5,547,575

All categories totaled for Fund 511 across all City programs
1 - Assumptions derived from previous rate study and input from City staff
Source: 2017/18 Budget, WDCWA 10 Year Operations Budget Summary

Table 7
City of Davis
Debt Service

Title	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	Total
East Area Water Storage Tank Loan (I-Bank)	\$584,022	\$583,830	\$583,632	\$583,425	\$583,210	\$582,986	\$582,754	\$582,512	\$582,260	\$581,999	\$581,727	\$6,412,357
Wells Fargo Water Bonds	1,271,228	1,295,734	1,297,086	1,309,516	1,326,614	1,338,312	1,354,679	1,370,646	1,386,214	1,401,383	1,416,153	14,767,563
SRF 8019-110				1,488,982	1,498,100	1,498,100	1,498,100	1,498,100	1,498,100	1,498,100	1,498,100	11,975,679
WDCWA Water Quality Improvement Project - Davis Share	3,255,503	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	41,255,503
WDCWA 2015 Water Revenue Bonds	1,102,077	1,126,944	1,150,594	1,170,394	1,197,944	1,219,294	1,239,594	1,268,844	1,295,344	1,319,094	1,350,094	13,440,215
Total Debt Expenditures	\$6,212,829	\$6,806,508	\$6,831,311	\$8,352,317	\$8,405,867	\$8,438,692	\$8,475,126	\$8,520,101	\$8,561,918	\$8,600,575	\$8,646,073	\$87,851,317

Table 8
City of Davis
Capital Improvement Plan

	Project Description	FY 16/17	FY 17/18 Estimate	FY 18/19 Estimate	FY 19/20 Estimate	FY 20/21 Estimate	FY 21/22 Estimate	Total
CIP 8158	EI Macero Valve Replacement			\$282,853				\$282,853
CIP 8174	Well #34 Surface Improvements	1,998,521						1,998,521
CIP 8187	Network Radio - Read Water Meters	7,045,443	1,328,008					8,373,451
CIP 8190	Water Main Rehabilitation	957,590	500,000		500,000		500,000	3,457,590
CIP 8224	Surface Water Pipelines Project							0
CIP 8230	Water Well Decommissionings			62,000				62,000
CIP 8256	L Street Improvements	500,000						500,000
CIP 8273	Well 11 Conversion to Irrigation Wells	150,000						1,137,342
CIP 8278	Water Well Standby Power Generator	45,077	987,342					1,137,342
CIP 8281	Tim Spencer Alley Reconstruction	129,500	361,275					406,352
CIP 8290	Replacement of Elevated Eight Street Water Tank		284,165					413,665
CIP 8310	SCADA Master Plan Implementation		187,000	1,972,000				2,159,000
CIP 8543	Davis Woodland Water Supply Project (JPA)	800,000	522,798	546,308	528,970			1,598,076
	Aquifer Storage and Recovery			250,000				800,000
	Replace Deep Wells/Surface Treatment				200,000	2,000,000	4,200,000	250,000
CIP 8186	Anode Installation			150,000	250,000	250,000	250,000	750,000
	Additional Irrigation Well Conversions				1,000,000	150,000	1,100,000	2,400,000
	Total	\$11,626,131	\$4,170,588	\$3,763,161	\$2,478,970	\$2,900,000	\$6,050,000	\$30,988,850

Table 9
City of Davis
Fund Balances

Fund	Balance as of 6/30/2016	Balance as of 6/30/2017 (Unaudited)
511 - Operations and Maintenance	\$580,652	\$5,754,524
512 - Capital Replacement Reserve	19,601,750	29,973,115
513 - Capital Expansion Reserve	<u>(372,367)</u>	<u>(1,607,679)</u>
Total	\$19,810,035	\$34,119,960

