CITY OF JACKSON

Water Rate Study

Final Report

May 15, 2019

THE REED GROUP, INC.

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SECTION I. EXECUTIVE SUMMARY

INTRODUCTION AND BACKGROUND

The City of Jackson retained The Reed Group, Inc. in December 2018 to prepare a ten-year water system financial plan and to update the City's water rates. The water rates were last adjusted in 2009. The purposes of the study were to (1) ensure that water rates are sufficient to meet the utility's financial and service obligations for ongoing operation and maintenance, debt service, and capital improvements while maintaining prudent reserves, and (2) develop a simpler and more equitable water rate structure consistent with California's cost of service requirements.

The scope of services for the water rate study included the following:

- Review financial goals and policy objectives related to the water utility
- Review the current budget, existing debt obligations, and capital improvement plans
- Prepare a ten-year financial plan and determine the annual water rate revenue requirements for the utility
- Review the current water rate structures and recommend changes consistent with rate setting objectives and legal requirements
- Develop cost-of-service base water rate recommendations and prepare a multi-year rate plan to meet the anticipated revenue needs for up to five years
- Prepare a water rate study report (this report) to document the recommendations and the analyses performed during the study
- Present study recommendations to the City Council during a regular meeting and assist the City in preparing a notice of public hearing regarding the proposed water rates.

On April 29, 2019, water rate recommendations were presented to the City Council during a special meeting. At that meeting, the City Council provided direction to expand the scope of the study to include development of temporary drought water rate surcharges, which could be implemented in the event of a future water shortage.

The purpose of this report is to describe the analyses performed, present the water system financial plan, provide the basis and rationale for rate calculations, summarize findings and recommendations regarding proposed water rates that would cover the period from FY 19-20 through FY 23-24, and present a financial strategy for addressing the financial strain created by water shortage conditions, including temporary water shortage rate surcharges.

FINANCIAL PLAN AND REVENUE NEEDS

It has been ten years since the City of Jackson increased its water rates. Since that time general inflation has increased by about 30 percent, the cost of purchasing water from the

Amador Water Agency (AWA) has increased by about 32 percent, and the utility was adversely impacted by reduced water sales during both an economic recession and the drought.

At the present time, water system revenues are marginally sufficient to cover ongoing operation and maintenance costs. However, current revenue is inadequate to cover annual debt service costs or to fund necessary rehabilitation and replacement of aging water infrastructure. In addition, it appears that in FY 18-19 the City will fail to meet it obligations for debt service coverage associated with the 2010 Water Revenue Refunding Bonds[1]. This deficiency has adversely impacted the City's credit rating and the ability to borrow money at attractive interest rates.

Under the current financial situation, the water utility is rapidly drawing down its financial reserves. Assuming the utility continues to pay debt service, but suspends any capital improvements, the Water Operating Fund may exhaust all funds within about two years. Existing debt service covenants obligate the City to immediately increase water rates to meet coverage requirements. Beyond that, water rate revenues are also needed to support the capital improvement program, which includes about $3.9 million in improvements between now and FY 27-28.

In light of the current and estimated future financial needs of the water utility, it is recommended that the City immediately increase its water rates to: (1) ensure continued financial support for ongoing operation and maintenance costs, including AWA water purchases and repayment of debt, (2) provide adequate revenues to meet the debt service coverage obligation associated with the 2010 bonds, (3) provide adequate funding for the water system capital improvement program, and (4) gradually establish and then maintain an Water Operating Reserve of at least 33 percent of annual operating and maintenance costs, including debt service. It is recommended that the City Council adopt a 5-year rate plan that includes the following annual adjustments to the water rates:

July 2019	15%
July 2020	12%
July 2021	9%
July 2022	4%
July 2023	4%

The water financial plan model reflects information, assumptions, and estimates that are believed reasonable at the present time. However, conditions change. It is recommended that the City review the financial condition of the water utility annually as part of the budget process and perform a more comprehensive financial plan and rate update study every 3 to 5 years, unless otherwise needed sooner. The financial analyses presented in this report indicate that the revenues generated by the current and proposed water rates would not

[1] Existing debt service covenants associated with the 2010 Water Revenue Refunding Bonds require the City to maintain water utility revenues that cover ongoing operation and maintenance costs plus 1.25 times annual debt service. Estimated FY 18-19 revenues barely cover ongoing operation and maintenance costs.

exceed the cost of providing service, including establishing and maintaining prudent reserves for specified purposes.

Details of financial plan analyses and the determination of the annual water rate revenue requirements are presented in Section II of this report.

PROPOSED 5-YEAR WATER RATE SCHEDULES

The current water rate structure includes a 2-tier water usage rate structure and fixed monthly service charges. The service charges for residential accounts are based on the size of the water meter. However, an unusual characteristic exists for the service charges for commercial accounts; fixed monthly service charges for commercial accounts are based on each account's prior year water usage[2]. **Exhibit I-1** presents the proposed water rate schedules spanning a five-year period. It is recommended that the water rates be adjusted each July 1 from 2019 through 2023. The proposed rate structure is simpler and more equitable and was developed consistent with legal requirements.

Exhibit I-1
City of Jackson
Proposed Water Rate Schedules (1)

	July 2019	July 2020	July 2021	July 2022	July 2023
Overall Water Rate Adjust. -->	**15%**	**12%**	**9%**	**4%**	**4%**
Water Usage Rate ($/CCF)					
All Water Usage	$ 2.65	$ 2.97	$ 3.24	$ 3.37	$ 3.50
Monthly Service Charges					
5/8" x 3/4" Meter	$ 22.52	$ 25.22	$ 27.49	$ 28.59	$ 29.73
3/4" Meter	$ 33.24	$ 37.23	$ 40.58	$ 42.20	$ 43.89
1" Meter	$ 54.68	$ 61.24	$ 66.75	$ 69.42	$ 72.20
1 1/2" Meter	$ 108.28	$ 121.27	$ 132.18	$ 137.47	$ 142.97
2" Meter	$ 172.60	$ 193.31	$ 210.71	$ 219.14	$ 227.91
3" Meter	$ 322.68	$ 361.40	$ 393.93	$ 409.69	$ 426.08
4" Meter	$ 537.08	$ 601.53	$ 655.67	$ 681.90	$ 709.18

Notes:

(1) Proposed rates for July 2019 reflect a new, simplified rate structure and updated cost of service analysis. Subsequent rate schedules reflect changes in revenue needs only (i.e., no further rate structure changes). Water rates were last adjusted in 2009.

The proposed water rate schedule for July 2019 includes rate structure changes that (1) meet the State's requirements for cost of service, (2) simplify the rate structure to reduce administrative burden and improve customer understanding, and (3) improves revenue stability and reduces the risk and magnitude of potential revenue loss during periods of water shortage and reduce water sales. The proposed water rate structure includes a uniform water usage rate applicable to all water sales and a fixed monthly service charge for

[2] Exhibit III-1 in Section III of this report presents the City's current water rate schedule and describes concerns regarding the current structure.

each account based on the size of the water meter. The proposed structure eliminates the current 2-tier water usage rate structure, eliminates the usage-based fixed service charges for commercial accounts, and also eliminates a premium currently charged to customers outside the City limits. All rate components have been calculated through a proportionate allocation of costs based on the number of accounts, capacity requirements, and water usage to meet cost of service requirements. Details of the development of and cost of service justification for proposed water rates are included in Section III of this report.

WATER BILLS FOR SAMPLE OF REPRESENTATIVE CUSTOMERS

Any time there is a change in the structure for water rates, each customer can be affected differently by those changes. The exact change for any individual customer will depend on the customer class, meter size, and water usage for that account. **Exhibit I-2** summarizes how some representative customers may be affected by the proposed water rates. The change in bill amounts in the first year (i.e., July 2019) is a reflection of both the increase in the overall level of the rates as well as changes to the rate structure. There are no rate structure changes in subsequent years, so the percentage change in each water bill will be the same for all accounts (assuming consistent usage) and that change will match the overall percentage rate adjustments listed previously (i.e., 12 percent, 9 percent, 4 percent, and 4 percent for FY 20-21 through FY 23-23, respectively).

Exhibit I-2
City of Jackson
Monthly Water Bills for Sample of Typical Customers (1)

	Current	July 2019	July 2020	July 2021	July 2022	July 2023	Use (CCF)	Mtr Sz
Single Family Home - Low Use	$ 27.80	$ 38.42	$ 43.04	$ 46.93	$ 48.81	$ 50.73	6	5/8"
		$ 10.62	$ 4.62	$ 3.89	$ 1.88	$ 1.92		
Single Family Home - Avg. Use	$ 33.72	$ 43.72	$ 48.98	$ 53.41	$ 55.55	$ 57.73	8	5/8"
		$ 10.00	$ 5.26	$ 4.43	$ 2.14	$ 2.18		
Single Family Home - High Use	$ 54.44	$ 62.27	$ 69.77	$ 76.09	$ 79.14	$ 82.23	15	5/8"
		$ 7.83	$ 7.50	$ 6.32	$ 3.05	$ 3.09		
Apartment Complex (8 DUs)	$ 206.64	$ 214.28	$ 240.07	$ 261.78	$ 272.27	$ 282.97	40	1 1/2"
		$ 7.64	$ 25.79	$ 21.71	$ 10.49	$ 10.70		
Mobile Home Park (160 DUs)	$ 3,727.85	$ 3,043.01	$ 3,410.02	$ 3,719.42	$ 3,868.57	$ 4,018.88	925	1" & 4"
		$ (684.84)	$ 367.01	$ 309.40	$ 149.15	$ 150.31		
Commercial - Low Use / Sm Mtr	$ 29.78	$ 35.77	$ 40.07	$ 43.69	$ 45.44	$ 47.23	5	5/8"
		$ 5.99	$ 4.30	$ 3.62	$ 1.75	$ 1.79		
Commercial - Low Use / Lrg Mtr	$ 31.75	$ 188.50	$ 211.13	$ 230.15	$ 239.36	$ 248.91	6	2"
		$ 156.75	$ 22.63	$ 19.02	$ 9.21	$ 9.55		
Reduction to 1" Mtr (2)		$ 70.58	$ 79.06	$ 86.19	$ 89.64	$ 93.20	6	1"
		$ 38.83	$ 8.48	$ 7.13	$ 3.45	$ 3.56		
Commercial - High Use / Lrg Mtr	$ 326.89	$ 411.10	$ 460.61	$ 502.31	$ 522.44	$ 542.91	90	2"
		$ 84.21	$ 49.51	$ 41.70	$ 20.13	$ 20.47		
Commercial - Med Use / Med Mtr	$ 208.49	$ 187.18	$ 209.74	$ 228.75	$ 237.92	$ 247.20	50	1"
		$ (21.31)	$ 22.56	$ 19.01	$ 9.17	$ 9.28		

Notes:

(1) Changes in water bills in July 2019 are largely due to rate structure changes. Bill amounts are a reflection of each customer's unique situation with respect to customer class, meter size, and water usage. The proposed rate structure is more equitable, easier to understand and administer, and better aligned with cost of service requirements. Percentage changes in water bills from July 2020 and beyond will be the same for all customers since each rate component changes by the same percentage (i.e., no restructuring).

(2) Shows water bills of the Low Use / Large Meter commercial customer reduces their water meter to 1" due to unneeded capacity. Fees for the meter size change would apply.

Commercial accounts may be more affected by the rate structure changes than residential accounts. This is due to the unusual current structure, which tends to limit how much commercial customers pay through the service charges. The proposed rate structure removes this bias and is more equitable in that both residential and commercial accounts are charged in the same way (i.e., the apportionment of costs follows the same methodology for both residential and commercial accounts). In some cases, particularly commercial accounts that have unnecessarily large meters relative to their average water usage, it may be advantageous for customers to reduce the size of their water meter. City staff are working to identify customers that may be affected this way and are developing procedures whereby certain customers may opt to reduce the size of their water meter.

PROPOSED TEMPORARY WATER SHORTAGE RATE SURCHARGES

Water shortages caused by drought or other events can occur at any time. In 2015, the AWA adopted temporary water shortage rate surcharges consistent with their water shortage contingency plan and as part of their water shortage financial strategy. Following discussions with the City Council on the potential implications of reduced water sales during periods of water shortage, the scope of the water rate study was amended to include a financial analysis of shortage conditions and development of a financial strategy for addressing the financial strains created by shortage conditions, including development of temporary water shortage rate surcharges.

Beyond normal water supply conditions, the Amador Water Agency has defined four stages of water supply shortage to assist with water resource conservation and management and emergency planning. These stages include:

Normal supply conditions	No water use restrictions
Stage 1 – Water Alert	Up to 20% use reduction goal
Stage 2 – Water Warning	21% to 30% use reduction goal
Stage 3 – Water Crisis	31% to 40% use reduction goal
Stage 4 – Water Emergency	41% to 50% use reduction goal

It is recommended that the City adopt these definitions of water supply and shortage stages for its water shortage contingency planning. These stage definitions have been used for the water shortage financial analysis and surcharge recommendations contained in this report.

