

CITY OF UKIAH

Water Rate Study

Final Report

February 23, 2016



THE REED GROUP, INC.

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SECTION I. EXECUTIVE SUMMARY

INTRODUCTION AND BACKGROUND

The City of Ukiah retained The Reed Group, Inc. to develop a ten-year water system financial plan and to update water rates for the City's water utility. The purpose of the study was to 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. The last adjustment to the water rates occurred in July 2014.

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

- Review financial goals and policy objectives
- Review the current budget, debt obligations, and capital improvement plans
- Prepare a ten-year financial plan and determine annual water rate revenue requirements for the water utility
- Review the current water rate structure and recommend changes consistent with rate setting objectives
- Develop water rate recommendations that meet the legal requirements for cost of service
- Present preliminary recommendations to the City Council to review the assumptions and conclusions from the financial plan and rate analyses
- Prepare a water rate study report (this report) to document 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
- Present final water rate recommendations during a public hearing.

The purpose of this report is to describe the analyses performed, present the financial plan for the water utility, and summarize findings and recommendations regarding the water rates.

FINANCIAL PLAN AND REVENUE NEEDS

The City's water rates were last increased in July 2014 in the last of a series of annual rate adjustments spanning five years. In general, financial objectives have been met. However, at present the City and the State are in the midst of a multi-year drought, which has reduced water sales and related revenue. While the financial condition of the water utility is not critical, capital improvement needs are not being fully or adequately funded.

While the City's water utility continues to provide reliable water service to its customers, the current financial situation limits its ability to implement needed capital

replacement, rehabilitation, and upgrade projects. The capital improvement plan for the water utility totals about \$22.9 million (in current dollars) in new projects over the planning period (through FY 23-24). However, about \$15.2 million of this amount is scheduled for the next five years. Current revenues do not fully support this level of capital program activity, and currently available reserves will be significantly depleted as these projects are completed.

It is recommended that the City continue its practice with modest annual water rate increases. Beginning in June 2016, it is recommended that the City increase water rate revenues by 3 percent followed by four years with a 3 percent annual water rate increase each January. These increases will help ensure financial stability during the current drought and subsequent recovery, maintain adequate revenues for operating and maintenance costs, as well as debt service, and provide additional funding for the capital improvement program.

The 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 rate update study every 3 to 5 years, unless otherwise needed sooner. The financial analysis presented in this report indicates that the revenues generated by the water rates would not exceed the cost of providing service, including maintaining prudent reserves for specified purposes.

Details of financial plan analyses and the recommendation to annually adjust the water rates to keep pace with change in costs are presented in Section II of this report.

PROPOSED WATER RATE SCHEDULE

Exhibit I-1 presents the proposed water rate schedules for the next five years, based on a public hearing in March 2016¹. The water rates presented in this report include minor rate structure changes to better align the water rates with the cost of providing service. The water rate structure includes:

- Maintaining a uniform water usage rate structure for all customer classes
- Adjustments to the monthly service charges to better align the allocation of customer costs across all customer accounts, as well as to reflect the allocation of capacity costs in relation to the capacity provided across meter sizes.

The rate restructuring is proposed to occur with the 3 percent overall water rate revenue increase, to be effective in June 2016. Because of the rate restructuring some water bills will increase more than 3 percent and others less than three percent. Typical single family water bills may increase about 4.5 percent as a result of the cost of service analysis. Details of the cost of service analysis and water rate recommendations are presented in Section III of this report.

¹ Proposition 218 requires a Notice of Public Hearing be mailed to all affected property owners and customers of the proposed changes to water rates. Therefore, notices will need to be mailed out in early March to accommodate a rate hearing in late April.

**Exhibit I-1
City of Ukiah
Current and Proposed Water Rates**

	Current (1)	June 2016	January 2017	January 2018	January 2019	January 2020
Water Usage Rate (\$/CCF)						
All Water Usage	\$ 2.73	\$ 2.86	\$ 2.95	\$ 3.04	\$ 3.13	\$ 3.22
Monthly Service Charge						
3/4" meter	\$ 32.25	\$ 33.63	\$ 34.64	\$ 35.68	\$ 36.75	\$ 37.85
1" meter	\$ 54.81	\$ 54.00	\$ 55.62	\$ 57.29	\$ 59.01	\$ 60.78
1 1/2" meter	\$ 106.40	\$ 104.47	\$ 107.60	\$ 110.83	\$ 114.15	\$ 117.57
2" meter	\$ 170.88	\$ 165.27	\$ 170.23	\$ 175.34	\$ 180.60	\$ 186.02
3" meter	\$ 322.41	\$ 307.24	\$ 316.46	\$ 325.95	\$ 335.73	\$ 345.80
4" meter	\$ 538.45	\$ 510.02	\$ 525.32	\$ 541.08	\$ 557.31	\$ 574.03
6" meter	\$ 1,073.66	\$ 1,016.50	\$ 1,047.00	\$ 1,078.41	\$ 1,110.76	\$1,144.08
Monthly Fire Service Charges						
Up to 2" meter	\$ 34.18	\$ 36.07	\$ 37.15	\$ 38.26	\$ 39.41	\$ 40.59
3" meter	\$ 64.48	\$ 64.84	\$ 66.79	\$ 68.79	\$ 70.85	\$ 72.98
4" meter	\$ 107.69	\$ 105.93	\$ 109.11	\$ 112.38	\$ 115.75	\$ 119.22
6" meter	\$ 214.72	\$ 208.56	\$ 214.82	\$ 221.26	\$ 227.90	\$ 234.74
8" meter	\$ 214.72	\$ 331.77	\$ 341.72	\$ 351.97	\$ 362.53	\$ 373.41

Notes:

(1) Effective July 1, 2014.

Comparison of Proposed Water Rates with Neighboring Communities

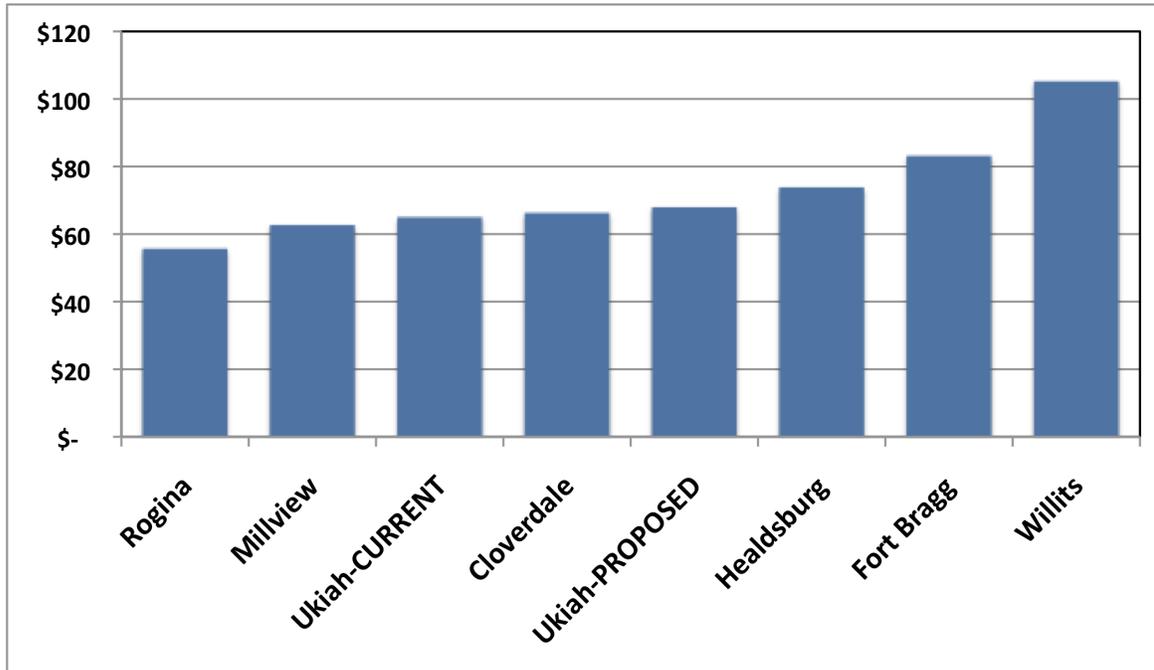
A typical monthly water bill for residential customers in Ukiah can be compared with the water bills for the same water usage in neighboring communities. The typical water bill for a single family customer in Ukiah is compared with water bills based on current water rates of neighboring communities in **Exhibit I-2**. The comparison assumes a standard meter size (3/4" in Ukiah) and monthly water use of 12 CCF. The water rates for each community reflect the specific factors affecting water service in their service area, including source(s) of water supply, age and condition of infrastructure, regulatory requirements, and policy decisions.

Most of the neighboring communities also have uniform water rates for their single family customers. Some of the neighboring communities in Exhibit I-2 have either adopted procedures for automatically adjusting water rates on an annual basis, or have adopted specific multi-year rate schedules with specific annual rate adjustments. In addition, some communities are currently preparing for their own rate update studies.

WATER SHORTAGE FINANCIAL ANALYSIS AND WATER SHORTAGE SURCHARGES

This water rate study also included an analysis of the financial impacts associated with drought and reduced water sales. As drought conditions worsened in 2015, the Governor declared a statewide water emergency and ordered urban water agencies to reduce water use by 25 percent. In implementing the Governor's Executive Order, the SWRCB has required the City of Ukiah to reduce water use by 20 over 2013 levels. The City, like other communities in the state, has responded by requiring customers to reduce water usage and implementing restrictions on water use.