Table 10
 City of Davis
 2016 Asset Value

Asset Category	Cost Basis	2016/17 Depreciation	2016/17 Asset Value
Land	\$770,390	\$0	\$770,390
Buildings and Improvements	\$140,041	\$106,931	\$33,111
Wells, Pumps and Equipment	\$70,418,516	\$28,700,983	\$41,717,532
Pipes, Lines and Distribution System	\$61,228,201	\$23,209,624	\$38,018,577
Other Equipment	\$1,279,315	\$859,566	\$419,749
Work in Progress ¹	<u>\$42,356,656</u>	<u>\$0</u>	<u>\$42,356,656</u>
Total	\$176,193,119	\$52,877,104	\$123,316,015
Reserve Fund Requirement	3% of total asset value		\$3,699,480

1 - Includes capital improvement projects in progress

Table 11
City of Davis
Cash Flow Projection

	2017/18	2018/19	Projected			
			2019/20	2020/21	2021/22	2022/23
Rate Revenue Increase (Jan 1 Adoption)	14.0%	9.0%	10.5%	4.0%	3.5%	3.5%
Interest Earnings Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Beginning Fund Balance	\$34,119,960	\$40,921,907	\$40,789,939	\$38,314,108	\$35,413,573	\$29,381,202
REVENUE						
Operating Revenue						
Rate Revenue (Pro-Rated for Jan 1 Adoption)	\$17,355,454	\$18,183,743	\$19,188,622	\$19,622,285	\$20,016,447	\$20,418,528
All Other Operating Revenue	<u>259,500</u>	<u>260,298</u>	<u>261,099</u>	<u>261,904</u>	<u>262,714</u>	<u>263,528</u>
Total Operating Revenue	\$17,614,954	\$18,444,040	\$19,449,721	\$19,884,189	\$20,279,161	\$20,682,055
Non-Operating Revenue						
Interest Income	\$157,100	\$160,242	\$163,447	\$166,716	\$170,050	\$173,451
All Other Non-Operating Revenue	<u>11,928,008</u>	<u>7,206,062</u>	<u>1,301,796</u>	<u>1,347,554</u>	<u>1,394,921</u>	<u>1,443,953</u>
Total Non-Operating Revenue	\$12,085,108	\$7,366,304	\$1,465,243	\$1,514,270	\$1,564,971	\$1,617,404
TOTAL REVENUE	\$29,700,062	\$25,810,344	\$20,914,964	\$21,398,459	\$21,844,132	\$22,299,459
EXPENSES						
Operating Expenses						
Total Salaries and Wages	\$3,212,131	\$3,334,192	\$3,460,891	\$3,592,405	\$3,728,917	\$3,870,615
WDCWA Water Operations	3,923,500	3,834,700	4,021,800	4,171,600	4,272,900	4,402,400
All Other Baseline Expenses	<u>4,785,387</u>	<u>4,928,949</u>	<u>5,076,817</u>	<u>5,229,122</u>	<u>5,385,995</u>	<u>5,547,575</u>
Total Operating Expenses	\$11,921,018	\$12,097,841	\$12,559,508	\$12,993,127	\$13,387,812	\$13,820,590
Non-Operating Expenses						
Capital Improvement Program	\$4,170,588	\$3,763,161	\$2,478,970	\$2,900,000	\$6,050,000	\$3,798,033
Transfer Out - Rate Stabilization Fund		\$3,250,000				
East Area Water Storage Tank Loan (I -Bank)	583,830	583,632	583,425	583,210	582,986	582,754
Wells Fargo Water Bonds	1,295,734	1,297,086	1,309,516	1,326,614	1,338,312	1,354,679
SRF 8019-110			1,488,982	1,498,100	1,498,100	1,498,100
WDCWA Water Quality Improvement Project - Davis Share	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000
WDCWA 2015 Water Revenue Bonds	<u>1,126,944</u>	<u>1,150,594</u>	<u>1,170,394</u>	<u>1,197,944</u>	<u>1,219,294</u>	<u>1,239,594</u>
Total Non-Operating Expenses	\$10,977,096	\$13,844,472	\$10,831,287	\$11,305,867	\$14,488,692	\$12,273,158
TOTAL EXPENSES	\$22,898,114	\$25,942,313	\$23,390,795	\$24,298,994	\$27,876,504	\$26,093,749
Operating Net Revenue	\$5,693,936	\$6,346,200	\$6,890,212	\$6,891,062	\$6,891,350	\$6,861,465
Total Net Revenue	\$6,801,947	(\$131,968)	(\$2,475,831)	(\$2,900,534)	(\$6,032,371)	(\$3,794,290)
Ending Fund Balance	\$40,921,907	\$40,789,939	\$38,314,108	\$35,413,573	\$29,381,202	\$25,586,912
Fund Reserve Target						
3% Asset Value	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480
3 Months Operating Expenses	2,980,255	3,024,460	3,139,877	3,248,282	3,346,953	3,455,148
1 Year of Debt Service	6,806,508	6,831,311	8,352,317	8,405,867	8,438,692	8,475,126
Total Fund Reserve Target	\$13,486,243	\$13,555,252	\$15,191,674	\$15,353,629	\$15,485,125	\$15,629,754
Target Met	yes	yes	yes	yes	yes	yes
Debt Service Coverage (Minimum 1.10x) ¹	2.61	2.01	1.00	1.00	1.00	1.00
Transfer In - Rate Stabilization Fund			\$800,000	\$800,000	\$800,000	\$850,000
<i>Debt Service Coverage with Transfer</i>	2.61	2.01	1.10	1.10	1.10	1.10