The water utility's operations and financial condition are affected in several ways by a water shortage. Changes in operating costs and revenues include:

- Reduced water sales and water sales revenue
- Reduced water purchases costs (even with AWA's surcharge imposed)
- Increased water conservation program costs.

While the reduction in water sales revenue will be partially offset by the reduction in water purchase costs, AWA's imposition of their water shortage surcharge could largely negate that offset. Essentially all of the water utility's other operating and maintenance costs are fixed and would not decline with reduced water sales. In addition, water shortage

conditions could cause the water utility to expand water conservation program costs (e.g., education and outreach efforts) to inform and assist customers in meeting use reduction goals particularly with the more severe shortage conditions. For these reasons, water shortage conditions and reduced water sales will create a financial deficit within the water utility. The water shortage financial analysis presented in this report focuses on three potential courses of action for addressing the financial deficit created by shortage conditions, including:

- Using available money from the water utility's Operating Reserve;
- Supplementing water rate revenues through imposition of temporary water shortage rate surcharges on water usage; and
- In more severe stages of shortage, reducing annual funding of capital improvement projects to preserve cash for operations.

Details of the water shortage financial analysis and the associated multi-pronged financial strategy are presented in Section II of this report. A key element of the financial strategy is the adopting of temporary water shortage rate surcharges, which could be implemented when the City Council declares a water shortage condition to exist. The proposed temporary water shortage rate surcharges, shown in **Exhibit I-3**, are intended to serve the purpose of providing supplemental revenue during shortage conditions. The temporary surcharges would affect the water usage rate, but not the fixed service charges.

Exhibit I-3
City of Jackson
Proposed Temporary Water Shortage Rate Surcharges

	Normal Supply	Stage 1 Water Alert	Stage 2 Water Warning	Stage 3 Water Crisis	Stage 4 Water Emergency
Use Reduction Goals -->	None	Up to 20%	21% to 30%	31% to 40%	41% to 50%
Water Shortage Rate Surcharge (1)	**None**	**10%**	**15%**	**25%**	**35%**
Water Usage Rate with Surcharges Applied ($/CCF) (2)					
Normal Water Usage Rate	$ 2.65	$ 2.65	$ 2.65	$ 2.65	$ 2.65
Temp. Water Short. Surcharge	$ -	$ 0.27	$ 0.40	$ 0.66	$ 0.93
Total Water Usage Rate	$ 2.65	$ 2.92	$ 3.05	$ 3.31	$ 3.58
Monthly Service Charges (3)					
All Meter Sizes	Varies	No Change to Service Charges			

Notes:

(1) Water shortage rate surcharges are temporary incremental increases in normal water usage rates applied during water shortage conditions declared by the City Council.

(2) This exhibit shows water shortage rate surcharges applied to FY 19-20 water rates, for illustrative purposes. The percentages shown would be applied to any then-current water rates when water shortage conditions are declared by the City Council.

(3) No changes to the fixed monthly service charges would occur as a result of the water shortage conditions.

To help encourage water conservation and to help close the financial deficit created by a water shortage, it is recommended that the City adopt the proposed temporary water shortage rate surcharges to be implemented in the event of a potential future water shortage, as declared by the City Council. The temporary rate surcharges would be an incremental increase in the normal water usage rate and would provide additional revenue for the City's water utility. The temporary rate surcharges would be terminated as soon as the City Council declares an end to the declared shortage condition. Information presented at the end of Section III of this report illustrates how customers that meet water use reductions goals would have lower water bills with the water shortage surcharges than they would with normal water usage and normal water rates.

SECTION II. WATER PLAN

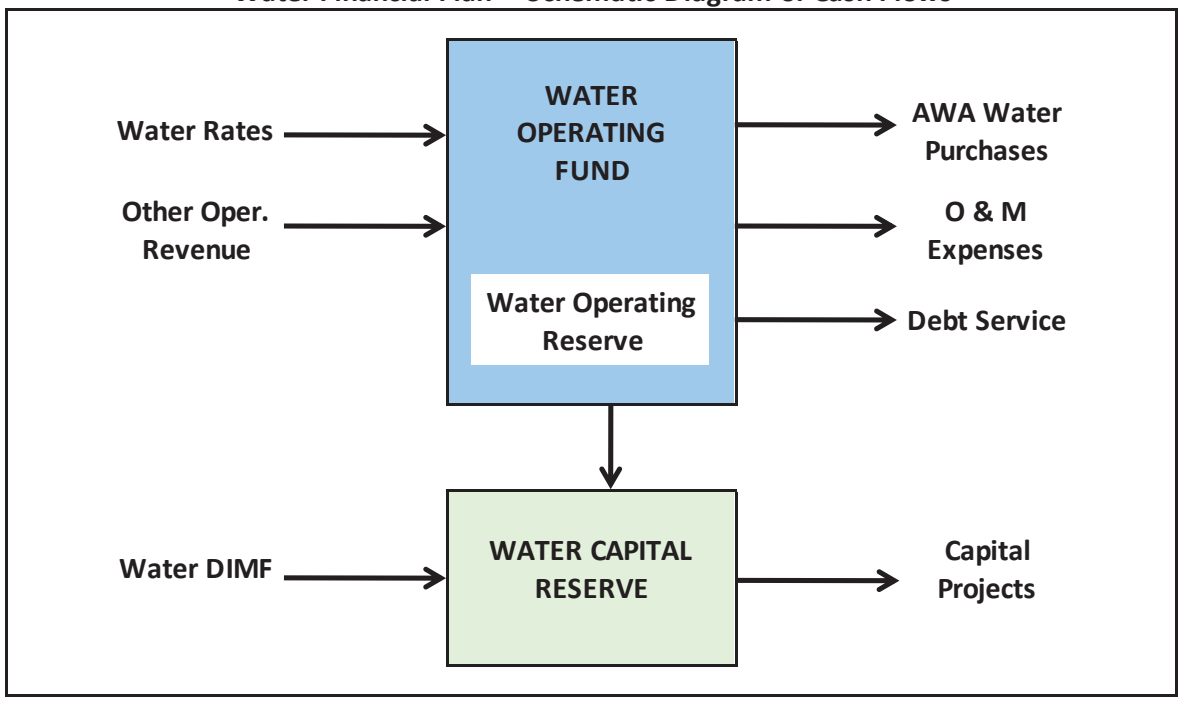
This section of the report describes the financial plan and related recommendations for the City's water utility. The ten-year financial plan is used to determine annual water rate revenue requirements. The annual rate revenue requirement is the amount of revenue needed from water rates to cover planned operating, maintenance, debt service, and capital program costs with consideration of other revenues and financial reserves.

FUND STRUCTURE AND CASH FLOWS

The financial plan is an annual cash flow model. As a cash flow model, it differs from standard accounting income statements, and balance sheets. The financial plan models sources and uses of funds into, out of, and between the various funds and reserves of the water utility.

The financial plan model is generally based on the fund structure currently used by the City and incorporates proposed reserve policies for specified purposes. This structure was discussed with staff, with concurrence that it provides a helpful framework for evaluating the financial needs of the utility and for clearly demonstrating how operating and maintenance costs, debt service obligations, and capital program needs are addressed. The proposed reserve structure includes an Operating Reserve within the Water Operating Fund, as well as Water Capital Reserve for the purpose of supporting water system capital improvement needs. **Exhibit II-1** includes a schematic diagram of the fund/reserves and major cash flows associated with the financial plan model.

Exhibit II-1
City of Jackson
Water Financial Plan -- Schematic Diagram of Cash Flows



An understanding of the fund/reserve structure is helpful in understanding the financial plan worksheets that model estimated annual cash flows through the water utility from one year to the next. The fund/reserve structure is comprised of:

- ***Water Operating Fund*** – The Water Operating Fund is the primary fund within the utility. Most of the water system's revenues, including user rate revenues, flow into the Operating Fund and all operating and maintenance costs, including debt service payments, are paid out of this fund. Funds are also transferred from the Operating Fund to the Capital Reserve to help pay for capital projects of the capital improvement program.
    - *Operating Reserve* – It is recommended that the City establish and maintain a Water Operating Reserve equal to 33 percent of annual operating and maintenance costs, including debt service, for the water utility. The purpose of the Operating Reserve is to provide working capital and funds for unplanned expenditures or revenue shortfalls that may occur as a result of a water shortage and reduced water sales. The balance in the Water Operating Fund at the end of FY 17-18 was about $638,400, or about $109,400 above the target Operating Reserve.
    - *Available Balance* – The balance in the Operating Fund in excess of the Operating Reserve target amount is shown in the financial plan as Available Balance. After all other obligations are met the Available Balance is used to offset rate increases. The financial plan model generally seeks to reduce any Available Balance over time. A negative value for the Available Balance indicates a shortfall in maintaining the target minimum Operating Reserve.
- ***Water Capital Reserve*** – The Water Capital Reserve is used to account for revenues and funds available for capital project expenditures. Water development impact mitigation fees (DIMFs), paid by new development, are available to improve system capacity and help meet the capacity needs of new development. Transfers from the Operating Fund provide funds intended to rehabilitate and upgrade system capacity. The financial plan models generally seek to maintain a positive balance in the Capital Reserve while also covering the costs of planned capital improvement projects. This is achieved through an annual transfer of funds from the Operating Fund to the Capital Reserve. However, as described later in this section, funding for the water system capital program is currently insufficient to meet overall capital program needs, and addressing this issue is one of the primary considerations in identifying the revenue needs for the water utility.

FINANCIAL PLAN ASSUMPTIONS

The water system financial plan reflects the City's adopted FY 18-19 budget and financial conditions as of the beginning of the fiscal year. The financial plan also reflects the City's debt service obligations and capital improvement program, as identified by City staff, during the ten-year planning period that extends through FY 27-28.

The process used to develop the financial plan involved estimating future revenues and expenditures based on estimates of future conditions using the FY 18-19 budget, existing

debt service schedules and a capital improvement plans provided by City staff. The financial plan is based on the best available information and reasonable assumptions; future estimates have been reviewed with staff and are believed to be reasonable. Primary assumptions reflected in financial plan analyses are described below, with additional information presented in **Exhibit II-2**:

- *Inflation Rates* – The financial plan analyses include general inflation at 3.0 percent per year and construction inflation also at 3.0 percent per year. The general inflation rate applies to all operating and maintenance costs, unless otherwise indicated. Capital project costs are escalated at 3.0 percent per year to the year of construction. These inflation assumptions have been reviewed with City staff and are reasonable for financial planning purposes.
- *Interest Rates* – Interest earned on fund/reserve balances is estimated to be 2.0 percent through the duration of the planning period. Interest calculations are based on beginning-of-year balances. This interest rate reflects the recent return from the Local Agency Investment Fund (LAIF). Interest accrues to each of the funds. The City also pays interest on outstanding long-term debt obligations. The interest payments on outstanding debt are those contained in existing contracts and repayment schedules.
- *Growth Projections* – The financial plan assumes new development will increase the customer base by about 0.5 percent each year. This is equivalent to about 12 new connections a year and may include both residential and commercial development. The estimate is believed to be reasonable for financial planning purposes and has been reviewed with City staff.
- *Customer Demand* – The City was under state-mandated water use restrictions during the recent drought. Since that time water demand has rebounded and appears to have leveled off. The financial plan assumes stable water demand through the planning period, even though moderate fluctuation may occur from year to year due to weather patterns, economic conditions, and other factors.
- *Operation and Maintenance Costs* – The financial plan model is based on current operating and maintenance costs as reflected in the adopted FY 18-19 operating budget (except for AWA water purchases costs, which are separately estimated as described below), with future estimates based on inflation and growth assumptions. In addition, the financial plan incorporates the following changes:
    - New administrative and/or field staff added in FY 19-20 at a cost of $30,000 annually and increasing to $60,000 (plus inflation) in FY 21-22
    - New meter reading software and support costs added in FY 19-20 at an annual cost of $5,000
    - New asset management and backflow program software costs added in FY 19-20 at an annual cost of $3,000
    - Additional $200 per year for replacement of small hand tools
    - Annual line extension agreement cost (not currently in budget) of $42,000 per year.

  Assumptions were reviewed with and approved by City staff.