**Exhibit I-2
City of Ukiah -- Water Utility
Comparison of Typical Single Family Water Bills with Neighboring Communities**



Because of the current and continuing drought conditions, this water rate study includes a separate analysis of the financial implications of the sustained reduced water sales that coincides with water shortage conditions. The financial analysis includes the development of water shortage rates surcharges that could be implemented during periods of mandatory water use reductions and prohibitions as declared by the City.

Water shortage conditions can result in (1) reduced water sales, (2) reduced water supply purchase and pumping costs, and (3) increased water conservation education and assistance costs. The net effect of these impacts is to create a financial deficit during periods of water shortage (i.e., revenue will decline more than the decline in expenses).

To counter the financial impact of water shortage, a three-prong strategy is proposed that includes (1) utilizing a portion of available Rate Stabilization Reserves to offset a portion of the financial deficit created by reduced water sales, (2) adopting and implementing water shortage rate surcharges to generate additional revenue, and (3) in the most severe shortages reducing the annual contribution to the capital replacement fund for capital projects. This strategy, including the water shortage rate surcharges, should be incorporated into the City's water shortage contingency plans.

Article 11 of Chapter 1 in Division 4 of the Ukiah Municipal Code contains the City's water shortage emergency policies. The Code defines three stages of water shortage, beyond normal water supply conditions, which include various water use restrictions. The stages, however, are not tied to specific water use reduction goals.

Proposed temporary water shortage rate surcharges would be implemented whenever the City Council declares a water shortage emergency, and would be tied to water use reduction goals (or mandates). Water shortage rate surcharges would be applied to the uniform water rates (but not to monthly service charges). The temporary surcharges would mean that all customers would bear a proportionate share of the financial burden created by water shortage. The water shortage rate surcharges have been designed such that customers meeting water use reduction goals will have lower water bills than their normal water bills. Customers that do not meet water use reduction goals may have higher water bills.

Exhibit I-3 presents the proposed temporary water shortage rate surcharges, expressed as a percentage increase to the normal water usage rate. The amount of increase depends on the water use reduction goal. It is expressed as a percentage so that it can be applied to any future water usage rate schedule. The specific rates shown in Exhibit I-3 are an application of the water shortage surcharges to the proposed water rates for June 2016. As an example, with a water use reduction goal of 25 percent, a 15 percent water shortage rate surcharge would temporarily increase the water usage rate from \$2.86 per CCF to \$3.29 per CCF (a surcharge of \$0.43 per CCF). Monthly service charges would be unaffected.

The temporary water shortage rate surcharges will need to be adopted through a Proposition 218 notice and public hearing process. It is recommended that the water shortage rate surcharges be adopted with the other water rates proposed by the study. The water shortage rate surcharges could then be implemented during the current or any future declared water shortage. Details of the water shortage financial analysis are presented in Section II of this report, and proposed water shortage surcharges are presented in Section III of this report.

Exhibit I-3
City of Ukiah
Proposed Water Shortage Rate Surcharges Applied to Water Rates for June 2016 (1)

	Normal Supply (1)	Minor Shortage	Moderate Shortage	Critical Shortage	Health & Safety Per Capita Limit
Use Reduction Goal -->	None	10% to 20%	20% to 35%	35% to 50%	> 50%
Wtr. Short. Surch. (2) -->	None	None	15%	25%	35%
Water Usage Rate (\$/CCF)					
All Water Usage	\$ 2.86	\$ 2.86	\$ 3.29	\$ 3.58	\$ 3.86
Monthly Service Charge	No changes to service charges during shortages				
3/4" meter	\$ 33.63	\$ 33.63	\$ 33.63	\$ 33.63	\$ 33.63
1" meter	\$ 54.00	\$ 54.00	\$ 54.00	\$ 54.00	\$ 54.00
1 1/2" meter	\$ 104.47	\$ 104.47	\$ 104.47	\$ 104.47	\$ 104.47
2" meter	\$ 165.27	\$ 165.27	\$ 165.27	\$ 165.27	\$ 165.27
3" meter	\$ 307.24	\$ 307.24	\$ 307.24	\$ 307.24	\$ 307.24
4" meter	\$ 510.02	\$ 510.02	\$ 510.02	\$ 510.02	\$ 510.02
6" meter	\$ 1,016.50	\$ 1,016.50	\$ 1,016.50	\$ 1,016.50	\$ 1,016.50

Notes:

- (1) The water shortage rate surcharge percentages are shown applied to proposed water rates for June 2016 for illustrative purposes. The percentages would be applied to any then-current water usage rates when implemented by declaration of a water shortage.
- (2) The water shortage rate surcharge would be an incremental (percentage) increase in the water usage rates, but would not be applied to monthly service charges.

SECTION II. WATER FINANCIAL 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.

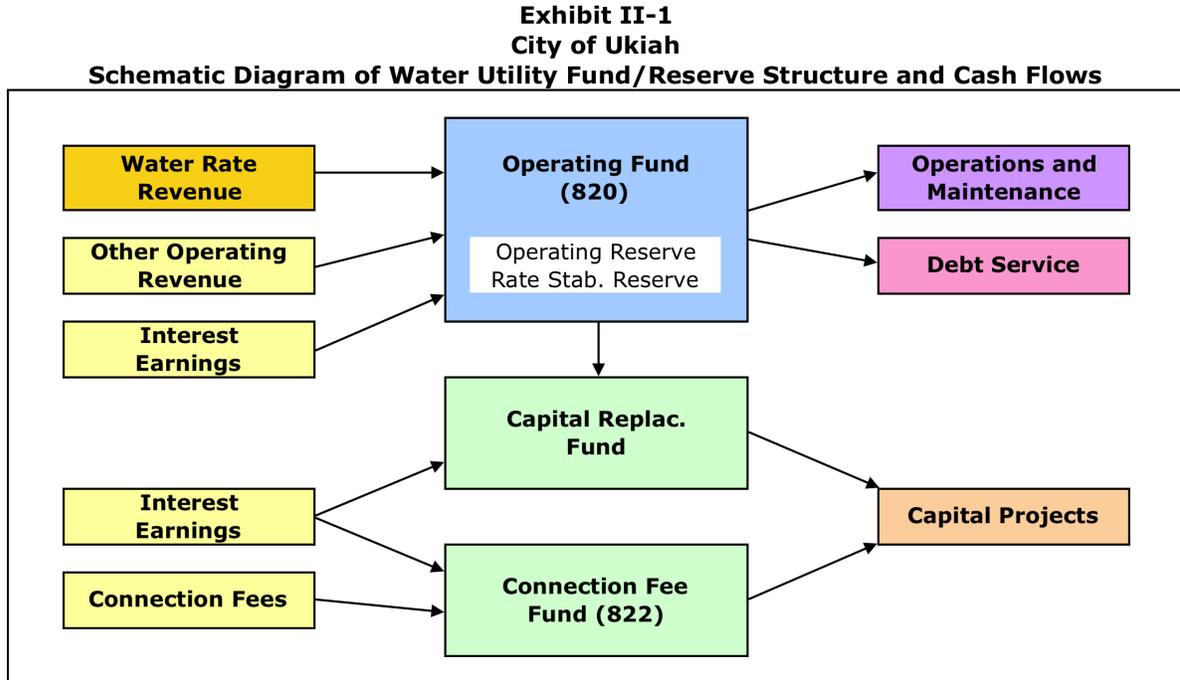
FUND STRUCTURE AND CASH FLOWS

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 based on a fund and reserve structure generally used by the City, although it incorporates new reserves to the existing structure for specified purposes. This structure was discussed with staff and the City Council, with general concurrence that it would provide 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 being addressed. The proposed reserve structure includes an Operating Reserve and a Rate Stabilization Reserve within the Operating Fund, as well as a Capital Replacement Fund (new) separate from the Operating Fund for the purpose of meeting capital program needs, and the Connection Fee Fund that is currently used to account for connection fee revenues and expenditures. **Exhibit II-1** is a schematic diagram of the funds/reserves and major cash flows associated with the financial plan model.

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:

- **Operating Fund** – The Operating Fund is the primary fund within the water utility. Most of the water system's revenues, including water 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 Replacement Fund to help pay for capital projects intended to rehabilitate and upgrade facilities.
 - *Operating Reserve* – The City maintains an Operating Reserve equal to 25 percent of annual operating and maintenance costs, including debt service, for the water system. The purpose of the Operating Reserve is to provide working capital and funds for unplanned operating and maintenance expenditures. The current balance in the Operating Fund is sufficient to fully fund this reserve, and it remains fully funded for the entire planning period.



- *Rate Stabilization Reserve* - The City maintains a Rate Stabilization Reserve within the Operating Fund for drought or other emergency purposes. A previous water rate study recommended that the City fund the Rate Stabilization Reserve at an amount equal to 50 percent of annual operating and maintenance costs, excluding debt service. The current balance in the Operating Fund is sufficient to fully fund this reserve at the present time.
- *Available Balance* - The balance in the Operating Fund in excess of the target amounts for the Operating Reserve and the Rate Stabilization Reserve 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 Fund Balance would indicate shortfalls in maintaining the minimum Operating Reserve and/or Rate Stabilization Reserve.
- *Capital Replacement Fund* - The Capital Replacement Fund is recommended as a new fund to be used to account for revenues and funds available for capital projects intended to rehabilitate, upgrade, and expand the water system to meet current and future needs of the water utility. The financial plan model generally seeks to maintain a positive balance in the Capital Replacement Fund while also covering the costs of planned capital improvement projects.
- *Water Connection Fee Fund* - The Water Connection Fee Fund is used to account for connection fee revenue, as well as the expenditure of connection fee revenue on capital projects intended to provide additional capacity in order to serve new development. This fund is also used to satisfy the statutory requirements for the accounting of connection fee revenue. At present, the

Connection Fee Fund has a negative cash balance. For purposes of financial plan analysis, a portion of the current balance in the Operating Fund is transferred to the Connection Fee Fund to eliminate this negative balance in FY 15-16. Having a negative balance in one place makes a positive balance elsewhere artificially high, which can lead to false conclusions regarding the utility's financial condition.