Total revenue minus operating expenses divided by total debt service - affected cells highlighted in green

Water Projected Revenue, Expenses & Reserves

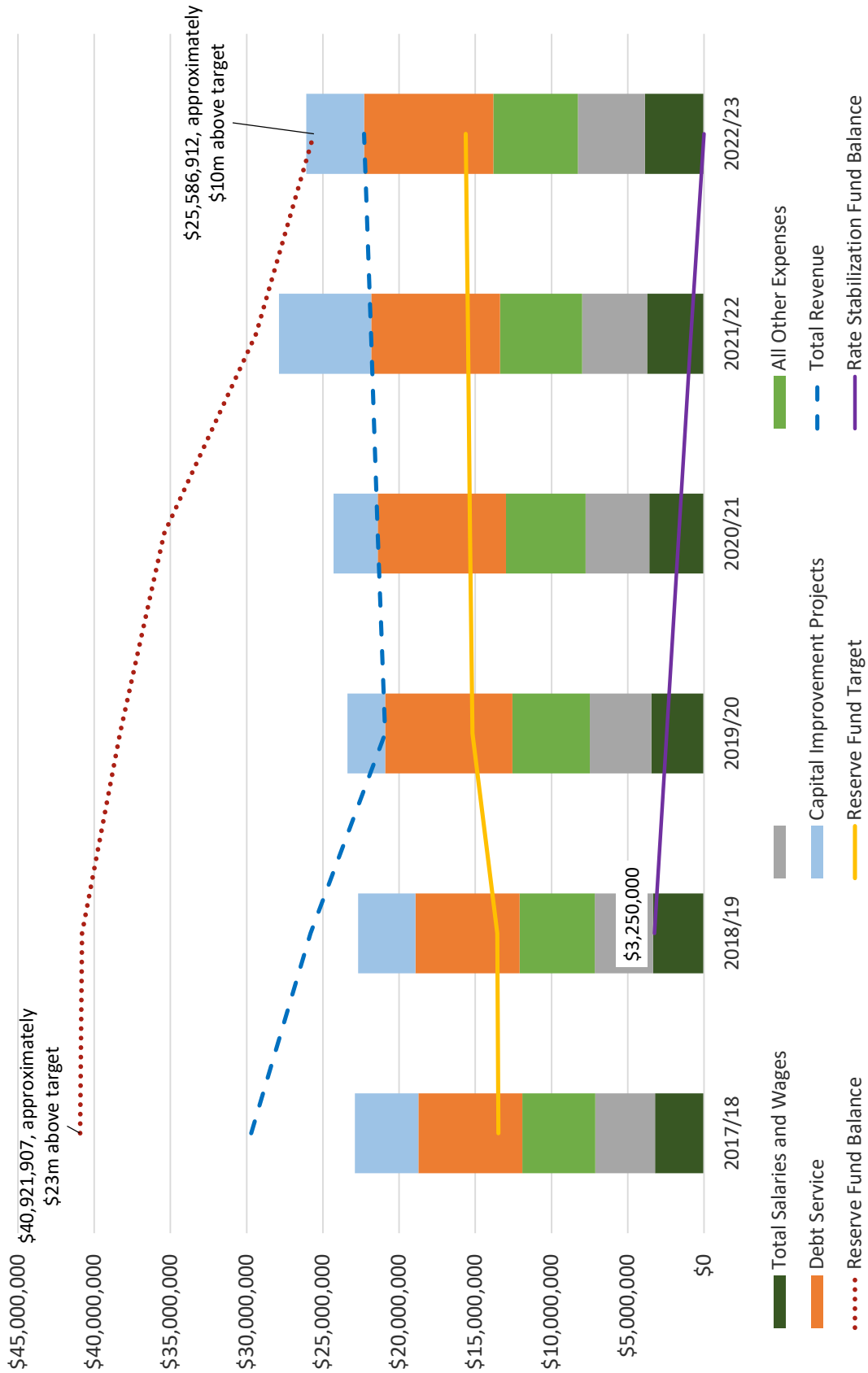
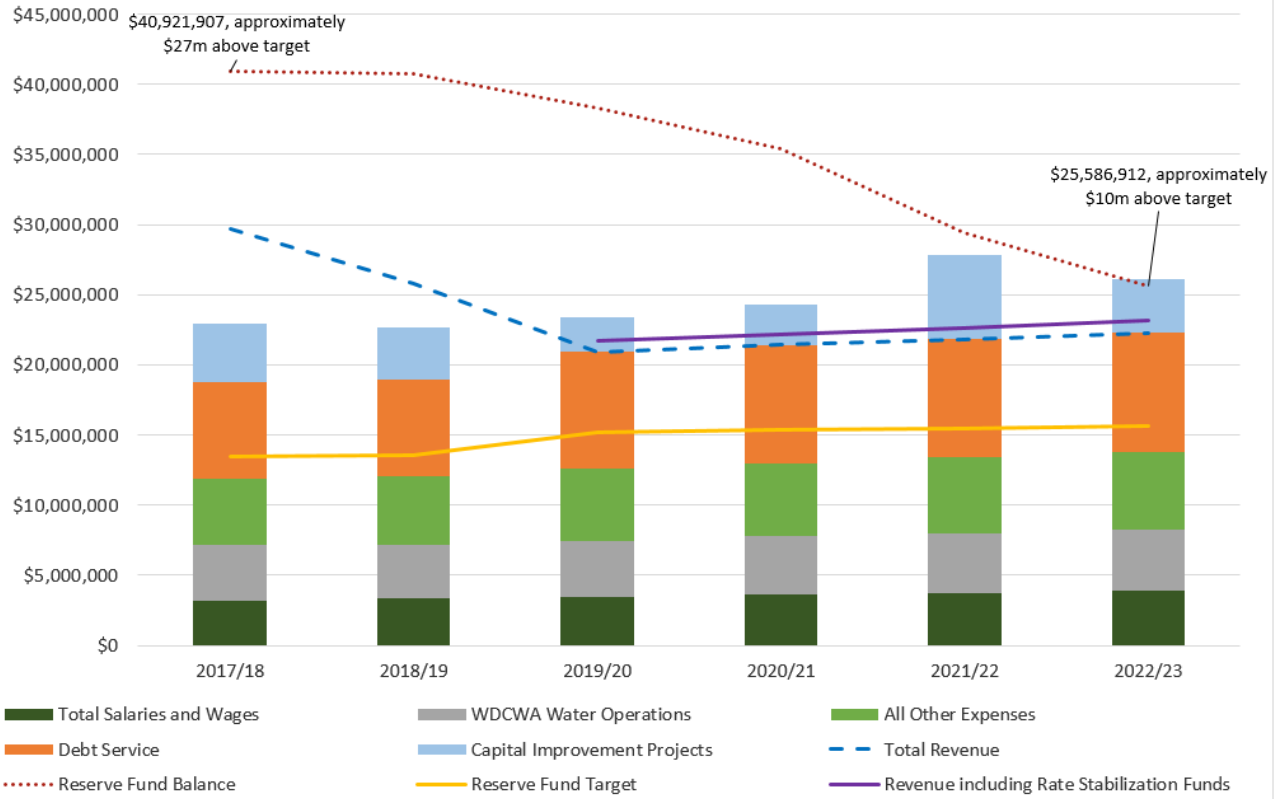