Exhibit II-2
City of Jackson
Water System Financial Plan Assumptions

	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28
Inflation and Interest											
General Inflation			3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Construction Inflation			3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Interest Earnings			2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Account Growth and Water Usage											
No. of Active Accounts	2,428	2,440	2,452	2,464	2,476	2,488	2,500	2,513	2,526	2,539	2,552
No. of Equivalent Meters	3,436	3,448	3,460	3,472	3,484	3,496	3,508	3,521	3,534	3,547	3,560
Customer Account Growth	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Water Demand Factor	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Annual Water Sales (CCF)	356,225	358,000	360,000	362,000	364,000	366,000	368,000	370,000	372,000	374,000	376,000
Water System Losses	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%
Water Purchase Costs											
Annual Water Deliveries (CCF)	393,076	395,000	397,000	399,000	401,000	403,000	405,000	407,000	409,000	411,000	413,000
AWA Water Rates (1)											
Water Usage Rate ($/CCF)	$ 1.35	$ 1.35	$ 1.35	$ 1.35	$ 1.35	$ 1.35	$ 1.35	$ 1.35	$ 1.35	$ 1.35	$ 1.35
Monthly Service Charge	$ 14,107	$ 16,102	$ 18,211	$ 20,440	$ 22,793	$ 25,418	$ 28,344	$ 31,607	$ 35,247	$ 39,305	$ 43,830
Monthly Debt Service Charge	$ 16,418	$ 16,418	$ 16,418	$ 16,418	$ 16,418	$ 16,418	$ 16,418	$ 16,418	$ 16,418	$ 16,418	$ 16,418
Annual Water Purchase Costs											
Usage Charges	$ 530,700	$ 533,300	$ 536,000	$ 538,700	$ 541,400	$ 544,100	$ 546,800	$ 549,500	$ 552,200	$ 554,900	$ 557,600
Service Charges	$ 158,300	$ 193,200	$ 218,500	$ 245,300	$ 273,500	$ 305,000	$ 340,100	$ 379,300	$ 423,000	$ 471,700	$ 526,000
Debt Service Charges	$ 189,500	$ 197,000	$ 197,000	$ 197,000	$ 197,000	$ 197,000	$ 197,000	$ 197,000	$ 197,000	$ 197,000	$ 197,000
Total Annual Water Purch. Cost	**$ 878,500**	**$ 923,500**	**$ 951,500**	**$ 981,000**	**$ 1,011,900**	**$ 1,046,100**	**$ 1,083,900**	**$ 1,125,800**	**$ 1,172,200**	**$ 1,223,600**	**$ 1,280,600**
Annual Increase in Wtr. Purch. Costs -->		5.1%	3.0%	3.1%	3.1%	3.4%	3.6%	3.9%	4.1%	4.4%	4.7%
Development Impact Mitigation Fees - Water											
Single Family Water DIMF	$ 2,060	$ 2,060	$ 2,060	$ 2,122	$ 2,186	$ 2,252	$ 2,320	$ 2,390	$ 2,462	$ 2,536	$ 2,612

Notes:

(1) Amador Water Agency has adopted rates through FY 21-22. This financial plan assumes that the Agency will continue to adjust rates annually in the same manner as their current rate plan.

- *AWA Water Purchase Costs* – The City obtains treated water on a wholesale basis from the Amador Water Agency (AWA). In August 2017, AWA adopted a 5-year rate plan with annual rate adjustments extending through July 2021. Those rates have been incorporated into the financial plan for estimating future water purchase costs. Beyond FY 21-22, the financial plan assumes that AWA will continue its practice of annual rate adjustments with changes to the fixed service charge, but not the water usage rate or debt service charges. On this basis, it is estimated that the City's water purchase costs may increase by between 3.0 and 4.5 percent per year through the planning period.

- *Water System Losses* – All water systems lose a certain amount of water due to leaks, main and hydrant flushing, fire-fighting, and other unaccounted for uses. The financial model assumes a 9 percent water loss factor based on the difference in actual water purchases and water sales in FY 17-18. This is with a typical range for water system like the City's.

- *Water Development Mitigation Impact Fees* – Current water development mitigation impact fees (DMIFs) are adjusted at the rate of construction inflation each year. Estimated annual Water DMIF revenues are based on the applicable fee amounts and the amount of new development activity. Fee revenue accrues to the Capital Reserve and is used to help fund planned capital improvement projects.

- *Capital Improvement Program* – The water utility's capital improvement plan, as developed by staff, includes multiple projects totaling about $3.9 million (in current dollars) through FY 27-28. Ongoing annual pipeline rehabilitation and replacement costs average about $200,000 per year (in current dollars). The most significant project is a new water reservoir estimated to cost $2.0 million (in current dollars) and planned for construction in FY 24-25. Due to the high cost of this project, debt financing is likely to be required (assumptions for debt financing are presented below). The water capital improvement program also includes water meter replacement costs of $25,000 annually (in current dollars). The water capital improvement plan reflected in the financial plan is presented in **Exhibit II-3**. Project costs shown in current dollars are escalated to 3 percent per year to the year of construction, as shown at the bottom of Exhibit II-3.

- *Equipment/Vehicle* Purchases – In addition to capital improvement projects, the Water Capital Reserve includes $3,000 annually for new/replacement equipment, $10,000 within the next 3 years for a pipe locator, and $5,000 annually for new/replacement vehicles. These could either be direct expenses or contributions to internal service funds for these purposes. These expenses appear near the bottom of Exhibit II-5, described below[3].

[3] City staff indicate that cost savings in FY 18-19 relative to the budget may be sufficient to replace a ¾ ton truck in FY 19-20. Therefore, that planned expense in not shown in the analysis.

Exhibit II-3
City of Jackson
Water System Capital Improvement Plan (2017 Dollars)

	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28
Water Capital Improvement Projects									
Buena Vista, Pioneer to Amador Streets		$ 305,000							
Amador Street			$ 209,000						
Anita, Schober and Peek Streets				$ 258,000					
Martel Reservoir Rehabilitation					$ 100,000				
Library/Detert Park						$ 123,500			
Bakers Alley							$ 145,000		
Meter Replacement and AMR	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000
Unspecified Pipeline Replacements								$ 250,000	$ 250,000
New Reservoir						$ 2,000,000			$ -
Total Water Capital Improv. Projects	$ 25,000	$ 330,000	$ 234,000	$ 283,000	$ 125,000	$ 2,148,500	$ 170,000	$ 275,000	$ 275,000
Inflation Factor	1.06	1.09	1.13	1.16	1.19	1.23	1.27	1.30	1.34
Total Water CIP in Inflated Dollars	**$ 27,000**	**$ 361,000**	**$ 263,000**	**$ 328,000**	**$ 149,000**	**$ 2,642,000**	**$ 215,000**	**$ 359,000**	**$ 370,000**

Exhibit II-4
City of Jackson
Water System Debt Service Obligations

	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28
2010 Water Revenue Refunding Bonds									
Principal Payment	$ 100,000	$ 100,000	$ 105,000	$ 105,000	$ 115,000				
Interest Payment	$ 18,165	$ 14,615	$ 10,795	$ 6,700	$ 2,300				
Total Payment	**$ 118,165**	**$ 114,615**	**$ 115,795**	**$ 111,700**	**$ 117,300**				
Outstanding Balance	$ 425,000	$ 325,000	$ 220,000	$ 115,000	$ -				
2027 Water Revenue Bonds									
Principal Payment							$ 40,000	$ 40,000	$ 45,000
Interest Payment							$ 125,000	$ 123,000	$ 121,000
Total Payment							**$ 165,000**	**$ 163,000**	**$ 166,000**
Outstanding Balance						$ 2,500,000	$ 2,460,000	$ 2,420,000	$ 2,375,000

Debt Assumptions

Par Amount	$ 2,500,000	
Interest Rate	5.0%	
Term	30	years
Issuance Costs	2.0%	
Debt Service Reserve	Funded	
Net Proceeds	$ 2,287,000	

- *Long-Term Debt Obligations* – In 2010, the City issued $2,225,000 in Water Revenue Refunding Bonds to refund bonds that had been issued in 1998. Annual debt service on the 2010 bonds varies slightly and averages about $115,000 annually. The final payment on the bonds is due in FY 23-24. Covenants made with the 2010 bond issue require the City to maintain debt service coverage of 1.25 times annual debt service. That is, the City is required to maintain water rates and other revenues at a level sufficient to cover all operating and maintenance costs plus 1.25 times annual debt service. It appears that the City will not meet this coverage requirement in FY 18-19, thereby necessitating an immediate increase in the water rates to correct this deficiency and meet the contractual commitment.

  The water reservoir project (referenced above) scheduled for FY 24-25 will likely require debt financing[4]. The financial plan model includes an estimated $2.5 million debt issue with a financially conservative 5.0 percent interest rate and 30-year term. Annual debt service on such an issue would be about $165,000 and has been included in the financial plan. **Exhibit II-4** (on the previous page) presents estimated annual debt service for existing and potential future debt, as well as the assumptions for financing the water reservoir project.

Exhibit II-5 provides the details of the water system financial plan model. The City has not increased its water rates since 2009. Current water rates and other operating revenues are adequate to cover current operating and maintenance costs, but not debt service or support for the capital program. The primary challenge for the water utility is to provide sufficient funding to meet existing debt obligations and to provide funds for the capital improvement program. At present, the water utility is rapidly depleting its financial reserves and the Water Operating Fund could be exhausted within about two years without a change in water rates. This situation needs to be reversed. **Exhibit II-6** graphically summarizes the annual revenues, expenses, and year-end balances of the Water Operating Fund and the Water Capital Reserve through the planning period. Exhibits II-5 and II-6 reflect the proposed water rate adjustments for FY 19-20 through FY 23-24, as well as estimates for future rate adjustments through FY 27-28.

FINANCIAL PLAN FINDINGS AND CONCLUSIONS

The preceding portion of this section described the basic framework and assumptions underlying the financial plan analyses for the water utility. Specific findings and conclusions pertaining to the utility are presented below, beginning with a description of the current situation. At present, the City's water utility has:

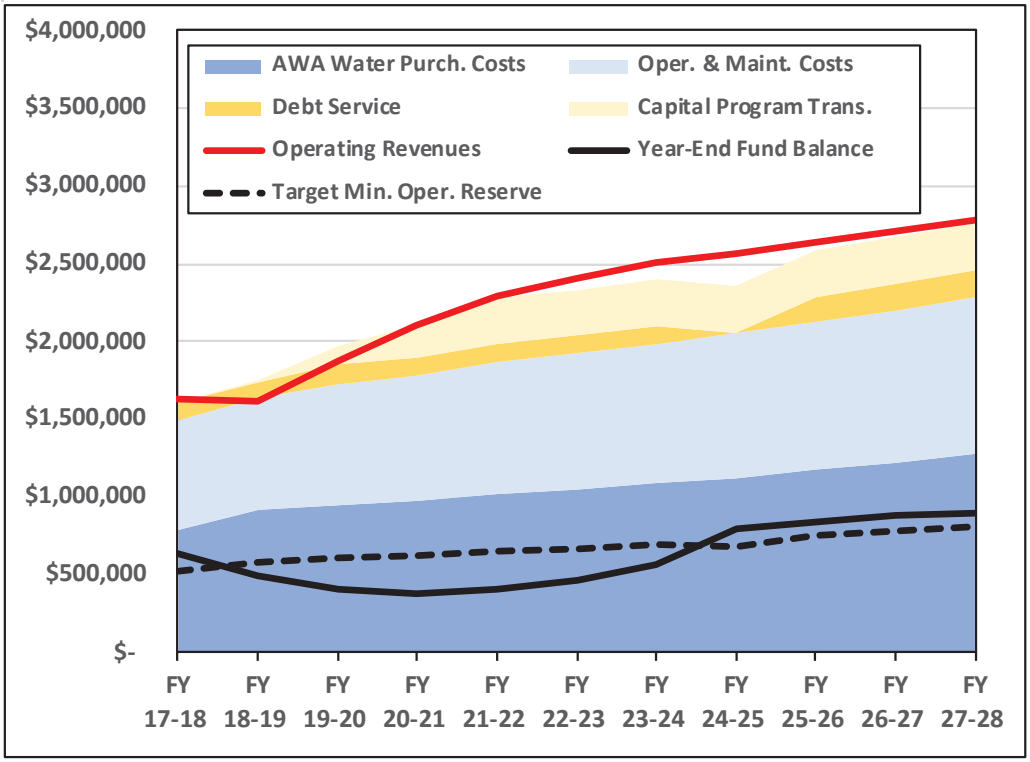
- Estimated cash in the Water Operating Fund as of June 30, 2018 of $638,400, which is above the minimum target Operation Reserve by about $109,400, but also being rapidly depleted
- Estimated FY 18-19 water utility operating revenues of about $1.62 million

[4] The City will be unable to generate enough cash for this expensive project by FY 24-25 without very large rate increases, which would likely be unacceptable to the City Council and public. Debt financing is appropriate for this type of large, concentrated expenditure.