FINANCIAL PLAN ASSUMPTIONS

The financial plan reflects FY 14-15 actual results and the FY 15-16 budget, as well as 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.

The financial plan is based on the best available information and its assumptions are believed to be reasonable; however, no assurance can be provided as to the accuracy and completeness of future estimates. The proposed annual adjustments help protect the City and ratepayers from some of the uncertainty associated with financial plan assumptions. Primary assumptions reflected in financial plan analyses are described below, with additional information presented in **Exhibit II-2**:

- *Interest Rates* – Interest earned on fund/reserve balances is estimated to be 0.25 percent per year in FY 15-16, 0.50 percent in FY 16-17 and FY 17-18, 0.75 percent in FY 18-19 and FY 19-20, 1.0 percent in FY 20-21 and FY 21-22, and then 1.25 percent per year for the remainder of the planning period. Interest calculations are based on beginning-of-year balances. These interest rates reflect the current return from the Local Agency Investment Fund (LAIF), which is currently 0.32 percent, as well as a gradual return towards historical averages. 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.
- *Inflation Rates* – The financial plan analyses include general inflation at 3.0 percent per year applied to all operating and maintenance costs on an aggregate basis and construction inflation also at 3.0 percent per year. General inflation is currently below 1.0 percent, as reported by the Bureau of Labor Statistics for the San Francisco-Oakland-San Jose area. Construction inflation, as indicated by the *Engineering News Record's* 20-Cities Construction Cost Index has increased about 3.0 percent per year for the past five years. Each of these inflation assumptions has been reviewed with City staff and is reasonable for financial planning purposes.
- *Growth Projections* – The financial plans assume that the customer base (number of active service connections) will grow by 0.5 percent per year throughout the planning period. The estimate is believed to be reasonable for financial planning purposes and has been reviewed with City staff.

**Exhibit II-2
City of Ukiah
Financial Plan Assumptions**

	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
Financial Assumptions											
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		0.25%	0.25%	0.5%	0.5%	0.75%	0.75%	1.0%	1.0%	1.25%	1.25%
Customer Base and Water Usage											
No. of Accounts	4,864	4,889	4,913	4,938	4,963	4,988	5,013	5,038	5,063	5,088	5,113
No. of 3/4" Equiv. Mtr.	6,501	6,533	6,557	6,582	6,607	6,632	6,657	6,682	6,707	6,732	6,757
Customer Growth Rate		0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Water Use Factor		-18%	-0.5%	6.0%	6.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Ann. Water Sales (CCF)	1,212,000	996,000	996,000	1,061,000	1,130,000	1,170,000	1,176,000	1,182,000	1,188,000	1,194,000	1,200,000
Annual Water Sales (AF)	2,782	2,287	2,287	2,436	2,594	2,686	2,700	2,713	2,727	2,741	2,755
Water Sales Growth Rate	-0.3%	-17.8%	0.0%	6.5%	6.5%	3.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Water Production											
Water Production (AF)	3,308	2,598	2,541	2,677	2,851	2,952	2,967	2,982	2,997	3,012	3,027
System Losses	-16%	-12%	-10%	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%
Water Connection Fees											
Conn. Fee (1" meter)	\$ 1,597	\$ 1,597	\$ 1,645	\$ 1,694	\$ 1,745	\$ 1,797	\$ 1,851	\$ 1,907	\$ 1,964	\$ 2,023	\$ 2,084
Conn. Fee Revenue	\$ 39,900	\$ 39,900	\$ 39,500	\$ 42,400	\$ 43,600	\$ 44,900	\$ 46,300	\$ 47,700	\$ 49,100	\$ 50,600	\$ 52,100

- *Customer Demand* – Due to the continuing drought, and State-mandated water conservation in 2015, customer water demand is assumed to be 20 percent below 2013 (consistent with the State’s mandate), and then to rebound from the current drought levels over a three-year period based on the removal of restrictions on water use. While a return to normal water supplies is reflected in the financial plan analysis, continuation of the drought could result in sustained reduced customer water demands. The assumption used is believed reasonable for financial planning purposes.
- *Operation and Maintenance Costs* – The financial plan model is based on current operating and maintenance costs as reflected in the FY 15-16 operating budget, with future estimates based on the inflation and growth assumptions described above. Assumptions were reviewed with City staff.
- *Capital Improvement Program* – The water utility’s capital improvement plan, as developed by staff, includes multiple projects totaling about \$22.9 million (in current dollars) over a ten-year period to be funded by the water utility. However, about \$15.2 million of this amount is planned for the next five years. The financial plan assumes that capital projects will be funded from user rates, connection fees, and available reserves. No new long-term debt is included in the financial plan analysis. The capital improvement plan reflected in the financial plan is presented in **Exhibit II-3**.
- *Debt Obligations* – Existing water system long-term debt obligations are summarized in **Exhibit II-4**. The water utility currently pays about \$1,050,000 annually on debt service related to debt issues in 1992 and 2005. One of the requirements associated with bond financing is to maintain rates and other water system revenues at levels sufficient to meet debt service coverage requirements. At present, the City is required to maintain water system revenues at a level that covers all ongoing operating and maintenance costs, as well as 1.20 times annual debt service. The water utility also had an outstanding internal loan, which the utility repaid in FY 14-15.

Exhibit II-5 provides the details of the financial plan model of the City’s water utility. It illustrates how 3 percent annual water rate increases would provide the financial capacity for the water utility to continue to meet financial and service obligations, including meeting debt service obligations and adequately supporting the planned capital improvement program. **Exhibit II-6** graphically summarizes the annual revenues, expenses, and year-end Operating Fund and reserve balances through the planning period.

**Exhibit II-3
City of Ukiah
Water Utility Capital Improvement Plan**

Capital Project	Proj. No.	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
Advanced Water Treatment Rehab.	PWW03				250,000						
Additional 1.0 MG of Storage	PWW04					500,000	500,000				
Additional Pipeline Improvements	PWW05	500,000	450,000	700,000				750,000	750,000		
Develop New Well #4	PWW07	500,000	1,400,000								
Expand SCADA Sys to Wells & Bstr Pumps	PWW08				200,000						
Impl. CUWCC & UWMP DMMs 1, 2, 14	PWW10	45,000	45,000	45,000							
Replace and Upgrade Water Meters	PWW14			1,000,000	1,000,000	1,250,000	1,250,000				
Replace 100,000 Gal. PZ2 Reservoir	PWW15		300,000								
Seismic Retrofit of PZ1 Reservoir	PWW16			400,000	400,000						
Millview/Ukiah Intertie (1)	PWW22		125,000								
Willows/Ukiah Intertie (1)	PWW23		125,000								
Well #9	PWW24		2,000,000								
Unspecified Projects	PWW25				100,000	150,000	150,000	500,000	800,000	1,500,000	1,500,000
Connect Chlorine at WTP	PWW26		200,000								
Two Vactor Trucks	PWW27	200,000	200,000								
Water Truck	PWW28		30,000								
Valve Turner	PWW29	60,000									
Service Truck at WTP	PWW30	25,000									
Well #10	PWW31			500,000							
Well #11	PWW32				500,000	1,000,000					
Totals (Current dollars)		1,330,000	4,875,000	2,645,000	3,450,000	2,900,000	1,900,000	1,250,000	1,550,000	1,500,000	1,500,000
Totals (Inflated dollars)		1,330,000	4,875,000	2,724,000	3,660,000	3,169,000	2,138,000	1,449,000	1,851,000	1,845,000	1,900,000

Notes:
(1) Amount shown is the entire cost for each intertie project. Project will be funded 50% from a grant, with the balance split between Ukiah and Millview/Willows.