Table 12
 City of Davis
 Projected Monthly Rates

	Current	Future Recommended		<i>projected rates (no structure change)</i>		
	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Rate Adoption Date	1-Jan-17	1-Jan-18	1-Jan-19	1-Jan-20	1-Jan-21	1-Jan-22
<i>% Rate Increase</i>		14.0%	9.0%	10.5%	4.0%	3.5%
Fixed Rates						
<u>Meter Size</u>	<u>(\$/Meter)</u>					
5/8" and 3/4"	\$10.97	\$12.20	\$13.07	\$14.44	\$15.02	\$15.55
1"	\$16.66	\$18.53	\$19.86	\$21.95	\$22.82	\$23.62
1 1/2"	\$29.71	\$33.15	\$35.57	\$39.30	\$40.88	\$42.31
2"	\$46.91	\$52.28	\$56.06	\$61.95	\$64.42	\$66.68
3"	\$85.95	\$96.25	\$103.49	\$114.36	\$118.93	\$123.09
4"	\$131.59	\$147.49	\$158.65	\$175.31	\$182.32	\$188.70
6"	\$254.96	\$286.31	\$308.37	\$340.75	\$354.38	\$366.78
8"	\$401.67	\$451.53	\$486.41	\$537.48	\$558.98	\$578.55
<i>% Change</i>		11%	7%	10.5%	4.0%	3.5%
Volumetric Rates						
<u>Customer Class</u>	<u>(\$/ccf)</u>					
Single Family Residence	\$3.98	\$4.61	\$5.01	\$5.54	\$5.76	\$5.96
Multi Family Residence	\$4.02	\$4.66	\$5.07	\$5.60	\$5.83	\$6.03
Commercial	\$3.87	\$4.47	\$4.88	\$5.39	\$5.61	\$5.80
Irrigation	\$4.93	\$5.71	\$6.23	\$6.88	\$7.16	\$7.41
<i>% Change</i>		16%	9%	10.5%	4.0%	3.5%