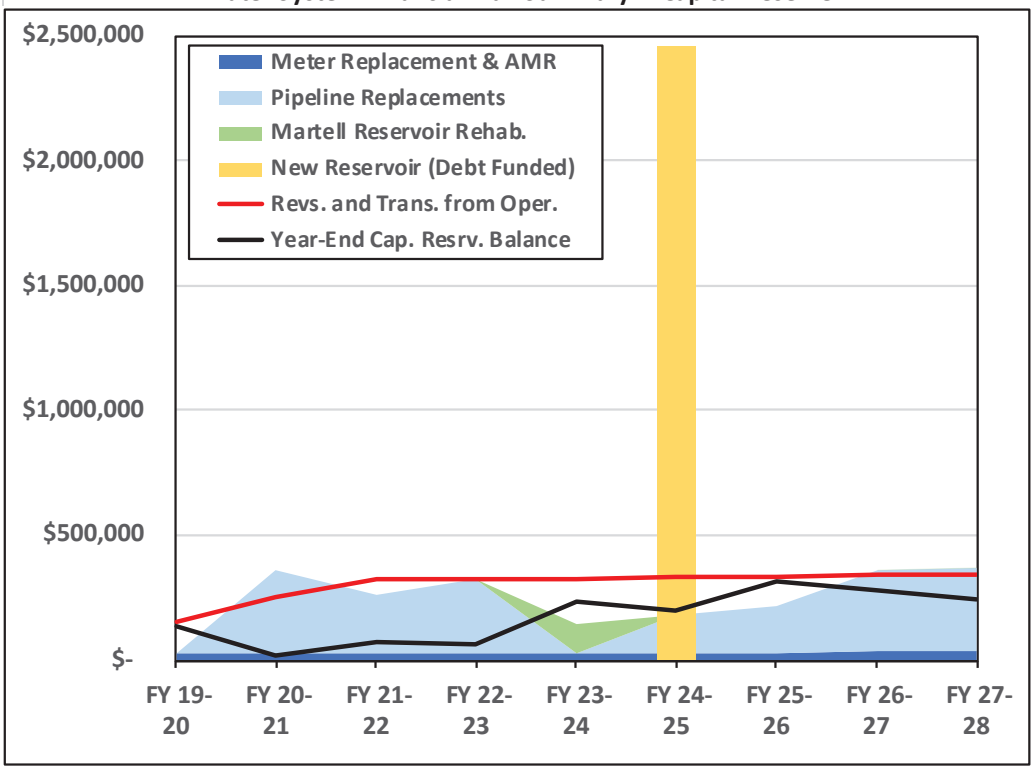
Exhibit II-5
City of Jackson
Multi-Year Water System Financial Plan

	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28
	Rate Adjustments -->		15%	12%	9%	4%	4%	2%	2%	2%	2%
WATER OPERATING FUND											
Beginning Balance	$ 612,989	$ 638,408	$ 500,300	$ 401,700	$ 383,600	$ 400,800	$ 466,300	$ 571,600	$ 791,000	$ 840,900	$ 880,800
Revenues											
Water Usage Charges	$ 924,663	$ 929,000	$ 948,400	$ 1,067,500	$ 1,169,400	$ 1,222,300	$ 1,277,500	$ 1,309,600	$ 1,342,500	$ 1,376,200	$ 1,410,700
Water Service Charges	$ 654,381	$ 658,000	$ 885,700	$ 996,900	$ 1,092,100	$ 1,141,500	$ 1,193,100	$ 1,223,000	$ 1,253,700	$ 1,285,200	$ 1,317,500
Private Fire Service Charges	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000
Other Charges for Services	$ 5,825	$ 5,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000
Miscellaneous Revenue	$ 21,605	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Interest Earned	$ 1,211	$ 200	$ 10,000	$ 8,000	$ 7,700	$ 8,000	$ 9,300	$ 11,400	$ 15,800	$ 16,800	$ 17,600
Total Revenues	**$ 1,628,685**	**$ 1,618,200**	**$ 1,873,100**	**$ 2,101,400**	**$ 2,298,200**	**$ 2,400,800**	**$ 2,508,900**	**$ 2,573,000**	**$ 2,641,000**	**$ 2,707,200**	**$ 2,774,800**
Expenditures and Transfers											
Personnel Srvcs. & Benefits	$ 403,347	$ 335,653	$ 375,700	$ 386,900	$ 430,200	$ 443,000	$ 456,300	$ 469,900	$ 483,800	$ 498,100	$ 513,100
Contracted & Prof. Srvcs.	$ 53,053	$ 52,400	$ 54,100	$ 55,800	$ 57,600	$ 59,400	$ 61,200	$ 63,000	$ 64,900	$ 66,800	$ 68,700
AWA Usage Charges	$ 435,962	$ 533,300	$ 536,000	$ 538,700	$ 541,400	$ 544,100	$ 546,800	$ 549,500	$ 552,200	$ 554,900	$ 557,600
AWA Service Charges	$ 158,300	$ 193,200	$ 218,500	$ 245,300	$ 273,500	$ 305,000	$ 340,100	$ 379,300	$ 423,000	$ 471,700	$ 526,000
AWA Debt Serv. Charges	$ 189,500	$ 197,000	$ 197,000	$ 197,000	$ 197,000	$ 197,000	$ 197,000	$ 197,000	$ 197,000	$ 197,000	$ 197,000
Repairs & Maintenance	$ 26,060	$ 31,500	$ 32,500	$ 33,500	$ 34,500	$ 35,600	$ 36,700	$ 37,800	$ 38,900	$ 40,100	$ 41,300
Materials & Supplies	$ 14,370	$ 17,950	$ 26,700	$ 27,500	$ 28,400	$ 29,300	$ 30,200	$ 31,100	$ 32,000	$ 32,900	$ 33,800
Other Services and Charges	$ 36,752	$ 36,025	$ 36,900	$ 37,800	$ 38,700	$ 39,600	$ 40,500	$ 41,400	$ 42,400	$ 43,400	$ 44,500
Line Extension Agrmts.	$ -	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000
Admin. Cost Allocation	$ 171,802	$ 203,038	$ 209,100	$ 215,400	$ 221,900	$ 228,600	$ 235,500	$ 242,600	$ 249,900	$ 257,400	$ 265,100
Debt Service	$ 114,120	$ 102,735	$ 118,200	$ 114,600	$ 115,800	$ 111,700	$ 117,300	$ -	$ 165,000	$ 163,000	$ 166,000
Capital Program Transfer	$ -	$ 11,500	$ 125,000	$ 225,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Total Expend. & Transfers	**$ 1,603,266**	**$ 1,756,301**	**$ 1,971,700**	**$ 2,119,500**	**$ 2,281,000**	**$ 2,335,300**	**$ 2,403,600**	**$ 2,353,600**	**$ 2,591,100**	**$ 2,667,300**	**$ 2,755,100**
Ending Balance	**$ 638,408**	**$ 500,307**	**$ 401,700**	**$ 383,600**	**$ 400,800**	**$ 466,300**	**$ 571,600**	**$ 791,000**	**$ 840,900**	**$ 880,800**	**$ 900,500**
Operating Reserve (33%)	$ 529,000	$ 576,000	$ 609,000	$ 625,000	$ 654,000	$ 672,000	$ 694,000	$ 678,000	$ 756,000	$ 781,000	$ 810,000
Available Balance	$ 109,408	$ (75,693)	$ (207,300)	$ (241,400)	$ (253,200)	$ (205,700)	$ (122,400)	$ 113,000	$ 84,900	$ 99,800	$ 90,500
DS Coverage (1.25 min.)	1.22	0.01	1.44	3.05	3.97	4.53	4.70	#DIV/0!	3.34	3.33	3.17
WATER CAPITAL RESERVE											
Beginning Balance	$ -	$ -	$ 24,700	$ 136,200	$ 16,300	$ 70,900	$ 62,100	$ 232,600	$ 203,600	$ 314,600	$ 284,500
Revenues and Transfers In											
Transfer from Operations	$ -	$ 11,500	$ 125,000	$ 225,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Water DIMF Revenue		$ 24,700	$ 24,700	$ 25,500	$ 26,200	$ 27,000	$ 27,800	$ 31,100	$ 32,000	$ 33,000	$ 34,000
Debt Proceeds								$ 2,287,000			
Interest Earned		$ -	$ 500	$ 2,700	$ 300	$ 1,400	$ 1,200	$ 4,700	$ 4,100	$ 6,300	$ 5,700
Total Revs. & Trans. In	**$ -**	**$ 36,200**	**$ 150,200**	**$ 253,200**	**$ 326,500**	**$ 328,400**	**$ 329,000**	**$ 2,622,800**	**$ 336,100**	**$ 339,300**	**$ 339,700**
Expenditures											
Equipment Purchases	$ -	$ 6,500	$ 6,700	$ 6,900	$ 3,500	$ 3,600	$ 3,700	$ 3,800	$ 3,900	$ 4,000	$ 4,100
Vehicle Purchases	$ -	$ -	$ 5,000	$ 5,200	$ 5,400	$ 5,600	$ 5,800	$ 6,000	$ 6,200	$ 6,400	$ 6,600
Water CIP	$ -	$ 5,000	$ 27,000	$ 361,000	$ 263,000	$ 328,000	$ 149,000	$ 2,642,000	$ 215,000	$ 359,000	$ 370,000
Total Expenditures	**$ -**	**$ 11,500**	**$ 38,700**	**$ 373,100**	**$ 271,900**	**$ 337,200**	**$ 158,500**	**$ 2,651,800**	**$ 225,100**	**$ 369,400**	**$ 380,700**
Ending Balance	**$ -**	**$ 24,700**	**$ 136,200**	**$ 16,300**	**$ 70,900**	**$ 62,100**	**$ 232,600**	**$ 203,600**	**$ 314,600**	**$ 284,500**	**$ 243,500**

Exhibit II-6
City of Jackson
Water System Financial Plan Summary -- Operating Fund



Water System Financial Plan Summary -- Capital Reserve



- Estimated FY 18-19 operating and maintenance costs, including debt service obligations, totaling about $1.74 million, or about $120,000 more than annual operating revenues
- An inability to make annual debt service payments without depleting limited financial reserves
- An inability to meet required debt service coverage requirements on existing long-term debt without a water rate increase
- An inability to support any capital improvement program without depleting limited financial reserves.

While current water system revenues are nearly sufficient to cover operating and maintenance expenses, revenues are insufficient meet debt service obligations or to fund the water system capital improvement program. An immediate rate increase is needed.

It is recommended that the City immediately increase its water rates to: (1) ensure continued financial support for ongoing operation and maintenance costs, including AWA water purchases and repayment of debt, (2) provide adequate revenues to meet the debt service coverage obligation associated with the 2010 bonds, (3) provide adequate funding for the water system capital improvement program, and (4) gradually establish and then maintain an Water Operating Reserve of at least 33 percent of annual operating and maintenance costs, including debt service. Proposed adjustments to the water rates for the next five years are shown below along with associated annual water rate revenues. These revenue estimates also incorporate the effects of growth in the customer base. As proposed, water rates would be adjusted each July from 2019 through 2023.

	Rate Increase	Ann. Rate Rev.	Change
FY 18-19		$1,587,000	
FY 19-20	15%	$1,834,000	$247,000
FY 20-21	12%	$2,064,000	$230,000
FY 21-22	9%	$2,262,000	$198,000
FY 22-23	4%	$2,364,000	$102,000
FY 23-24	4%	$2,471,000	$107,000

To put the proposed rate adjustments in context, general inflation has increased costs by about 30 percent since the City's last water rate increase in 2009. In addition, the City's cost of purchasing water from AWA has increased about 32 percent over the past 10 years. At present, water purchase costs represent about 53 percent of the water utility's total annual costs.

Because of the existing debt service coverage requirement and capital program needs it is not possible to reduce or further spread out the initial water rate adjustments. However, after the first few years annual rate adjustments should stabilize and generally track near the pace of inflation. The utility will benefit from the retirement of existing debt in FY 23-24, which will reduce annual costs by about $115,000 annually. However, a new debt issue anticipated in FY 24-25 would create a new annual debt service obligation estimated at about $165,000, which is somewhat higher than current annual debt service.

Current estimates indicate that the proposed water rates will not result in excessive revenue, and future financial plan and rate updates will provide opportunities to review the adequacy of the rates relative to the capital program needs identified at that time. Details of the proposed water rates, including rate calculations and complete rate schedules, are included in Section III of this report.

The water system financial plan model reflects assumptions and estimates that are believed reasonable at the present time. However, conditions change. It is recommended that the City review the financial condition of the water utility annually as part of the budget process and perform a more comprehensive financial plan and water rate update study every 3 to 5 years, unless otherwise needed sooner.

WATER SHORTAGE FINANCIAL ANALYSIS

A new addition to the City's water rate structure is a proposed temporary water shortage rate surcharge, which would be implemented only during water shortage conditions declared by the City Council and which would apply only to the water usage portion of the water rate structure (not the fixed monthly service charge). The temporary surcharges would be part of the City's financial strategy to address the financial strains create by reduced water sales caused by a drought or other longer-term water shortage condition.