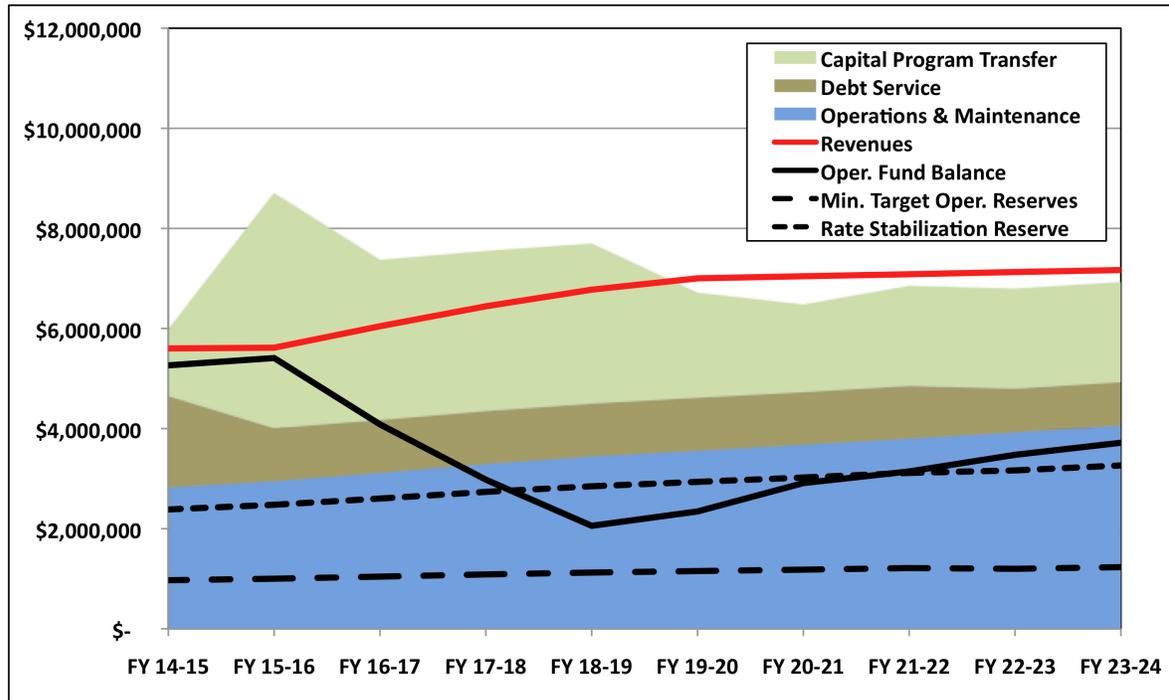
**Exhibit II-4
City of Ukiah
Summary of Water Utility Debt Service**

	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
1992 DWR Loan											
Principal Payment	133,157	137,997	143,014	148,212	153,600	159,183	164,969	170,964	177,955		
Interest Payment	48,855	44,015	38,999	33,801	28,414	22,831	17,045	11,048	4,834		
Total Payment	182,012	182,012	182,013	182,013	182,014	182,014	182,014	182,012	182,789		
Outstanding Balance	1,255,894	1,117,897	974,883	826,671	673,071	513,888	348,919	177,955	-		
2005 ABAG Revenue Bonds											
Principal Payment	335,000	350,000	360,000	375,000	390,000	405,000	425,000	435,000	455,000	475,000	495,000
Interest Payment	538,422	524,547	509,992	494,925	479,243	462,945	445,930	428,083	409,279	389,516	368,904
Total Payment	873,422	874,547	869,992	869,925	869,243	867,945	870,930	863,083	864,279	864,516	863,904
Outstanding Balance	12,195,000	11,845,000	11,485,000	11,110,000	10,720,000	10,315,000	9,890,000	9,455,000	9,000,000	8,525,000	8,030,000
Internal Loan											
Principal Payment	-	745,000									
Interest Payment	18,625	18,625									
Total Payment	18,625	763,625									
Outstanding Balance	745,000	-									

**Exhibit II-5
City of Ukiah
Water Utility Financial Plan**

	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
	Rate Adjustments -->		3%	3%	3%	3%	3%	0%	0%	0%	0%
	January	January	January	January	January	January	January	January	January	January	January
WATER OPERATING FUND (820)											
Beginning Balance	3,323,135	5,640,270	9,914,766	5,410,500	4,084,800	2,980,300	2,058,100	2,344,700	2,912,100	3,144,400	3,476,600
Revenues											
Water Service Charges	5,646,505	5,244,134	5,264,000	5,684,000	6,078,000	6,397,000	6,620,000	6,653,000	6,686,000	6,719,000	6,753,000
Fire Service Charges	288,867	290,886	298,897	305,000	315,000	325,000	335,000	335,000	335,000	335,000	335,000
Miscellaneous Revenue	57,493	21,235	28,671	29,500	30,400	31,300	32,200	33,200	34,200	35,200	36,300
Interest Earnings	67,464	45,815	24,800	27,100	20,400	22,400	15,400	23,400	29,100	39,300	43,500
Total Revenues	6,060,329	5,602,070	5,616,368	6,045,600	6,443,800	6,775,700	7,002,600	7,044,600	7,084,300	7,128,500	7,167,800
Expenses											
City Administration	460,391	340,950	541,671	557,900	574,600	591,800	609,600	627,900	646,700	666,100	686,100
PW Administration	415,183	630,813	573,512	590,700	608,400	626,700	645,500	664,900	684,800	705,300	726,500
Production	964,780	1,051,539	1,091,213	1,197,300	1,313,400	1,400,700	1,450,100	1,501,200	1,554,100	1,608,800	1,665,400
Meter Reading	95,367	95,666	-	-	-	-	-	-	-	-	-
Distribution	661,268	709,188	747,228	773,500	800,700	828,800	857,900	888,100	919,300	951,600	985,000
Fixed Assets	72,146	-	-	-	-	-	-	-	-	-	-
Debt Service	-	-	-	-	-	-	-	-	-	-	-
Internal Loan	18,625	763,625	-	-	-	-	-	-	-	-	-
1992 DWR Loan	182,012	182,012	182,000	182,000	182,000	182,000	182,000	182,000	182,800	-	-
2005 ABAG Rev. Bond	873,422	874,547	870,000	869,900	869,200	867,900	870,900	863,100	864,300	864,500	863,900
Transfer to Capital Reserve	1,330,000	1,330,000	4,700,000	3,200,000	3,200,000	3,200,000	2,100,000	1,750,000	2,000,000	2,000,000	2,000,000
Transfer to Conn. Fee Fund	1,415,000	1,415,000	-	-	-	-	-	-	-	-	-
Total Expenses	3,743,194	5,978,340	10,120,624	7,371,300	7,548,300	7,697,900	6,716,000	6,477,200	6,852,000	6,796,300	6,926,900
Ending Balance	5,640,270	5,264,000	5,410,500	4,084,800	2,980,300	2,058,100	2,344,700	2,912,100	3,144,400	3,476,600	3,717,500
Operating Reserve (25%)	931,000	971,000	1,001,000	1,043,000	1,087,000	1,124,000	1,154,000	1,182,000	1,213,000	1,199,000	1,232,000
Rate Stab. Reserve (50%)	1,335,000	1,414,000	1,470,000	1,550,000	1,640,000	1,730,000	1,730,000	1,730,000	1,900,000	1,960,000	2,030,000
Available Balance	3,374,270	2,879,000	2,939,500	1,491,800	253,300	4,100	700	100	31,400	317,600	455,500
DS Coverage (1.20 min.)	3.16	1.54	2.57	2.82	3.04	3.21	3.31	3.27	3.18	3.77	3.67
CAPITAL REPLACEMENT FUND (8xx)											
Beginning Balance	-	-	-	4.08	2.98	2.26	2.65	2.97	3.20	3.53	3.53
Revenues											
Transfer from Operations	1,330,000	4,700,000	4,700,000	3,200,000	3,200,000	3,200,000	2,100,000	1,750,000	2,000,000	2,000,000	2,000,000
Grant Proceeds (Interties)	125,000	125,000	125,000	-	-	-	-	-	-	-	-
Millview/Willows Cost Share	62,500	62,500	62,500	100	2,400	200	500	200	3,300	6,000	8,000
Interest Earnings	-	-	-	-	-	-	-	-	-	-	-
Total Revenues	1,330,000	4,887,500	4,887,500	3,200,100	3,202,400	3,200,200	2,100,500	1,750,200	2,003,300	2,006,000	2,008,000
Expenses											
Capital Projects	1,330,000	4,875,000	4,875,000	2,724,000	3,660,000	3,169,000	2,138,000	1,449,000	1,851,000	1,845,000	1,900,000
Total Expenses	1,330,000	4,875,000	4,875,000	2,724,000	3,660,000	3,169,000	2,138,000	1,449,000	1,851,000	1,845,000	1,900,000
Ending Balance	-	12,500	488,600	31,000	62,200	62,200	24,700	325,900	478,200	639,200	747,200
WATER CONNECTION FEE FUND (822)											
Beginning Balance	(530,195)	(1,449,222)	(1,412,922)	38,078	80,678	124,678	170,478	218,078	267,978	319,778	374,378
Revenues											
Transfer from Operations	6,338	39,900	1,415,000	42,400	43,600	44,900	46,300	47,700	49,100	50,600	52,100
Connection Fees	(2,420)	(3,600)	(3,500)	200	400	900	1,300	2,200	2,700	4,000	4,700
Interest Earnings	3,918	36,300	1,451,000	42,600	44,000	45,800	47,600	49,900	51,800	54,600	56,800
Total Revenues	228,228	228,228	228,228	228,228	228,228	228,228	228,228	228,228	228,228	228,228	228,228
Expenses											
Constr. Serv. & Infrastr.	228,228	228,228	228,228	228,228	228,228	228,228	228,228	228,228	228,228	228,228	228,228
Total Expenses	228,228	228,228	228,228	228,228	228,228	228,228	228,228	228,228	228,228	228,228	228,228
Ending Balance	(754,505)	(1,412,922)	38,078	80,678	124,678	170,478	218,078	267,978	319,778	374,378	431,178

**Exhibit II-6
City of Ukiah
Water Utility Financial Plan Summary**



FINANCIAL PLAN FINDINGS AND CONCLUSIONS

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

- Sufficient cash in the Operating Fund to fully maintain the Operation Reserve and Rate Stabilization Fund, as recommended,
- Current annual water utility revenues of about \$5.3 million, and
- Current annual operating and maintenance costs, including debt service obligations totaling about \$4.0 million,
- Planned water system capital improvements in FY 15-16 totaling about \$4.9 million,
- Estimated debt service coverage in FY 14-15 of 1.54 (the minimum required is 1.20).²

² Debt service coverage is calculated as net revenues (defined as gross revenues minus annual operating and maintenance expenses) divided by annual debt service. Existing debt covenants require that debt service coverage exceed 1.20.