Scenario 2 Water Projected Revenue, Expenses & Reserves



I-Bank Loan Payoff Water Projected Revenue, Expenses & Reserves

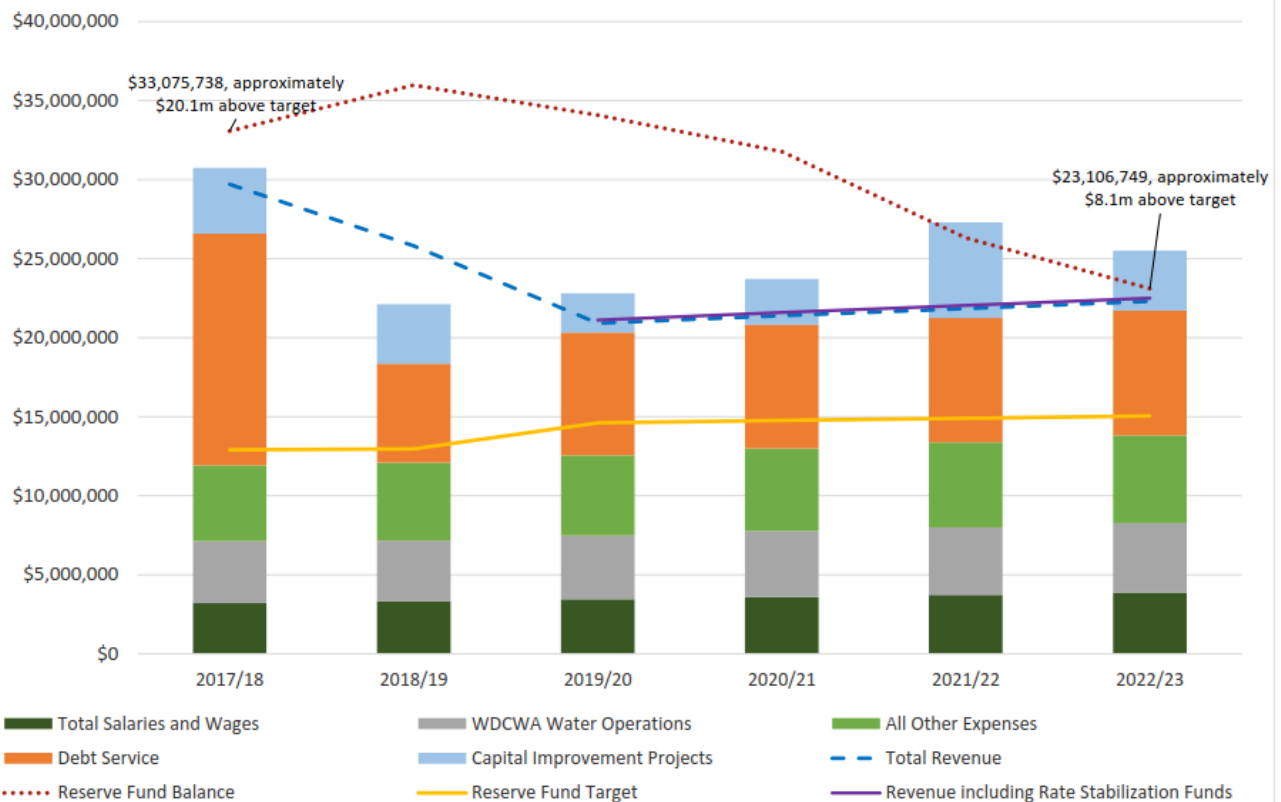


Table 11
City of Davis
Cash Flow Projection

	2017/18	2018/19	Projected			
			2019/20	2020/21	2021/22	2022/23
Rate Revenue Increase (Jan 1 Adoption)	14.0%	9.0%	10.5%	4.0%	3.5%	3.5%
Interest Earnings Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Beginning Fund Balance	\$34,119,960	\$33,075,738	\$35,977,401	\$34,084,995	\$31,767,670	\$26,318,285
REVENUE						
Operating Revenue						
Rate Revenue (Pro-Rated for Jan 1 Adoption)	\$17,355,454	\$18,183,743	\$19,188,622	\$19,622,285	\$20,016,447	\$20,418,528
All Other Operating Revenue	<u>259,500</u>	<u>260,298</u>	<u>261,099</u>	<u>261,904</u>	<u>262,714</u>	<u>263,528</u>
Total Operating Revenue	\$17,614,954	\$18,444,040	\$19,449,721	\$19,884,189	\$20,279,161	\$20,682,055
Non-Operating Revenue						
Interest Income	\$157,100	\$160,242	\$163,447	\$166,716	\$170,050	\$173,451
All Other Non-Operating Revenue	<u>11,928,008</u>	<u>7,206,062</u>	<u>1,301,796</u>	<u>1,347,554</u>	<u>1,394,921</u>	<u>1,443,953</u>
Total Non-Operating Revenue	\$12,085,108	\$7,366,304	\$1,465,243	\$1,514,270	\$1,564,971	\$1,617,404
TOTAL REVENUE	\$29,700,062	\$25,810,344	\$20,914,964	\$21,398,459	\$21,844,132	\$22,299,459
EXPENSES						
Operating Expenses						
Total Salaries and Wages	\$3,212,131	\$3,334,192	\$3,460,891	\$3,592,405	\$3,728,917	\$3,870,615
WDCWA Water Operations	3,923,500	3,834,700	4,021,800	4,171,600	4,272,900	4,402,400
All Other Baseline Expenses	<u>4,785,387</u>	<u>4,928,949</u>	<u>5,076,817</u>	<u>5,229,122</u>	<u>5,385,995</u>	<u>5,547,575</u>
Total Operating Expenses	\$11,921,018	\$12,097,841	\$12,559,508	\$12,993,127	\$13,387,812	\$13,820,590
Non-Operating Expenses						