An extended water shortage can have an adverse financial impact on the City's water utility and its ability to provide water service and meet financial obligations, including debt service repayment and coverage obligations. With an ever-present potential for a future drought situation, a financial analysis was conducted to determine the potential impacts to the water utility of reduced water sales and to propose a financial strategy for responding to drought conditions.

Stages of Water Supply and Shortage

Beyond normal water supply conditions, the Amador Water Agency has defined four stages of water supply shortage to assist with water resource conservation and management and emergency planning. These stages include:

Normal supply conditions	No water use restrictions
Stage 1 – Water Alert	Up to 20% use reduction goal
Stage 2 – Water Warning	21% to 30% use reduction goal
Stage 3 – Water Crisis	31% to 40% use reduction goal
Stage 4 – Water Emergency	41% to 50% use reduction goal

It is recommended that the City adopt these definitions of water supply and shortage stages for its water shortage contingency planning. These stage definitions have been used for the water shortage financial analysis and surcharge recommendations contained in this report. The City Council could declare a shortage condition to exist in response to either (1) the State declaring an emergency water shortage condition that affects the City and/or (2) the AWA declaring a water shortage condition in accordance with their rules and regulations, which would also have a direct impact on the City's water purchases and water sales.

Financial Implications of Water Shortage

This section of the report focuses on the financial effects of water shortage on the water utility's finances. The water utility's operations and financial condition are affected in several ways by a water shortage. Changes in operating costs and revenues include:

- Reduced water sales and water sales revenue
- Reduced water purchases costs (even with AWA's surcharge imposed)
- Increased water conservation program costs.

While the reduction in water sales revenue will be partially offset by the reduction in water purchase costs, AWA's imposition of their water shortage surcharge could largely negate that offset. Essentially all of the water utility's other operating and maintenance costs are fixed and would not decline with reduced water sales. In addition, water shortage conditions could cause the water utility to expand water conservation program costs (e.g., education and outreach efforts) to inform and assist customers in meeting use reduction goals particularly with the more severe shortage conditions. For these reasons, water shortage conditions and reduced water sales will create a financial deficit within the water utility.

In response to the water shortage, and the financial deficit created, the City has the ability to take a variety of actions. The analysis presented herein focuses on three potential courses of action, including:

- Using available money from the water utility's Operating Reserve;
- Supplementing water rate revenues through imposition of temporary water shortage rate surcharges on water usage; and
- In more severe stages of shortage, reducing annual funding of capital improvement projects to preserve cash for operations.

The City's water utility may also seek to reduce operating costs and may, where possible, seek additional outside revenues such as water conservation grants and/or loans. However, this analysis focuses on only the potential response actions listed above.

Water Shortage Financial Analysis

Using the water utility's estimated FY 19-20 revenues and expenses reflected in the financial plan model, an analysis of the potential financial impacts of water shortages was developed. The analysis estimated the magnitude of reduced water sales revenue, reduced water purchase costs, and increased water conservation program costs that may arise with each stage of water shortage. The top portion of **Exhibit II-7** summarizes the estimated financial impacts of water shortage (based on estimated FY 19-20 financial conditions) and assesses potential changes in revenues and expenses relative to normal water supply conditions at the extreme end of each stage.

Exhibit II-7
City of Jackson
Estimated Financial Impact Created by Water Shortages (FY 19-20)

	Normal Supply (1)	Stage 1 Water Alert	Stage 2 Water Warning	Stage 3 Water Crisis	Stage 4 Water Emergency
Use Reduction Goals -->	None	Up to 20%	21% to 30%	31% to 40%	41% to 50%
Est. Financial Impact from Water Shortage					
Reduced Water Sales Revenue		$ (189,400)	$ (284,400)	$ (379,400)	$ (474,400)
Reduced Cost of AWA Water Purch. (2)		$ 29,800	$ 33,500	$ 40,100	$ 67,000
Increased Water Conservation Costs		$ (5,000)	$ (10,000)	$ (15,000)	$ (20,000)
Est. Total Financial Deficit	**$ -**	**$ (164,600)**	**$ (260,900)**	**$ (354,300)**	**$ (427,400)**
Multi-Pronged Corrective Strategy					
Use of Operating Reserves (2)		$ 88,700	$ 119,600	$ 128,700	$ 136,500
Reduce Capital Program Transfer (3)		$ -	$ 41,700	$ 83,300	$ 125,000
Impose Water Shortage Surcharges (4)		$ 75,900	$ 99,600	$ 142,300	$ 165,900
Total Corrective Actions	**$ -**	**$ 164,600**	**$ 260,900**	**$ 354,300**	**$ 427,400**
Water Shortage Rate Surcharge -->		10%	15%	25%	35%

Notes:

(1) The FY 14-15 budget and related revenue and expense estimates were adjusted to reflect a normal water supply year.

(2) Amounts shown are the reduction in Operating Reserve due to water shortage.

(3) The reduced transfer to support the Capital Improvement Program may have an impact on capital project funding.

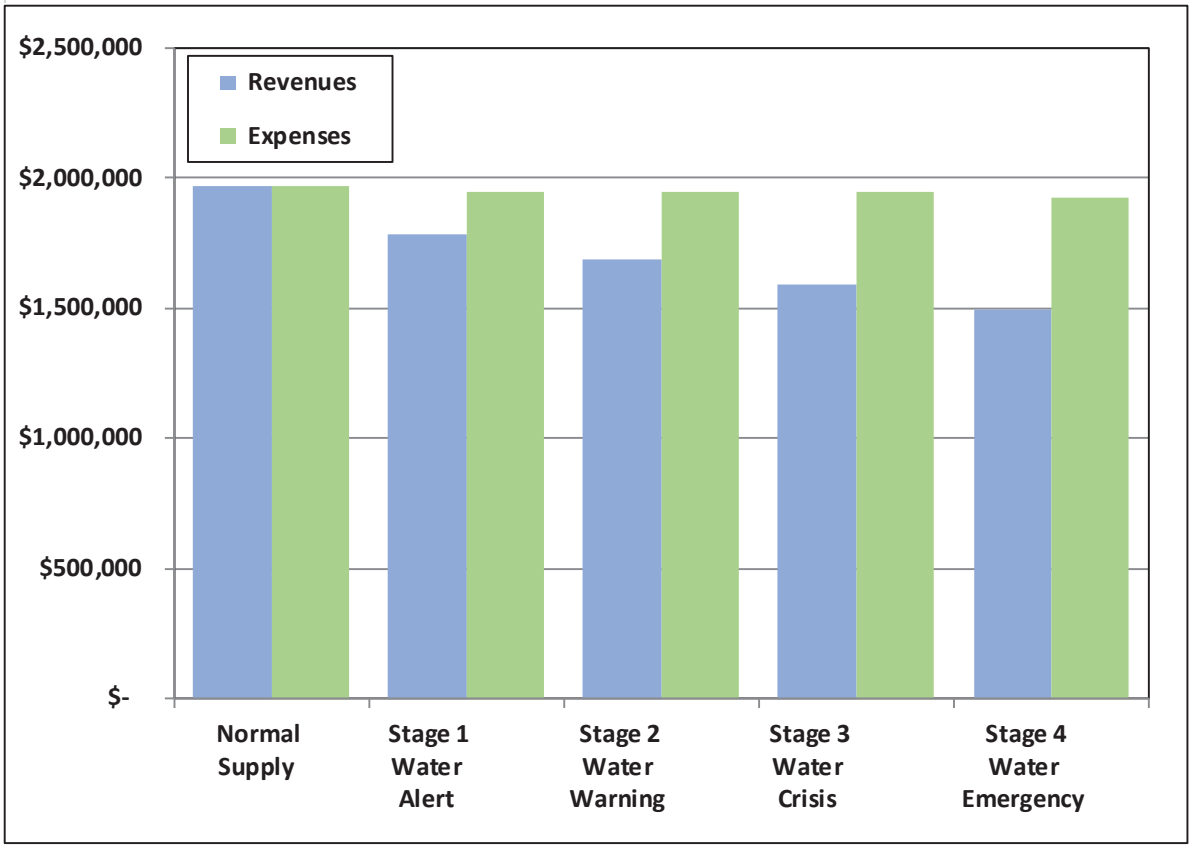
(4) Temporary water shortage surcharges would apply only to the water usage rates (not service charges or debt service charges), and would represent about 4.4%, 6.0%, 8.9%, and 10.9% of total annual rate revenue in Stages 1, 2, 3, and 4, respectively. Surcharge would also be temporary, lasting only during the period of declared shortage.

Exhibit II-7 shows the financial deficit would increase with each successive and more severe stage of water shortage. Under water shortage conditions, the financial deficit grows as water sales decline. While total expenses would also decline slightly, the fall in revenues would significantly exceed the decline in expenses. The financial deficit could grow to more than $400,000 annually with a Stage 4 – Water Emergency. The financial magnitude of each of the factors contributing to the deficit at each stage is included in the top portion of Exhibit II-7. **Exhibit II-8** graphically illustrates how the financial deficit increases with increasing severity of water shortage conditions.

To mitigate the financial impacts resulting from a water shortage, a multi-pronged approach is suggested and illustrated in the bottom portion of Exhibit II-7. Spreading the response across multiple areas helps to mitigate the impact in any single area. The suggested responses are described below, and graphically presented in **Exhibit II-9**.

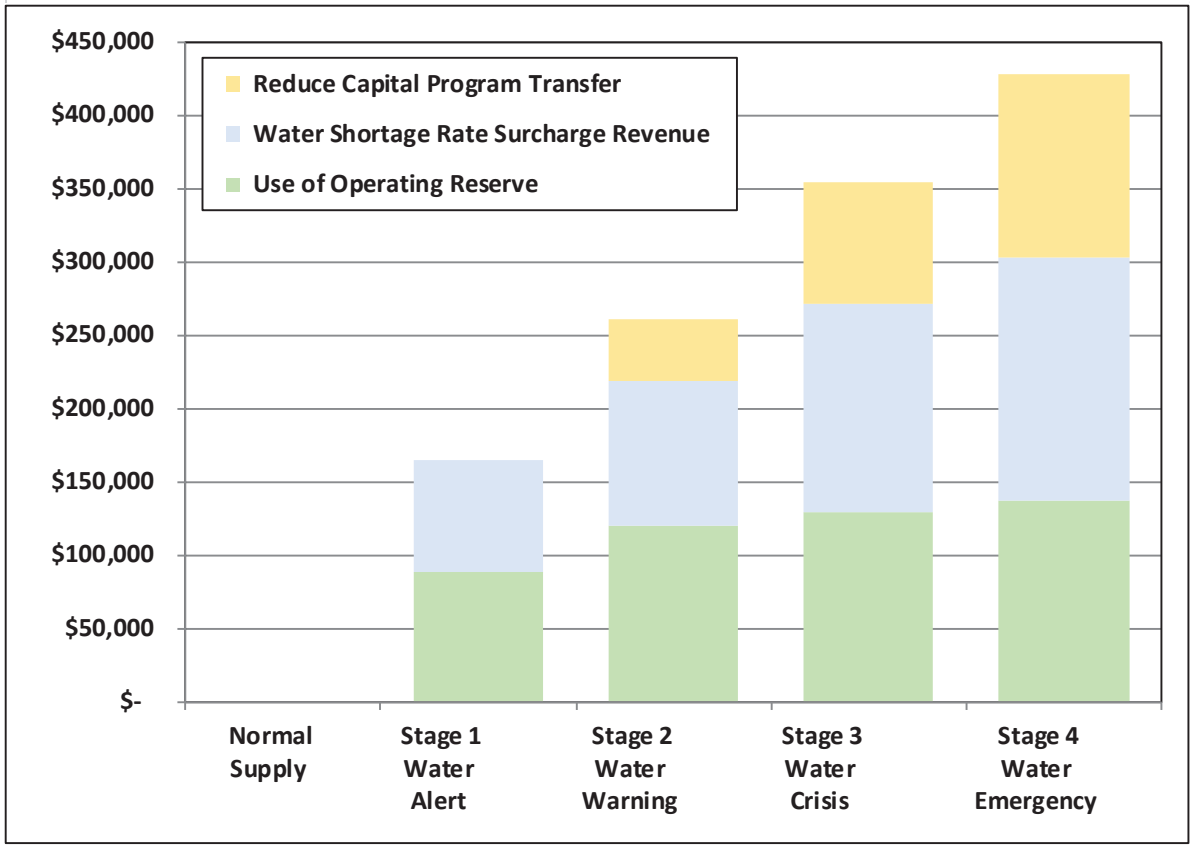
1. ***Drawdown of Operating Reserves*** – During water shortages the City's water utility would rely, in part, on its Operating Reserve to help bridge the deficit gap. The amount that would be needed from the Operating Reserve would depend on the stage declared by the City Council and the duration of the water shortage. The amounts shown at the bottom of Exhibit II-7 and reflected graphically in Exhibit II-9 represent estimated annual amounts that might be withdrawn from the reserve. The reliance on the Operating Reserve to help mitigate the water shortage financial deficit would range from about $88,600 in Stage 1 to about $136,400 in Stage 4.