An increase in water rates is needed in order to: (1) offset the effects of reduced water sales that has resulted from drought conditions, (2) continue to cover ongoing operating and maintenance costs and meet debt service obligations, (3) provide adequate funding for planned water system improvements, and (4) maintain prudent financial reserves consistent with current policy objectives.

It is recommended that the City increase the overall level of water rates by 3 percent in June 2016 and then 3 percent per year in January for the next four years. These increases will allow the City to meet its service and financial obligations, including completing the planned capital improvement program. Any lower rate increase could result in the water utility not meeting one or more of its financial objectives. The water rate revenue estimates reflected in the financial plan shown in Exhibit II-5 incorporate estimates for these annual water rate adjustments.

As indicated previously, the ten-year capital improvement program is front-loaded with about two-thirds of project expenditures occurring in the first five years. Even with the proposed water rate increases, the financial plan analysis indicates that the Rate Stabilization Reserve will be partially utilized in the next few years in order to complete the planned capital improvement program without issuing new debt. However, once the near-term concentration of capital projects is complete the revenues will exceed expenses, allowing the Rate Stabilization Reserve to return to the target level. Using the Rate Stabilization Reserve to help fund the capital program is exactly what it is intended for. Using the Rate Stabilization Reserve enables the City to maintain uniform water rate increases through most of the planning period.

The 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

This water rate study also included an analysis of the financial impacts associated with drought and reduced water sales. Coming on the heel of a very dry year in 2013, the continuation of dry conditions in 2014 led the Governor to request a 20 percent reduction in water use throughout California. The State Water Resources Control Board (SWRCB) then adopted emergency regulations requiring all urban water suppliers to enforce programs that reduce outdoor water usage. With drought conditions worsening in 2015, the Governor declared a statewide water emergency and ordered urban water agencies to reduce water use by 25 percent. In implementing the Governor's Executive Order, the SWRCB required the City of Ukiah to reduce water use by 20 over 2013 levels. The City, like other communities in the state, has responded by requiring customers to reduce water usage and implemented restrictions on water use.

The City's water utility can be affected in several ways by drought conditions. Changes in operating and maintenance costs and revenues can include:

- Reduced water sales and water sales revenue

- Reduced water purchases and water purchase costs
- Increased groundwater production and production costs
- Increased water conservation program costs.

While the reduction in water sales revenue will be partially offset by the reduction in water purchase and production costs, revenue will decline more than costs creating a financial deficit. Increased water conservation program costs, including education and assistance programs, add to the financial deficit created by water shortage.

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

- Using available financial reserves, including designating a portion of reserves for drought/emergency purposes
- Supplementing water rate revenues through imposition of temporary water shortage surcharges
- In the most severe conditions, reducing the annual contribution (transfers) of water rate revenue to the Capital Fund in support of the capital improvement program.

The City could also reduce operating and maintenance costs, where possible, defer capital projects, or seek outside funding sources to help bridge a financial deficit.

Using the financial plan model, an analysis of the potential financial impacts of water shortages has been performed. The analysis includes estimating the magnitude of reduced revenue, reduced costs, and increased costs that may be associated with various ranges of water shortage. **Exhibit II-7** graphically illustrates the financial deficit created by reduced water sales resulting from water shortage conditions.

Exhibit II-8 summarizes estimated FY 15-16 operating revenues and expenses under *normalized* water supply conditions and under various water shortage conditions. The shortage analysis starts with normal conditions whereby revenues and expenses are effectively in balance. Under water shortage conditions, a financial deficit will emerge and increase with increasing severity of shortage conditions. **Exhibit II-9** graphically illustrates how the financial deficit created by reduced water sales could be bridge through a combination of action. Under minor shortage conditions, the City would rely on its Rate Stabilization Reserve to bridge the deficit gap. Under moderate conditions, the City would implement the proposed temporary water shortage rate surcharges to provide supplemental water rate revenue. In the most severe conditions, the City could also reduce transfers to the Capital Fund in support of the capital improvement program.

**Exhibit II-7
City of Ukiah
Estimated Financial Deficit Created by Water Shortage**

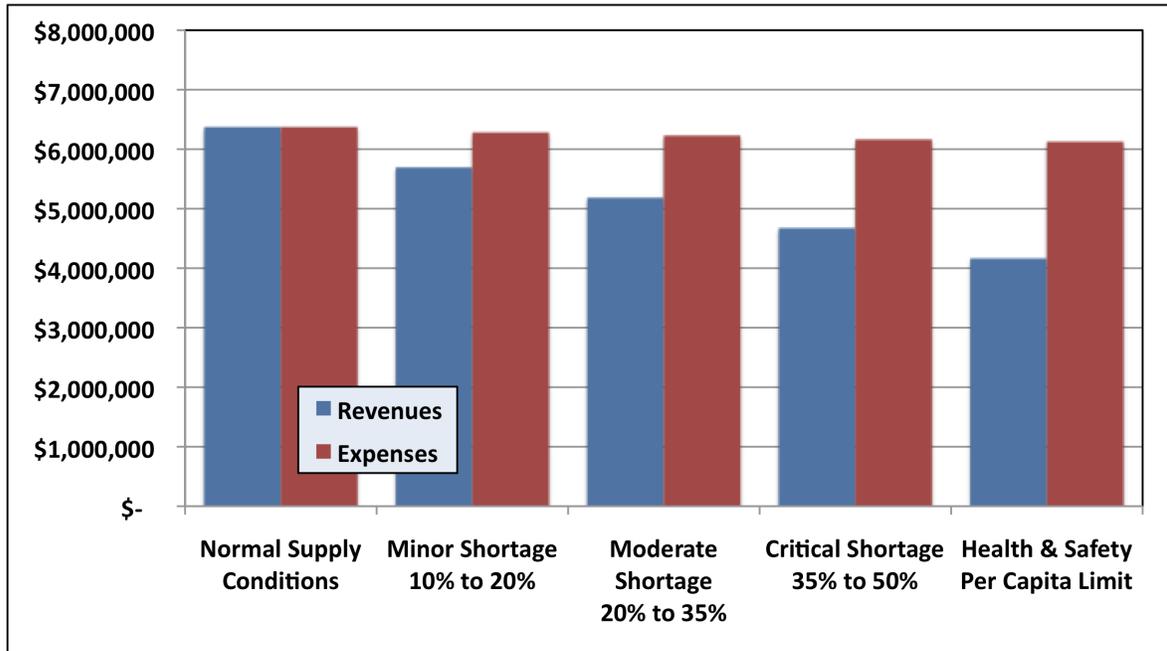


Exhibit II-10 presents additional details of the analysis of estimated FY 15-16 annual revenue and expenses at the defined ranges of water shortage, based on the use of Rate Stabilization Reserve. Analyses presented in Exhibit II-8 suggest that a Rate Stabilization Reserve of \$2,000,000 should be sufficient to bridge the financial deficit created by two years of the most extreme drought conditions, or a longer period of more moderate conditions, based on the analyses and assumptions incorporated therein. This analysis assumes water shortage rate surcharges, as described in Section III of this report, would also be used to help limit the financial strain created by reduced water sales during drought conditions.

**Exhibit II-8
City of Ukiah
Bridging the Financial Deficit Created by Water Shortages (FY 15-16)**

	Normal Supply (1)	Minor Shortage	Moderate Shortage	Critical Shortage	Health & Safety Per Capita Limit
Use Reduction Goal -->	None	10% to 20%	20% to 35%	35% to 50%	> 50%
Modeled Use Reduction -->	0%	20%	35%	50%	65%
Est. Financial Deficit from Water Shortage					
Reduced Water Sales Revenue		(680,000)	(1,189,000)	(1,699,000)	(2,209,000)
Reduced Water Production Costs		98,000	157,000	234,000	293,000
Increased Conservation Costs		(6,000)	(13,000)	(25,000)	(46,000)
Est. Total Financial Deficit	-	(588,000)	(1,045,000)	(1,490,000)	(1,962,000)
Multi-Pronged Corrective Strategy					
Use Rate Stabilization Reserves (2)		588,000	714,000	765,000	846,000
Reduce Transfers to Capital Fund		-	-	300,000	700,000
Impose Water Shortage Charge (3)		-	331,000	425,000	416,000
Total Corrective Actions	-	588,000	1,045,000	1,490,000	1,962,000
Water Shortage Charge (3) -->	None	None	15%	25%	35%

Notes:

- (1) Analysis based on FY 14-15 budget with adjustments to reflect normal water supply conditions.
- (2) Rate Stabilization Reserve is currently funded at about \$1.5 million.
- (3) Water shortage charges are an incremental increase in the water usage rates. Monthly service charges are not affected.