Capital Improvement Program	\$4,170,588	\$3,763,161	\$2,478,970	\$2,900,000	\$6,050,000	\$3,798,033
Transfer Out - Rate Stabilization Fund		\$800,000				
East Area Water Storage Tank Loan (I -Bank)	8,430,000	0	0	0	0	0
Wells Fargo Water Bonds	1,295,734	1,297,086	1,309,516	1,326,614	1,338,312	1,354,679
SRF 8019-110			1,488,982	1,498,100	1,498,100	1,498,100
WDCWA Water Quality Improvement Project - Davis Share	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000	3,800,000
WDCWA 2015 Water Revenue Bonds	<u>1,126,944</u>	<u>1,150,594</u>	<u>1,170,394</u>	<u>1,197,944</u>	<u>1,219,294</u>	<u>1,239,594</u>
Total Non-Operating Expenses	\$18,823,266	\$10,810,840	\$10,247,862	\$10,722,657	\$13,905,706	\$11,690,405
TOTAL EXPENSES	\$30,744,284	\$22,908,681	\$22,807,370	\$23,715,784	\$27,293,517	\$25,510,995
Operating Net Revenue	\$5,693,936	\$6,346,200	\$6,890,212	\$6,891,062	\$6,891,350	\$6,861,465
Total Net Revenue	(\$1,044,222)	\$2,901,663	(\$1,892,406)	(\$2,317,324)	(\$5,449,385)	(\$3,211,536)
Ending Fund Balance	\$33,075,738	\$35,977,401	\$34,084,995	\$31,767,670	\$26,318,285	\$23,106,749
Fund Reserve Target						
3% Asset Value	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480	\$3,699,480
3 Months Operating Expenses	2,980,255	3,024,460	3,139,877	3,248,282	3,346,953	3,455,148
1 Year of Debt Service	14,652,678	6,247,679	7,768,892	7,822,657	7,855,706	7,892,372
Total Fund Reserve Target	\$12,902,413	\$12,971,620	\$14,608,249	\$14,770,419	\$14,902,139	\$15,047,000
Target Met	yes	yes	yes	yes	yes	yes
Debt Service Coverage (Minimum 1.10x) ¹	1.21	2.19	1.08	1.07	1.08	1.07
Transfer In - Rate Stabilization Fund			\$200,000	\$200,000	\$200,000	\$200,000
Debt Service Coverage with Transfer	1.21	2.19	1.10	1.10	1.10	1.10
Total revenue minus operating expenses divided by total debt service - affected cells highlighted in green						