Exhibit II-8
City of Jackson
Estimated Financial Impact Created by Water Shortages (FY 19-20)



2. ***Impose Temporary Water Shortage Rate Surcharges*** – In water shortage conditions, many water utilities (including AWA) implement temporary water shortage rate surcharges to (1) help reduce the financial deficit created by the shortage, and (2) provide customers with a financial incentive for reducing water usage. This report recommends imposing a water shortage rate surcharge in each stage of declared water shortage. While the details of the water shortage rate surcharge are explained later in this report, the temporary surcharges would effectively increase the normal water usage rates, but not the monthly service charges during the period of declared water shortage. It is suggested that water shortage rate surcharges provide incremental increases to the normal water usage rate of 10 percent in Stage 1 – Water Alert, 15 percent in Stage 2 – Water Warning, 25 percent in Stage 3 – Water Crisis, and 35 percent in Stage 4 – Water Emergency, respectively, during these stages of shortage and would thereby help to bridge the financial deficit gap caused by water shortage.

Exhibit II-9
City of Jackson
Bridging the Deficit Gap With New Revenues and Without a Rate Stabilization Reserve



3. ***Reduce Annual Transfer for Capital Program*** – In the more severe water shortage situations the City's water utility could preserve operating cash and effectively reduce the financial deficit created by a water shortage by reducing the planned annual transfer of funds from the Operating Fund to the Capital Reserve. The reduced annual transfer may or may not have an impact on the planned capital project expenditures as the reduced transfer would reduce the balance in the Capital Reserve but not necessarily preclude moving forward with planned projects.

The combined effect of using any available funds from the Operating Reserve, augmenting water rate revenue with temporary water shortage rate surcharges and reducing transfers to the Capital Reserve would help mitigate the financial impact of a water shortages at each defined stage. **Exhibit II-10** presents the analysis of estimated annual revenues and expenses at each stage of water shortage, based on implementation of the response actions suggested above. This exhibit is based on financial conditions anticipated for FY 19-20 and is representative of conditions that might exist in any future year.

The development of the temporary water shortage rate surcharges based on the financial analysis summarized above is presented near the end of Section III of this report.

Exhibit II-10
City of Jackson
Estimated Financial Impact of Water Shortage with Mitigation Responses (FY 19-20)

	Normal Supply (1)	Stage 1 Water Alert	Stage 2 Water Warning	Stage 3 Water Crisis	Stage 4 Water Emergency
Use Reduction Goals -->	None	Up to 20%	21% to 30%	31% to 40%	41% to 50%
Revenues					
Service Charge Revenue	$ 885,700	$ 885,700	$ 885,700	$ 885,700	$ 885,700
Water Usage Charge Revenue (2)	$ 948,400	$ 759,000	$ 664,000	$ 569,000	$ 474,000
Water Shortage Surcharge Rev. (3)		$ 75,900	$ 99,600	$ 142,300	$ 165,900
Other Operating Revenue	$ 39,000	$ 39,000	$ 39,000	$ 39,000	$ 39,000
Planned Use of Reserves	$ 98,600	$ 98,600	$ 98,600	$ 98,600	$ 98,600
Total Revenues	$ 1,971,700	$ 1,858,200	$ 1,786,900	$ 1,734,600	$ 1,663,200
(% of normal)		94%	91%	88%	84%
Expenditures and Transfers					
Personnel Srvcs. & Benefits	$ 375,700	$ 375,700	$ 375,700	$ 375,700	$ 375,700
Contracted & Prof. Srvcs.	$ 54,100	$ 54,100	$ 54,100	$ 54,100	$ 54,100
AWA Usage Charges	$ 536,000	$ 429,000	$ 375,000	$ 322,000	$ 268,000
AWA Water Shortage Surcharge (4)	$ -	$ 77,200	$ 127,500	$ 173,900	$ 201,000
AWA Service Charges	$ 218,500	$ 218,500	$ 218,500	$ 218,500	$ 218,500
AWA Debt Serv. Charges	$ 197,000	$ 197,000	$ 197,000	$ 197,000	$ 197,000
Repairs & Maintenance	$ 32,500	$ 32,500	$ 32,500	$ 32,500	$ 32,500
Materials & Supplies	$ 26,700	$ 26,700	$ 26,700	$ 26,700	$ 26,700
Water Conservation Program (5)	$ -	$ 5,000	$ 10,000	$ 15,000	$ 20,000
Other Services and Charges	$ 36,900	$ 36,900	$ 36,900	$ 36,900	$ 36,900
Line Extension Agrmts.	$ 42,000	$ 42,000	$ 42,000	$ 42,000	$ 42,000
Admin. Cost Allocation	$ 209,100	$ 209,100	$ 209,100	$ 209,100	$ 209,100
Debt Service	$ 118,200	$ 118,200	$ 118,200	$ 118,200	$ 118,200
Capital Program Transfer (6)	$ 125,000	$ 125,000	$ 83,300	$ 41,700	$ -
Total Uses of Funds	$ 1,971,700	$ 1,946,900	$ 1,906,500	$ 1,863,300	$ 1,799,700
(% of normal)		99%	97%	95%	91%
Surplus/(Deficit) Due to Shortage (7)	**$ -**	**$ (88,700)**	**$ (119,600)**	**$ (128,700)**	**$ (136,500)**

Notes:

(1) Estimated FY 19-20 revenues and expenses are from the financial plan model and include a planned use of reserves.
(2) Water usage charge revenue is reduce in proportion to reduce water sales volume.
(3) Water shortage rate surcharges would be imposed in Stages 1, 2, 3, and 4 to limit the financial impact of shortage.
(4) AWA has adopted water shortage surcharges on water sales, which are 18% at Stage 1, 34% at Stage 2, 54% at Stage 3, and 75% at Stage 4.
(5) Estimated water conservation program costs would increase with increased severity of drought conditions.
(6) In normal conditions a portion water rate revenues is available for capital projects.
(7) The remaining deficit (shown here) would be made up by drawing down the Operating Reserve.

SECTION III. WATER RATES

This section of the report presents information and analyses leading to the development of water rate recommendations for FY 19-20 and a 5-year rate plan.

CURRENT WATER RATES

The City of Jackson provides water service to about 2,428 water service customers, including about 2,062 residential accounts, and about 366 commercial accounts[5].

The City last adjusted its water rates in 2009. The City's current water rates are summarized in **Exhibit III-1**. Current water rates differ for residential and commercial customers[6]. The residential rates include a monthly service charge based on the size of the water meter and a 2-tier water usage rate structure. Commercial accounts are also subject to the same 2-tier water usage rates; but service charges are based on historical usage for each account. This makes the commercial rate structure administratively cumbersome and can contribute to added revenue volatility/uncertainty for the City. This difference in the residential and commercial structure also created an unintended bias between the two structures. The City also charges customers outside the City limits rates that are 20 percent higher than the rates for customers inside the City. At present, about 59 percent of water rate revenue is generated from water usage charges and about 41 percent from fixed service charges.

In 2015 an appellate court decision in *Capistrano Taxpayers Association vs. City of San Juan Capistrano* (SJC decision) clarified language in Proposition 218 (Article XIIID of the California Constitution) with particular regard to tiered water rates. That decision combined with the fact that the City obtains all of its water from the AWA influenced the direction of this water rate study at its outset. At the outset it was recommended that the City eliminate the tiered rate structure and replace it with a simpler and more easily justified uniform water usage rate. City staff concurred with this direction. In addition, a cursory review of water system costs (based on available data) determined that there is no reliable and quantifiable justification for the City's outside-of-city water rates. As a result, it was recommended that this rate differential be eliminated.

CUSTOMER ACCOUNT DATA AND WATER USE ESTIMATES

Water rate calculations are based on a number of factors related to the City's customer base. Factors include the number of customers, customer classes, meter size, and actual water usage. Residential customers comprise about 85 percent of customer accounts and 64 percent of annual water usage; commercial customers make up about 15 percent of customer accounts and 36 percent of water usage.

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[5] The term "customer" is generally used in this report to refer to a water or sewer service connection that provides service to individual parcels. In some cases, a parcel may be served by more than one connection.

[6] Residential customers include single family homes, multi-family apartments, and mobile home parks; commercial accounts include commercial businesses, industrial accounts, and public agencies.

Exhibit III-1
City of Jackson
Current Water Rate Schedule (1)

RESIDENTIAL

Inside City Limits

Quanity Rates:		Charge
First 600 cu. ft., per 100 cu. ft.	$	1.97
Over 600 cu. ft., per 100 cu. ft.	$	2.96

Monthly Service Charge (2):

Mtr. Code	Meter Size		Charge
58	5/8 x 3/4 inch	$	15.98
34	3/4 inch	$	17.51
1	1 inch	$	22.70
15	1 1/2 inch	$	29.27
2	2 inch	$	38.90
3	3 inch	$	67.92
4	4 inch	$	91.61

Outside City Limits

Quanity Rates:		Charge
First 600 cu. ft., per 100 cu. ft.	$	2.36
Over 600 cu. ft., per 100 cu. ft.	$	3.55

Monthly Service Charge:

Mtr. Code	Meter Size		Charge
OA	5/8 x 3/4 inch	$	19.18
OB	3/4 inch	$	21.01
OC	1 inch	$	27.24
OD	1 1/2 inch	$	35.12
OE	2 inch	$	46.68
OF	3 inch	$	81.50
OG	4 inch	$	109.93

COMMERCIAL

Inside City Limits

Quanity Rates:		Charge
First 600 cu. ft., per 100 cu. ft.	$	1.97
Over 600 cu. ft., per 100 cu. ft.	$	2.96

Monthly Service Charge (3):

Mtr. Code	Meter Size		Charge
C0	0-10 CCF	$	19.93
CW	11-20 CCF	$	33.22
C1	21-100 CCF	$	66.43
C2	101-200 CCF	$	132.84
C4	201-400 CCF	$	265.68
C6	401-600 CCF	$	398.52
C8	601-800 CCF	$	531.36
CM	801-1000+ CCF	$	664.20

Outside City Limits

Quanity Rates:		Charge
First 600 cu. ft., per 100 cu. ft.	$	2.36
Over 600 cu. ft., per 100 cu. ft.	$	3.55

Monthly Service Charge (3):

Mtr. Code	Meter Size		Charge
O0	0-10 CCF	$	23.92
OW	11-20 CCF	$	39.86
O1	21-100 CCF	$	79.72
O2	101-200 CCF	$	159.41
O4	201-400 CCF	$	318.82
O6	401-600 CCF	$	478.22
O8	601-800 CCF	$	637.63
OM	801-1000+ CCF	$	797.04

Notes:

(1) Effective July 1, 2009 per Resolution 2009-04.

(2) A mobile home park currently pays $11.21 per space as their monthly service charge.

(3) Commercial monthly service charges to be calculated each year in July using the prior fiscal year monthly water usage average. One CCF equals 100 cubic feet.

For this water rate study, the City provided a summary of customer account, annual water usage, and billing information from the utility billing system for residential and commercial customer classes from FY 17-18.

While there are extremes on both the low and high ends, average single family water usage currently averages about 8 CCF per month (about 200 gallons per day)[7]. Water usage

[7] One CCF equals 100 cubic feet or 748 gallons.

for multi-family and commercial accounts can vary dramatically depending on the characteristics of each account. Water usage often and generally varies with meter size.

Service connections with different meter sizes can place different demands on the water system. Much more water can be delivered through a 4" water meter than through a 1" meter. To relate the potential demands on the water system from customers with different sized water meters, it is recommended that hydraulic capacity factors be used to determine the number of equivalent meters represented by the total customer base with variable meter sizes. For purposes of rate analysis, 5/8" meters are assigned a meter equivalency factor of 1.0. The ratio of instantaneous flow capacity of the various meter sizes to the capacity of a 5/8" meter is used to determine the meter equivalencies for larger meter sizes. For example, a 2" meter has a hydraulic capacity that is 8 times that of a 5/8" meter and therefore has a capacity factor of 8.0. This capacity relationship across meter sizes is generally used to allocate capacity-related costs to various customers. As a result, customers with larger meters have a greater responsibility in bearing capacity-related costs.

WATER RATE CALCULATIONS

There are three steps to determining water rates. These are:

- Determine annual water rate revenue requirements
- Analyze the cost of providing service to each customer class
- Design water rates to recover costs from each customer class.