**Exhibit II-9
City of Ukiah
Bridging the Deficit Gap Created by Water Shortages**

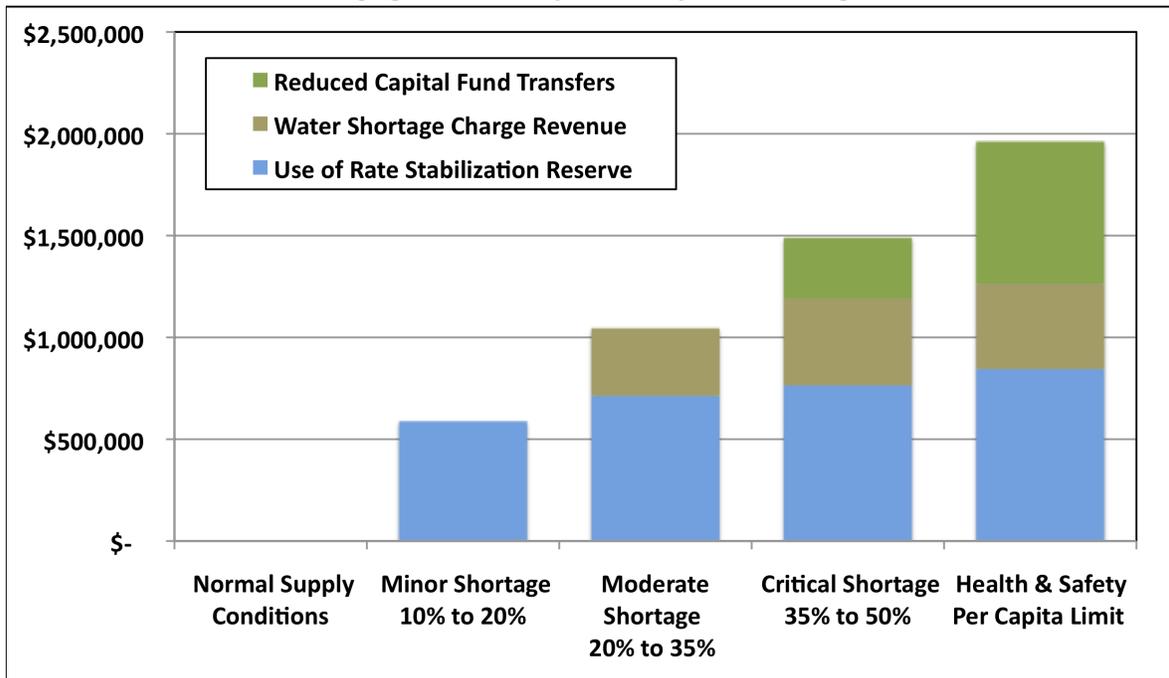


Exhibit II-10
City of Ukiah
Estimated Financial Deficit Created by Water Shortages (FY 15-16)

	Normal Supply (1)	Minor Shortage	Moderate Shortage	Critical Shortage	Health & Safety Per Capita Limit
Use Reduction Goal -->	None	10% to 20%	20% to 35%	35% to 50%	> 50%
Modeled Use Reduction -->		20%	35%	50%	65%
Revenues					
Service Charge Revenues	2,618,000	2,618,000	2,618,000	2,618,000	2,618,000
Water Usage Charge Revenues (2)	3,398,000	2,718,000	2,209,000	1,699,000	1,189,000
Water Shortage Charge Rev. (3)			331,000	425,000	416,000
Fire Service Charges	304,000	304,000	304,000	304,000	304,000
Other Revenue	53,000	53,000	53,000	53,000	53,000
Total Revenue	6,373,000	5,693,000	5,515,000	5,099,000	4,580,000
(% of Normal)		-11%	-13%	-20%	-28%
Expenditures and Transfers					
City Administration	542,000	542,000	542,000	542,000	542,000
PW Administration	511,000	511,000	511,000	511,000	511,000
Water Purchases (4)	38,000	19,000	19,000	-	-
Water Conservation (5)	25,000	31,000	38,000	50,000	71,000
Production	771,000	771,000	771,000	771,000	771,000
Utilities & Chemicals (6)	393,000	314,000	255,000	197,000	138,000
Distribution	747,000	747,000	747,000	747,000	747,000
Debt Service	1,052,000	1,052,000	1,052,000	1,052,000	1,052,000
Transfer to Capital Replac. Fund	2,200,000	2,200,000	2,200,000	1,900,000	1,500,000
Addition to Reserves	94,000	94,000	94,000	94,000	94,000
Total Expend. and Trans.	6,373,000	6,281,000	6,229,000	5,864,000	5,426,000
(% of Normal)		-1%	-2%	-8%	-15%
Surplus/Deficit in Operations	-	(588,000)	(714,000)	(765,000)	(846,000)

Notes:

- (1) Analysis based on FY 15-16 budget with adjustments to reflect normal water supply conditions.
- (2) Water usage revenue would decline in proportion to water sales.
- (3) Water shortage charges are an incremental increase in the water usage rates. Monthly service charges are not affected.
- (4) RRFCD water purchases assumed to be 400 AF until shortage goal reaches 35 percent and 0 AF in more severe shortage conditions.
- (5) Estimated water conservation program costs assumed to increase in inverse proportion to water use reductions.
- (6) Utility and chemical costs assumed to decline in proportion to water sales.

The water shortage analysis suggests that the target level for the Rate Stabilization Reserve of 50 percent of annual operating and maintenance costs is appropriate and prudent. As a result of this analysis, it is recommended that the City continue to maintain the Rate Stabilization Reserve with a target balance of 50 percent of annual operating and maintenance costs. At present, the Rate Stabilization Reserve is fully funded (within the Water Operating Fund). However, as described earlier in this section, a portion of the Rate Stabilization Reserve will be needed to help fund capital improvement projects in the next few years. Continuation of the current drought could impact the ability to undertake all these projects, but also reinforces the need to adopt the water shortage financial strategy, as presented in this report. To that end, adopting the water shortage rate surcharges (presented in Section III of this report) is an important step in protecting the water utility's financial condition against the uncertainty associated with continued drought conditions.

SECTION III. WATER RATES

This section of the report presents information and analyses leading to the development of water rate recommendations for FY 15-16 through FY 19-20.

CURRENT WATER RATES

The City of Ukiah provides water service through about 4,900 water service connections and nearly 200 private fire service connections³. The City's current water rates were last adjusted in July 2014 with the last of five scheduled water rate adjustments. The current water rates are summarized in **Exhibit III-1**. Current water rates include a monthly service charge based on meter size and a uniform water rate for all water usage. Monthly fire protection charges apply to dedicated private fire service connections (related to fire suppression requirements). At present, about 54 percent of water rate revenue is generated from water usage charges and about 46 percent from fixed service charges.

The current uniform water usage rate is intended to discourage excessive water use and encourage customers to conserve water. The water conservation best management practice (BMP 1.4) promulgated by the California Urban Water Conservation Council (CUWCC) suggests that at least 70 percent of water rate revenue should come from water usage charges⁴. However, that standard often places water utilities at undue financial risk, as most water system costs are fixed. Effective rate structure design requires establishing a balance between different rate setting objectives.

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, hydraulic capacity as indicated by meter size, and actual water usage. The City provides water service through about 4,900 water service connections (customers). Residential customers (single family and multi-family) comprise about 4,800 (98 percent) of the customer accounts and about 85 percent of annual water usage. Non-residential customer accounts (commercial, irrigation, municipal) make up nearly 100 (2 percent) of the customer accounts with about 15 percent of annual water usage.

³ The term "customer" is generally used in this report to refer to a water service connection that provides water service to an individual parcels. In some cases, a parcel may be served by more than one service connection.

⁴ The CUWCC provides an alternative means for complying with BMP 1.4, and it is recommended that the City utilize this alternative method. The Reed Group, Inc. is available to assist with the required analysis to use this alternative method of compliance.

**Exhibit III-1
City of Ukiah
Current Water Rates**

	Current (1)
Water Usage Rate (\$/CCF)	
All Water Usage	\$ 2.73
Monthly Service Charge	
3/4" meter	\$ 32.25
1" meter	\$ 54.81
1 1/2" meter	\$ 106.40
2" meter	\$ 170.88
3" meter	\$ 322.41
4" meter	\$ 538.45
6" meter	\$ 1,073.66
Monthly Fire Service Charges	
Up to 2" meter	\$ 34.18
3" meter	\$ 64.48
4" meter	\$ 107.69
6" meter	\$ 214.72
8" meter	\$ 214.72

Notes:

(1) Effective July 1, 2014.

While there are extremes on both the low and high ends, average single family water usage is about 12 CCF per month (about 300 gallons per day)⁵. Single family customers also exhibit a wide variation in water usage throughout the year. Water usage for multi-family dwellings is lower than for single family residences for a variety of reasons including fewer people per household and limited landscape irrigation (or irrigation that is separately metered). Non-residential water usage can vary dramatically, and non-residential customers are served by meters of varying sizes to accommodate the differences in water demands.

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, 3/4" meters are assigned a meter equivalency factor of 1.0. The ratios of instantaneous flow capacities of the various meter sizes to the capacity of a 3/4" meter are used to determine the meter equivalencies for larger

⁵ One CCF = 100 cubic feet = 748 gallons.

meter sizes. This capacity relationship across meter sizes is generally used to allocate capacity-related costs to various customers.

The foregoing customer account, capacity relationship, and water use data have been used in water rate analysis that is presented in the remainder of this section.

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 water rate revenue required to meet financial obligations for each fiscal year of the planning period. The water rate calculation presented herein is based on the revenue to be generated in FY 15-16, and reflects the proposed 3 percent overall water rate revenue increase that is needed to meet immediate ongoing operations, debt service and capital program needs. The revenue requirement for water rates to be implemented in June 2016 is \$5,417,000 (plus an additional \$304,000 from private fire service charges). The actual revenue reflected in the financial plan for FY 15-16 is \$5,264,000 from water rates and \$299,000 from private fire service charges. These amounts are lower than the revenue requirement for rate calculation purposes, because the proposed rates would not go into effect until June 2016.

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 to which 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 three categories. The cost allocation process is performed with data available in the City's budget and accounting documents. The three 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 demands of active customers. Customers that place greater or lesser burdens on the capacity of the water system should bear greater or lesser shares 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 reflect the ratio of the rated flow capacity of each meter size to the rated flow capacity of a ¾" 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 size will be assigned a large share of fixed capacity-related costs than one with a smaller meter. Capacity costs include costs associated with the water system's capacity including contributions to the capital program, debt service, maintenance costs, and certain fixed operating costs.
- Commodity costs are variable costs that vary with the amount of actual water use. Water treatment costs and energy costs are two typical examples. However, in an effort to encourage water conservation, fixed costs are frequently included in commodity components such that a majority of 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. 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.

The water conservation best management practice for retail water rates (BMP 1.4), as promulgated by the CUWCC, specifies that at least 70 percent of water rate revenue be generated through usage charges. The City's current water rates generate about 54 percent of revenue from usage (commodity) charges. This is due in part to reduced water usage during the current drought. Because of the high portion of fixed costs, the proposed water rates slightly decrease the usage-based portion of the revenue mix, while continuing to provide an important water conservation incentive. As water usage rebounds a growing share of rate revenue will be derived from water usage charges.

Based on a review of estimated costs for FY 15-16 for the water utility, customer service costs are estimated to be about 3.5 percent of the annual water rate revenue requirement. Similarly, about 44 percent of the revenue requirement is allocated to the capacity cost category. This leaves 52.5 percent of the revenue requirement allocated to commodity costs, to be recovered through water usage charges.

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 both fixed monthly service charges and a uniform water usage rate. **Exhibit III-2** presents the calculation of monthly service charges and the uniform water usage rate for the water rates proposed for June 2016. 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 month should still be required to pay the 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 ¾" meter (typical for a single family home) is \$33.63. Service charges for larger meter sizes vary from \$54.00 to \$1,016.50, depending on meter sizes ranging from 1" to 6". All of these charges properly reflect an equal allocation of customer costs across meter sizes, and a proportionate allocation of capacity costs based on the capacity relationship across meter sizes. The variation of service charges through meter sizes reflects the fact that a relatively small portion of water system costs are directly related to the number of customers served. A majority of fixed capacity 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, consistent with Constitutional requirements for proportionality in the allocation of costs.

Water Usage Rates

The current water rates include a uniform usage rate for all customer classes. This rate structure is administratively simple, and is often perceived as the most fair by customers. During the course of this study, other rate structures were considered from a qualitative perspective, including tiered water rates. However, a uniform water rate for all customer classes remains as the preferred rate structure.

The proposed water usage rate for June 2016, based on the cost of service analysis performed in this study, is \$2.86 per CCF. This was calculated simply by dividing the commodity costs of \$2,844,000 divided by estimated annual water usage of 996,000 CCF.

Fire Protection Service Charges

The City has established distinct fire protection service charges for separate private service connections that provide fire suppression capabilities to structures and property (e.g., serving automatic internal sprinkler systems)⁶. In effect, these connections extend the public fire suppression capabilities of the water distribution systems (i.e., provided through public fire hydrants) to private property. Costs to be recovered through the fire protection charges are limited to the costs associated with maintaining the connection, monitoring usage, and servicing the account (fire flow capacity is built into the water distribution system as an essential public health and safety benefit to the entire community). When these fire protection services are used, they are billed at the same water usage rate as any other type of water service. As with the general water rates, a 3 percent increase in the fire protection service charges is necessary to meet the financial and service obligations of the utility for the delivery of this service.

PROPOSED WATER RATE SCHEDULE

Exhibit III-3 summarizes proposed water rate schedules for rates to be effective in June 2016, with subsequent annual adjustment each January through 2020. As described in Section II of this report, the overall water rate revenue increases are equivalent to 3 percent in June 2016, and 3 percent each January from 2017 through 2020. No rate structure changes are proposed beyond those reflected in the rates for June 2016. The proposed water rates reflect the cost of providing water service to customers and will provide additional revenue essential to continuing to provide water service.

As a result of the cost of service analysis and rate structure realignment included in the rates for June 2016, not all water bills will increase by 3 percent. Some water bills will increase more than 3 percent and others less than 3 percent. As an example, the water bills for a typical single family customer (using 12 CCF) will increase from \$65.01 to \$67.95, or about 4.5 percent, in June 2016. The exact change in any particular bill will depend on a customer's meter size and water usage. In all cases, the proposed water rates reflect a proportionate allocation of the costs of providing service, based on capacity requirements and service demands.

WATER SHORTAGE RATE SURCHARGES

To help encourage and to help bridge the financial deficit created by a water shortage, it is recommended that the City adopt temporary water shortage surcharges that could be implemented under certain water shortage conditions. The temporary water shortage rate surcharges would be incremental increases in the water usage rate. Even though the water shortage rate surcharges represent an increase in the water rates, total water rate revenue will still decline with reduced water sales as water shortage conditions worsen. That is, the supplemental revenue generated through the water shortage rate surcharges would only partially bridge the deficit gap created by drought and reduced water sales.

⁶ Customers who have private fire service connections also have general water service connections for ongoing water use.

**Exhibit III-3
City of Ukiah
Current and Proposed Water Rates**

	Current (1)	June 2016	January 2017	January 2018	January 2019	January 2020
Water Usage Rate (\$/CCF)						
All Water Usage	\$ 2.73	\$ 2.86	\$ 2.95	\$ 3.04	\$ 3.13	\$ 3.22
Monthly Service Charge						
3/4" meter	\$ 32.25	\$ 33.63	\$ 34.64	\$ 35.68	\$ 36.75	\$ 37.85
1" meter	\$ 54.81	\$ 54.00	\$ 55.62	\$ 57.29	\$ 59.01	\$ 60.78
1 1/2" meter	\$ 106.40	\$ 104.47	\$ 107.60	\$ 110.83	\$ 114.15	\$ 117.57
2" meter	\$ 170.88	\$ 165.27	\$ 170.23	\$ 175.34	\$ 180.60	\$ 186.02
3" meter	\$ 322.41	\$ 307.24	\$ 316.46	\$ 325.95	\$ 335.73	\$ 345.80
4" meter	\$ 538.45	\$ 510.02	\$ 525.32	\$ 541.08	\$ 557.31	\$ 574.03
6" meter	\$ 1,073.66	\$ 1,016.50	\$ 1,047.00	\$ 1,078.41	\$ 1,110.76	\$1,144.08
Monthly Fire Service Charges						
Up to 2" meter	\$ 34.18	\$ 36.07	\$ 37.15	\$ 38.26	\$ 39.41	\$ 40.59
3" meter	\$ 64.48	\$ 64.84	\$ 66.79	\$ 68.79	\$ 70.85	\$ 72.98
4" meter	\$ 107.69	\$ 105.93	\$ 109.11	\$ 112.38	\$ 115.75	\$ 119.22
6" meter	\$ 214.72	\$ 208.56	\$ 214.82	\$ 221.26	\$ 227.90	\$ 234.74
8" meter	\$ 214.72	\$ 331.77	\$ 341.72	\$ 351.97	\$ 362.53	\$ 373.41

Notes:

(1) Effective July 1, 2014.

In addition because a multi-pronged approach to water shortages is suggested, the water shortage rate surcharges have been specifically design such customers that meet water use reduction goals will have lower water bills with the water shortage rate surcharges than they would with normal water usage and normal water rates. Customers that do not meet water use reduction goals may pay more for water service because of the water shortage rate surcharges.

Exhibit III-4 presents the June 2016 water rate schedule including the effect of temporary water shortage rate surcharges. As an example, the water usage rate would increase from \$2.86 per CCF to \$3.29 per CCF under moderate water shortage conditions (15 percent surcharge). Because the water shortage rate surcharge would only apply to the water usage rate (and not the fixed monthly service charges) the impact on the total water bill would be mitigated.

The temporary water shortage rate surcharge is not intended to be a penalty for excessive use; rather it represents each customer fair share of the cost of partially bridging the financial deficit created by reduced water sales during periods of water shortage. Customers would participate in bearing this cost in proportion to their water use.

Water shortage rate surcharges would provide relatively modest revenue increases for dealing with significant water supply shortages. As illustrated graphically in **Exhibit III-5**, the water shortage rate surcharge revenue only partially replaces lost revenue due to reduced water sales. As a result, even with the water shortage rate surcharges, the proposed water rates for water shortage conditions are less than the total cost of providing water service. The information in Exhibit III-5 reflects revenue estimates based on implementation of water shortage rate surcharges in FY 15-16.