Water Rate Revenue Requirements

The ten-year financial plan was used to identify the annual water rate revenue required to meet financial obligations for each fiscal year of the planning period. The water rate calculations presented herein are based on the $1,834,000 annual water rate revenue needed in FY 19-20 (an overall 15 percent increase) to meet immediate ongoing operation and maintenance costs, debt service obligations, and capital program needs. The annual water rate revenue requirement for the calculation of water rates is based on the water system financial plan analyses presented in Section II of this report.

Cost of Service Analysis

Once the annual water rate revenue requirement was determined using the financial plan model, the next step in the rate setting process was to evaluate the cost of providing service. Water rate calculations contained herein are intended to generate the level of revenue commensurate with the revenue requirement from the City's water service customers. The manner in which each customer is responsible for the water utility's costs is the determining factor in the cost of service analysis.

The water utility incurs certain types of costs associated with making water service available to customers. Other costs are incurred as a direct result of customer water usage. A cost of service analysis is intended to allocate the costs of providing water service to customers in proportion to the extent that each customer causes the costs to be incurred. There are many approaches to cost of service analysis; some are more complex than others.

The approach used herein is commensurate with the available data, the distinctions currently made between various types of customers, and the requirement to fairly and reasonably reflect differences in service provisions to differently situated customers.

The cost allocation methodology used herein begins by assigning all costs to one of four categories. The cost allocation process is performed with data available in the City's budget and accounting documents. The four categories include:

- Customer costs, such as meter reading and billing, are fixed costs that tend to vary as a function of the number of customers being served. Customer costs are allocated to customers based on the number of accounts. That is, every customer will pay an equal share of customer-related costs.
- Capacity costs are also fixed costs; however, these tend to vary in relation to the capacity of the water system and the ability to serve the potential water demands of customers. Customers that can place a greater or lesser burden on the capacity of the water system should bear a greater or lesser share of these costs. The sizing of the water system is based on the potential demand that each customer could place on the water system. Capacity costs are allocated to customers based on the hydraulic capacity of the water meter. The hydraulic capacity factors are shown in Exhibit III-2 (below) and reflect the ratio of the rated flow capacity of each meter size to the rated flow capacity of a 5/8" meter. The hydraulic capacity reflects the potential demand that a customer could place on the water system at any given time. A customer with a large meter will be assigned a larger share of fixed capacity-related costs than one with a small meter. Capacity costs include costs associated with the water system's capacity including fixed water purchase costs, water system maintenance costs, debt service costs, and certain fixed operating costs.
- Commodity costs are variable costs that vary with the amount of actual water use. Volumetric water purchase costs and energy costs are two typical examples. However, with an objective to encourage water conservation, a portion of fixed costs is often included in commodity components so that more costs are recovered on the basis of usage. Even though some commodity costs are fixed, rather than variable, it is reasonable to allocate these costs to customers on the basis of usage, rather than the capacity relationship expressed by meter size. Examples of fixed costs reasonably allocated on the basis of water usage include water conservation program costs, operating supplies, contract services, and vehicle/equipment expenses. This helps to achieve the City's water conservation objectives. A significant portion of the water utility's fixed costs is recovered through water usage charges.
- Shared Costs – Any costs not allocated directly to one of the above categories ends up being assigned to the shared cost category and the reallocated across the three other categories in proportion to the distribution of costs to those categories. This indirect allocation is a common methodology for allocating more general costs such as labor costs that have not been identified by function, the City's overhead allocation cost assigned to the water utility, and contributions to the capital program. Non-rate revenues and contributions to or from financial

reserves are also allocated in an indirect manner through this shared cost approach.

Each line item in the City's water utility budget has been assigned to one of the cost allocation categories. This assignment on a line-by-line basis provides some flexibility and enables the cost allocation and rate design processes to meet proportionality requirements, as well as addressing other important rate setting objectives.

Based on estimated costs for FY 19-20 for the water utility, as presented in the financial plan, customer costs are estimated to be about 1.7 percent, capacity costs are estimated to be about 46.6 percent, and commodity costs are estimated to be about 51.7 percent of the annual water rate revenue requirement.

Water Rate Design

The third step in the rate setting process is the design of water rates to recover costs from each customer class and generate the revenue needed for the utility. The City's current water rates include fixed monthly service charges as well as a 2-tier water usage structure. Monthly service charges for residential accounts are based on the size of the meter. As an unusual feature, however, the service charges for commercial accounts are based on prior year water usage of each account. This approach makes the structure administratively cumbersome and can lead to increase revenue volatility and uncertainty for the City. It is proposed that all service charges be based on the size of the water meter, consistent with standard industry practice, and that the 2-tier usage rate structure be replaced with a uniform rate applicable to all water usage. **Exhibit III-2** presents the calculation of monthly service charges and the water usage rate for the water rates proposed for July 2019. The calculation of each of these is described below.

Service Charges

Service charges are intended to recover the customer and capacity costs identified through the cost of service analysis. Service charges apply to all customer water bills, regardless of the amount of water actually used. Customers that use no water during a billing period should still be required to pay a monthly service charge, as service is immediately available to them. In calculating service charges customer costs are allocated equally to all customers and capacity costs are allocated based on meter size in relation to the hydraulic capacity associated with the various meter sizes.

The proposed monthly service charge for a standard 5/8" water meter (typical for a single family home) is $22.52 for FY 19-20. Service charges for larger meter sizes vary from $33.24 to $537.08, depending on meter sizes ranging from 3/4" to 4". Most of these charges are higher than current service charges, but properly reflect the capacity relationship across meter sizes, as well as the revenue needs of the utility. The variation of service charges through meter sizes reflects the fact that a small portion of water system costs are directly related to the number of customers served. A majority of fixed costs are allocated on a capacity basis as reflected by the meter size. The changes to the service charges across the range of meter sizes better reflects the cost of providing service to customers of varying meter sizes.

Exhibit III-2
City of Jackson
FY 19-20 Water Rate Calculations

	Meter Size 5/8"	3/4"	1"	1 1/2"	2"	3"	4"	Total	Ann. Wtr. Use (CCF)
No. of Customer Accounts									
Residential (1)	1,957	20	59	5	18	-	3	2,062	228,300
Commercial (2)	228	3	53	32	49	-	1	366	129,700
Total Accounts	2,185	23	112	37	67	-	4	2,428	358,000
Hydr. Capacity Factor	1.0	1.5	2.5	5.0	8.0	15.0	25.0		
No. of Equiv. Mtrs.	2,185	35	280	185	536	-	100	3,321	
Monthly Service Charge Calculation									
Customer Cost	$ 1.08	$ 1.08	$ 1.08	$ 1.08	$ 1.08	$ 1.08	$ 1.08		
Capacity Cost	$ 21.44	$ 32.16	$ 53.60	$ 107.20	$ 171.52	$ 321.60	$ 536.00		
Monthly Service Charge	**$ 22.52**	**$ 33.24**	**$ 54.68**	**$ 108.28**	**$ 172.60**	**$ 322.68**	**$ 537.08**		
Annual Serv. Chrg. Rev.	$ 590,415	$ 9,174	$ 73,487	$ 48,075	$138,769	$ -	$ 25,780	**$ 885,700**	

FY 19-20 Revenue Requirement			**Water Usage Rate Calculation**	Wtr. Use (CCF)	Rate ($/CCF)	Ann. Usage Rate Rev.
Customer Costs	$ 31,400	1.7%				
Capacity Costs	$ 854,300	46.6%	Residential	228,300	**$ 2.65**	$ 604,804
Commodity Costs	$ 948,400	51.7%	Commercial	129,700	**$ 2.65**	$ 343,596
Total Ann. Rev. Reqmt.	**$ 1,834,000**		Total	358,000		**$ 948,400**

Notes:
(1) Residential includes single family, duplexes, multi-family, and mobile home park accounts.
(2) Commercial includes commercial, governmental, industrial, irrigation, and public school accounts. The data for commercial accounts reflect staff estimates of meter size reductions resulting from the proposed changes to the rate structure.

Water Usage Rates

The current water rates include a 2-tier usage rate structure for all customers. As a result of the SJC decision related to Proposition 218 and cost of service issues, it is recommended that the City eliminate the current tier structure and adopt a uniform water rate for all customers. The proposed uniform water usage rate for FY 19-20 is calculated simply by dividing the commodity costs by the estimated annual water usage, resulting in a water usage rate of $2.65 per CCF, as shown above in Exhibit III-2.

Summary

The cost of service analysis and rate design methodology used to develop the proposed water rates result in a reasonable and justifiable apportionment of the costs of providing water service to each customer. Furthermore, the proposed water rates are consistent with Proposition 218's cost of service requirements (as specified in Article XIII D, section 6(b)(1)), and the proportionality requirements (as specified in Section 6(b)(3))[8]. The rate calculations reflect consideration of other rate setting objectives within the City's discretion, but do so within the overarching cost of service and proportionality requirements. In addition, the

[8] References are to Section 6 of Article XIIID of the California Constitution (Proposition 218). The Reed Group, Inc. is not a law firm, and the City should have its legal counsel review the recommendations contained in this report.

water proposed water rate structure is a direct result of balancing multiple objectives and is supported by substantial analysis.

The proposed water rates reflect the cost of providing water service to customers. In particular, the proposed water rates reflect a proportionate distribution of costs to all customers and customer classes. In all cases, the proposed water rates better reflect the cost of providing service and will provide additional revenue essential to continuing to provide water service.

Changes in monthly service charges, particularly for commercial accounts, may create an incentive for customers to reduce the size of their water meters. City staff have identified customers that may benefit from this change and are developing procedures for meter size reductions. Staff's estimates of meter size reductions have been factored into the water rate calculations shown in Exhibit III-2.

PROPOSED 5-YEAR WATER RATE SCHEDULES

Exhibit III-3 summarizes proposed water rate schedules for rates to be effective in each July from 2019 through 2023. The later years of this multi-year rate plan reflect the annual revenue requirements from FY 20-21 through FY 23-24, based on the water system financial plan presented in Section II of this report. No rate structure changes are proposed beyond those reflected in the rates for FY 19-20.

Exhibit III-3
City of Jackson
Proposed Water Rate Schedules (1)

	July 2019	July 2020	July 2021	July 2022	July 2023
Overall Water Rate Adjust. -->	**15%**	**12%**	**9%**	**4%**	**4%**
Water Usage Rate ($/CCF)					
All Water Usage	$ 2.65	$ 2.97	$ 3.24	$ 3.37	$ 3.50
Monthly Service Charges					
5/8" x 3/4" Meter	$ 22.52	$ 25.22	$ 27.49	$ 28.59	$ 29.73
3/4" Meter	$ 33.24	$ 37.23	$ 40.58	$ 42.20	$ 43.89
1" Meter	$ 54.68	$ 61.24	$ 66.75	$ 69.42	$ 72.20
1 1/2" Meter	$ 108.28	$ 121.27	$ 132.18	$ 137.47	$ 142.97
2" Meter	$ 172.60	$ 193.31	$ 210.71	$ 219.14	$ 227.91
3" Meter	$ 322.68	$ 361.40	$ 393.93	$ 409.69	$ 426.08
4" Meter	$ 537.08	$ 601.53	$ 655.67	$ 681.90	$ 709.18

Notes:

(1) Proposed rates for July 2019 reflect a new, simplified rate structure and updated cost of service analysis. Subsequent rate schedules reflect changes in revenue needs only (i.e., no further rate structure changes). Water rates were last adjusted in 2009.

TEMPORARY WATER SHORTAGE RATE SURCHARGES

This section describes proposed temporary water shortage rate surcharges to be implemented during declared water shortages. It is based on the financial analyses presented in Section II of this report.

The proposed water rate structure for normal water supply conditions includes a uniform water usage rate applicable to all units of water sold and a fixed monthly service charge based on the size of the water meter. The multi-pronged strategy for addressing the financial deficit created by a water shortage and resulting reduced water sales includes using available Operating Reserves, implementing a temporary water shortage rate surcharge, and, in more severe stages, reducing funding for the capital program. The proposed temporary water shortage rate surcharges, shown in **Exhibit III-4**, are intended to serve the purpose of providing supplemental revenue during shortage conditions. The temporary surcharges would affect the water usage rate, but not the fixed service charges.

To help encourage water conservation and to help close the financial deficit created by a water shortage, it is recommended that the City adopt the proposed temporary water shortage rate surcharges to be implemented in the event of a potential future water shortage, as declared by the City Council. The temporary rate surcharges would be an incremental increase in the normal water usage rate and would provide additional revenue for the City's water utility. The temporary rate surcharges would be terminated as soon as the City Council declares an end to the declared shortage condition. Customers that meet water use reductions goals would have lower water bills with the water shortage surcharges than they would with normal water usage and normal water rates.