**Exhibit III-4
City of Ukiah**

Proposed Water Shortage Rate Surcharges Applied to Water Rates for June 2016 (1)

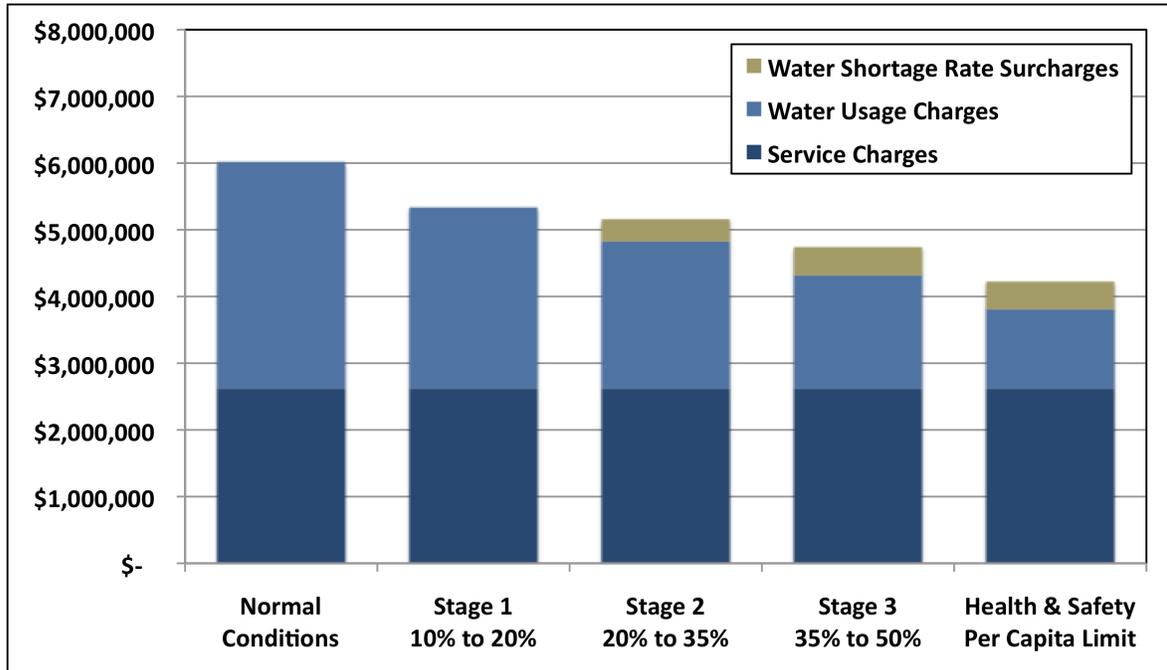
	Normal Supply (1)	Minor Shortage	Moderate Shortage	Critical Shortage	Health & Safety Per Capita Limit
Use Reduction Goal -->	None	10% to 20%	20% to 35%	35% to 50%	> 50%
Wtr. Short. Surch. (2) -->	None	None	15%	25%	35%
Water Usage Rate (\$/CCF)					
All Water Usage	\$ 2.86	\$ 2.86	\$ 3.29	\$ 3.58	\$ 3.86
Monthly Service Charge	No changes to service charges during shortages				
3/4" meter	\$ 33.63	\$ 33.63	\$ 33.63	\$ 33.63	\$ 33.63
1" meter	\$ 54.00	\$ 54.00	\$ 54.00	\$ 54.00	\$ 54.00
1 1/2" meter	\$ 104.47	\$ 104.47	\$ 104.47	\$ 104.47	\$ 104.47
2" meter	\$ 165.27	\$ 165.27	\$ 165.27	\$ 165.27	\$ 165.27
3" meter	\$ 307.24	\$ 307.24	\$ 307.24	\$ 307.24	\$ 307.24
4" meter	\$ 510.02	\$ 510.02	\$ 510.02	\$ 510.02	\$ 510.02
6" meter	\$ 1,016.50	\$ 1,016.50	\$ 1,016.50	\$ 1,016.50	\$ 1,016.50

Notes:

- (1) The water shortage rate surcharge percentages are shown applied to proposed water rates for June 2016 for illustrative purposes. The percentages would be applied to any then-current water usage rates when implemented by declaration of a water shortage.
- (2) The water shortage rate surcharge would be an incremental (percentage) increase in the water usage rates, but would not be applied to monthly service charges.

**Exhibit III-5
City of Ukiah**

Estimated Water Rate Revenues Under Water Shortage Conditions



If adopted, the temporary water shortage rate surcharges would be implemented when the City Council established a water use reduction goal over 20 percent. The surcharges would continue only as long as the shortage conditions exist. When the shortage is declared over, then the water shortage rate surcharges would be discontinued.

Bill Impacts of Water Shortage Rate Surcharges

Water shortage rate surcharges have been specifically designed such that customers achieving required water use reduction goals will have lower water bills than they would have with normal water rates and normal water usage. Customers that do not meet water use reduction goals may have higher water bills. Because the water shortage rate surcharges apply to all water usage, all customers will participate in bridging the financial gap created by water shortage. Of course, those customers that use the least amount of water or conserve the most will pay less through the water shortage rate surcharges.

Exhibit III-6 illustrates how three different single family customers would be affected by the water shortage rate surcharges across various shortage conditions. Monthly water bills are shown for customers that, under normal conditions, use 12 CCF monthly (typical), 8 CCF (typical in winter), and 24 CCF (typical in summer) of water. Water bills are calculated for customers meeting requested water use reduction goals, and customers that do not conserve at all.

ADOPTING PROPOSED WATER RATES

In order to adopt the both the proposed water rates for the next five years and the proposed water shortage rate surcharges the City will need to follow the requirements contained in Article XIII D of the California Constitution (Proposition 218). This includes a Notice of Public Hearing to be mailed to all affected property owners and customers at least 45 days prior to a public hearing.

It is recommended that the City combine the adoption of the proposed 5-year water rates and the adoption of water shortage rate surcharges into a single public notice and rate hearing. This will save the City both time and expenses.

**Exhibit III-6
City of Ukiah
Sample Single Family Residential Water Bills with Water Shortage Rate Surcharges**

Water Shortage Stage	Water Use Reduction Goal	Monthly Water Use (CCF)	Service Charge	Usage Charge	Water Shortage Charge	Total Water Bill	% Change from Normal Bill
Average Single Family Customer Meeting Reduction Goals							
Normal Supply Conditions	None	12	\$ 33.63	\$ 34.32	\$ -	\$ 67.95	
Minor Shortage	10% to 20%	10	\$ 33.63	\$ 28.60	\$ -	\$ 62.23	-8.4%
Moderate Shortage	20% to 35%	8	\$ 33.63	\$ 22.88	\$ 3.43	\$ 59.94	-11.8%
Critical Shortage	35% to 50%	6	\$ 33.63	\$ 17.16	\$ 4.29	\$ 55.08	-18.9%
Health & Safety Per Capita Limit	> 50%	4	\$ 33.63	\$ 11.44	\$ 4.00	\$ 49.07	-27.8%
Average Single Family Customer With No Water Use Reduction							
Normal Supply Conditions	None	12	\$ 33.63	\$ 34.32	\$ -	\$ 67.95	
Minor Shortage	10% to 20%	12	\$ 33.63	\$ 34.32	\$ -	\$ 67.95	0.0%
Moderate Shortage	20% to 35%	12	\$ 33.63	\$ 34.32	\$ 5.15	\$ 73.10	7.6%
Critical Shortage	35% to 50%	12	\$ 33.63	\$ 34.32	\$ 8.58	\$ 76.53	12.6%
Health & Safety Per Capita Limit	> 50%	12	\$ 33.63	\$ 34.32	\$ 12.01	\$ 79.96	17.7%
Low Water-Using Single Family Customer Meeting Reduction Goals							
Normal Supply Conditions	None	8	\$ 33.63	\$ 22.88	\$ -	\$ 56.51	
Minor Shortage	10% to 20%	6	\$ 33.63	\$ 17.16	\$ -	\$ 50.79	-10.1%
Moderate Shortage	20% to 35%	5	\$ 33.63	\$ 14.30	\$ 2.15	\$ 50.08	-11.4%
Critical Shortage	35% to 50%	4	\$ 33.63	\$ 11.44	\$ 2.86	\$ 47.93	-15.2%
Health & Safety Per Capita Limit	> 50%	3	\$ 33.63	\$ 8.58	\$ 3.00	\$ 45.21	-20.0%
Low Water-Using Single Family Customer With No Water Use Reduction							
Normal Supply Conditions	None	8	\$ 33.63	\$ 22.88	\$ -	\$ 56.51	
Minor Shortage	10% to 20%	8	\$ 33.63	\$ 22.88	\$ -	\$ 56.51	0.0%
Moderate Shortage	20% to 35%	8	\$ 33.63	\$ 22.88	\$ 3.43	\$ 59.94	6.1%
Critical Shortage	35% to 50%	8	\$ 33.63	\$ 22.88	\$ 5.72	\$ 62.23	10.1%
Health & Safety Per Capita Limit	> 50%	8	\$ 33.63	\$ 22.88	\$ 8.01	\$ 64.52	14.2%
High Water-Using Single Family Customer Meeting Reduction Goals							
Normal Supply Conditions	None	24	\$ 33.63	\$ 68.64	\$ -	\$ 102.27	
Minor Shortage	10% to 20%	19	\$ 33.63	\$ 54.34	\$ -	\$ 87.97	-14.0%
Moderate Shortage	20% to 35%	16	\$ 33.63	\$ 45.76	\$ 6.86	\$ 86.25	-15.7%
Critical Shortage	35% to 50%	12	\$ 33.63	\$ 34.32	\$ 8.58	\$ 76.53	-25.2%
Health & Safety Per Capita Limit	> 50%	8	\$ 33.63	\$ 22.88	\$ 8.01	\$ 64.52	-36.9%
High Water-Using Single Family Customer With No Water Use Reduction							
Normal Supply Conditions	None	24	\$ 33.63	\$ 68.64	\$ -	\$ 102.27	
Minor Shortage	10% to 20%	24	\$ 33.63	\$ 68.64	\$ -	\$ 102.27	0.0%
Moderate Shortage	20% to 35%	24	\$ 33.63	\$ 68.64	\$ 10.30	\$ 112.57	10.1%
Critical Shortage	35% to 50%	24	\$ 33.63	\$ 68.64	\$ 17.16	\$ 119.43	16.8%
Health & Safety Per Capita Limit	> 50%	24	\$ 33.63	\$ 68.64	\$ 24.02	\$ 126.29	23.5%