Exhibit III-4
City of Jackson
Proposed Temporary Water Shortage Rate Surcharges

	Normal Supply	Stage 1 Water Alert	Stage 2 Water Warning	Stage 3 Water Crisis	Stage 4 Water Emergency
Use Reduction Goals -->	None	Up to 20%	21% to 30%	31% to 40%	41% to 50%
Water Shortage Rate Surcharge (1)	**None**	**10%**	**15%**	**25%**	**35%**
Water Usage Rate with Surcharges Applied ($/CCF) (2)					
Normal Water Usage Rate	$ 2.65	$ 2.65	$ 2.65	$ 2.65	$ 2.65
Temp. Water Short. Surcharge	$ -	$ 0.27	$ 0.40	$ 0.66	$ 0.93
Total Water Usage Rate	$ 2.65	$ 2.92	$ 3.05	$ 3.31	$ 3.58
Monthly Service Charges (3)					
All Meter Sizes	Varies	No Change to Service Charges			

Notes:

(1) Water shortage rate surcharges are temporary incremental increases in normal water usage rates applied during water shortage conditions declared by the City Council.

(2) This exhibit shows water shortage rate surcharges applied to FY 19-20 water rates, for illustrative purposes. The percentages shown would be applied to any then-current water rates when water shortage conditions are declared by the City Council.

(3) No changes to the fixed monthly service charges would occur as a result of the water shortage conditions.

Exhibit III-4 presents the proposed normal water usage rate schedule for FY 19-20, with the shortage surcharges added to the normal usage rate in Stages 1 through 4. As an example, the proposed uniform water usage rate for FY 19-20 is $2.65 per CCF. In Stage 1, a 10 percent temporary water shortage rate surcharge would mean adding $0.27 per CCF to the normal water rate as the water shortage surcharge, bringing the total water usage rate to $2.92 per CCF.

Because the water shortage surcharges would only apply to the water usage rate, and not to the fixed monthly service charges, the proposed temporary water shortage rate surcharges would represent approximately a 4.4 percent, 6.0 percent, 8.9 percent, and 10.9 percent ***temporary*** increases in total water rate revenue in Stages 1 through 4, respectively. These are relatively modest revenue increases for dealing with significant water supply shortages. **Exhibit III-5** graphically illustrates how temporary water shortage rate surcharge revenue would affect overall water rate revenue during each stage of water shortage. The exhibit illustrates that the water shortage surcharge revenue would not fully bring total water rate revenue in line with the full cost of providing service, thus the drawdown of Operating Reserves and potentially the reduction in capital program funding would also be required – this is the multi-pronged strategy described in Section II.

Exhibit III-5
City of Jackson
Water Rate Revenues During Water Shortage Conditions

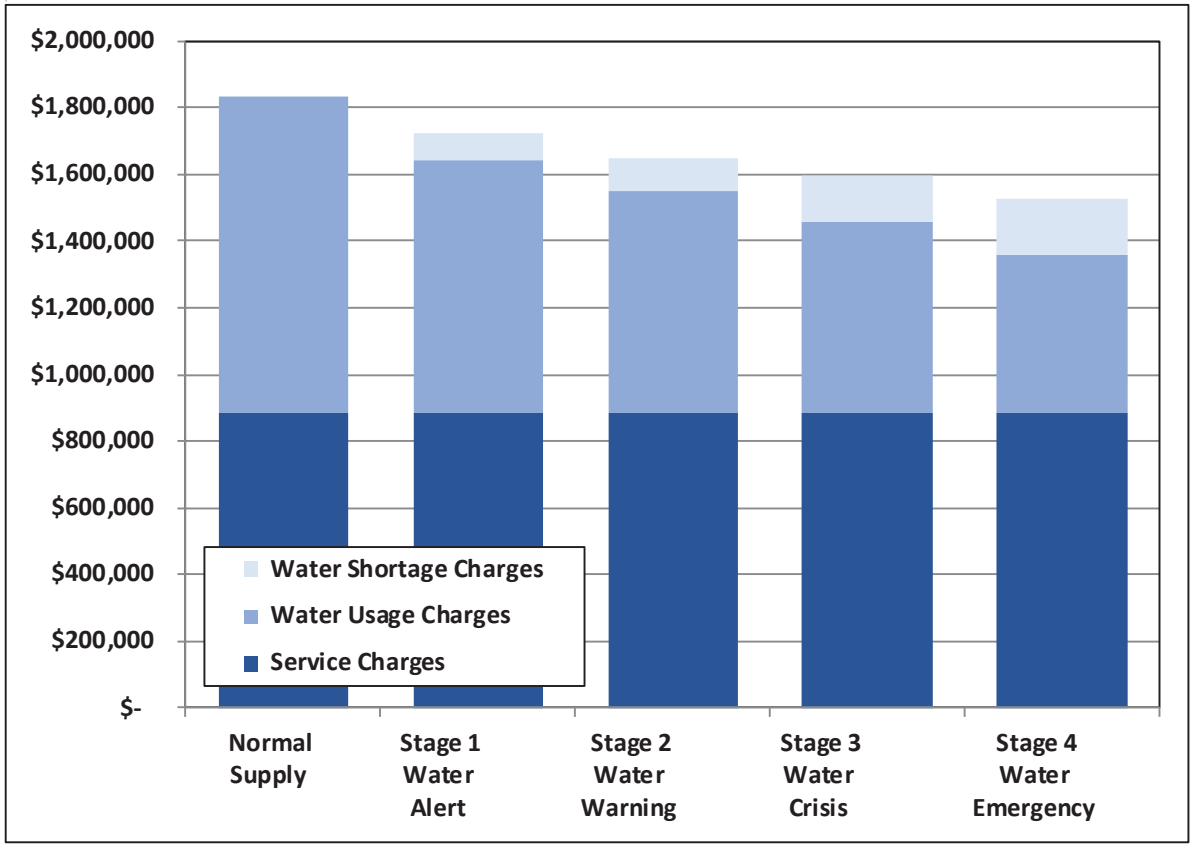

Exhibit II-8, previously presented in Section II, graphically illustrates how the proposed multi-pronged strategy would bridge the financial deficit gap created by water shortage conditions and reduced water sales.

Potential Impact of Water Shortage Surcharges on Customer Bills

To the extent possible, the water shortage rate structure has been designed such that customers meeting water use reduction goals would have lower water bills than they pay with normal usage and normal rates. Customers that do not conserve or do not meet reduction goals will have higher water bills. Because the water shortage surcharges apply to all water usage, all customers will contribute to bridging the financial gap created by water shortage in proportion to water usage. Of course, those customers that use the least amount of water, or conserve the most, will pay less through the water shortage rate surcharges. Because the water shortage rates do not affect the monthly service charges, the impact of the water shortage surcharges on the total water bill is mitigated.

Exhibit III-6 illustrates how three different single family residential customers (with a standard 5/8" water meter) would be affected by the water shortage surcharges across each of the stages of water shortage. Monthly water bills are shown for customers that, under normal conditions, use 8 CCF (typical), 6 CCF (representative of winter usage), and 15 CCF (representative of summer peak). Water bills are calculated for customers meeting the requested water use reduction goals, and customers that do not conserve at all.

Exhibit III-6 shows that customers achieving water use reduction goals will have lower water bills than they normally pay. Customers that do not conserve, or do not reach use reduction goals, will pay more than they would normally pay for normal water usage. The magnitude of the impact varies with the specific water use of the customer and the stage of water shortage.

The City recognizes that some customers, under normal conditions, use very little water and have already implemented conservation measures and practices. The City appreciates these efforts. The water shortage rate structure is not intended to penalize low water using customers that are in this situation. As an example, a customer using only 6 CCF monthly (about 150 gpd) in a Stage 2 – Water Warning would have a water bill of $40.81 of which $2.39 is from the water shortage rate surcharge. This additional amount is not punitive but represents a proportionate share of the extra costs of providing water service under water shortage conditions.

Exhbit III-6
City of Jackson
Sample Single Family Residential Water Bills with Water Shortage Surcharges in FY 19-20 (1)

Water Shortage Stage	Water Use Reduction Goal	Monthly Water Use (CCF)	Service Charge	Normal Usage Charge	Water Shortage Surcharge	Total Water Bill	% Change from Normal Bill
Typical Single Family Customer Meeting Reduction Goals							
Normal Supply	None	8.0	$ 22.52	$ 21.20	$ -	$ 43.72	
Stage 1 - Water Alert	Up to 20%	6.4	$ 22.52	$ 16.96	$ 1.70	$ 41.18	**-5.8%**
Stage 2 - Water Warning	21% to 30%	5.6	$ 22.52	$ 14.84	$ 2.23	$ 39.59	**-9.5%**
Stage 3 - Water Crisis	31% to 40%	4.8	$ 22.52	$ 12.72	$ 3.18	$ 38.42	**-12.1%**
Stage 4 - Water Emergency	41% to 50%	4.0	$ 22.52	$ 10.60	$ 3.71	$ 36.83	**-15.8%**
Typical Single Family Customer With No Water Use Reduction							
Normal Supply	None	8.0	$ 22.52	$ 21.20	$ -	$ 43.72	
Stage 1 - Water Alert	Up to 20%	8.0	$ 22.52	$ 21.20	$ 2.12	$ 45.84	**4.8%**
Stage 2 - Water Warning	21% to 30%	8.0	$ 22.52	$ 21.20	$ 3.18	$ 46.90	**7.3%**
Stage 3 - Water Crisis	31% to 40%	8.0	$ 22.52	$ 21.20	$ 5.30	$ 49.02	**12.1%**
Stage 4 - Water Emergency	41% to 50%	8.0	$ 22.52	$ 21.20	$ 7.42	$ 51.14	**17.0%**

Water Shortage Stage	Water Use Reduction Goal	Monthly Water Use (CCF)	Service Charge	Normal Usage Charge	Water Shortage Surcharge	Total Water Bill	% Change from Normal Bill
Low Water-Using Single Family Customer Meeting Reduction Goals							
Normal Supply	None	6.0	$ 22.52	$ 15.90	$ -	$ 38.42	
Stage 1 - Water Alert	Up to 20%	4.8	$ 22.52	$ 12.72	$ 1.27	$ 36.51	**-5.0%**
Stage 2 - Water Warning	21% to 30%	4.2	$ 22.52	$ 11.13	$ 1.67	$ 35.32	**-8.1%**
Stage 3 - Water Crisis	31% to 40%	3.6	$ 22.52	$ 9.54	$ 2.39	$ 34.45	**-10.3%**
Stage 4 - Water Emergency	41% to 50%	3.0	$ 22.52	$ 7.95	$ 2.78	$ 33.25	**-13.5%**
Low Water-Using Single Family Customer With No Water Use Reduction							
Normal Supply	None	6.0	$ 22.52	$ 15.90	$ -	$ 38.42	
Stage 1 - Water Alert	Up to 20%	6.0	$ 22.52	$ 15.90	$ 1.59	$ 40.01	**4.1%**
Stage 2 - Water Warning	21% to 30%	6.0	$ 22.52	$ 15.90	$ 2.39	$ 40.81	**6.2%**
Stage 3 - Water Crisis	31% to 40%	6.0	$ 22.52	$ 15.90	$ 3.98	$ 42.40	**10.3%**
Stage 4 - Water Emergency	41% to 50%	6.0	$ 22.52	$ 15.90	$ 5.57	$ 43.99	**14.5%**

Water Shortage Stage	Water Use Reduction Goal	Monthly Water Use (CCF)	Service Charge	Normal Usage Charge	Water Shortage Surcharge	Total Water Bill	% Change from Normal Bill
High Water-Using Single Family Customer Meeting Reduction Goals							
Normal Supply	None	15.0	$ 22.52	$ 39.75	$ -	$ 62.27	
Stage 1 - Water Alert	Up to 20%	12.0	$ 22.52	$ 31.80	$ 3.18	$ 57.50	**-7.7%**
Stage 2 - Water Warning	21% to 30%	10.5	$ 22.52	$ 27.83	$ 4.17	$ 54.52	**-12.4%**
Stage 3 - Water Crisis	31% to 40%	9.0	$ 22.52	$ 23.85	$ 5.96	$ 52.33	**-16.0%**
Stage 4 - Water Emergency	41% to 50%	7.5	$ 22.52	$ 19.88	$ 6.96	$ 49.35	**-20.7%**
High Water-Using Single Family Customer With No Water Use Reduction							
Normal Supply	None	15.0	$ 22.52	$ 39.75	$ -	$ 62.27	
Stage 1 - Water Alert	Up to 20%	15.0	$ 22.52	$ 39.75	$ 3.98	$ 66.25	**6.4%**
Stage 2 - Water Warning	21% to 30%	15.0	$ 22.52	$ 39.75	$ 5.96	$ 68.23	**9.6%**
Stage 3 - Water Crisis	31% to 40%	15.0	$ 22.52	$ 39.75	$ 9.94	$ 72.21	**16.0%**
Stage 4 - Water Emergency	41% to 50%	15.0	$ 22.52	$ 39.75	$ 13.91	$ 76.18	**22.3%**

Notes:
(1) Based on a single family residential account with a 5/8" meter.