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May 16, 2018

Mr. Mike Healy, Public Works Director,
Mr. Larry Harris, Utility Division Manager
Mariposa County Public Works Department

Subject: **Coulterville Water Rate Evaluation**

Dear Mr. Harris:

This report was prepared pursuant to the Proposition 1 Technical Assistance Work Plan No. 5101-A with University Enterprises, Inc. and the California State Water Resources Control Board. In accordance with the Work Plan, HF&H has prepared a third-party review of a portion of the document entitled *County of Mariposa Engineer's Report* prepared by Pinnacle. Our review focused on the water rates proposed for Coulterville County Service Area No. 1-M. This report describes our approach, analysis, and findings.

I. APPROACH

We reviewed the recommended water rate increases in the Pinnacle report for the first five years of the ten years projected by Pinnacle. In our review, we independently modeled the water rate increases for comparison with Pinnacle's recommended rate increases. Our rate increases determined the rates that would fully fund the revenue requirements derived by Pinnacle.

We also modeled an alternative set of rate increases that phased in the rate increases over the next five years. By phasing in the rate increases, rates are lower than needed and a subsidy from Mariposa County is required to cover the shortfall. The rates are phased in so that they equal the rates that would fully fund the revenue requirements by the fifth year, at which point the shortfall ends.

II. ANALYSIS

We analyzed three scenarios. All three scenarios were developed to fund the same revenue requirements.

- In Scenario 1, we duplicated the Pinnacle rate proposal to confirm its accuracy. Scenario 1 results in steep rate increases in the first two years.
- In Scenario 2, we developed a rate alternative patterned after the Pinnacle rate proposal, which increased rates to a level that would fully fund the revenue requirements without any subsidy from the County. In Scenario 2, we also increased rates to achieve the target reserve fund balance by the fifth year. As a result, Scenario 2 results in slightly higher rate increases than in Scenario 1.
- In Scenario 3, rates increases are phased in by the same annual percentage increases to get the rates to the same amount by the fifth year in Scenario 2. This rate proposal includes a $95,000 subsidy from the County to make up the shortfall. If this subsidy is not provided, costs would have to be cut by an equivalent amount, which would further defer capital expenditures.

Each scenario is summarized below.

IIA. Scenario 1 – Pinnacle Rate Projection

Figure 1 shows the revenue requirements, revenue increases, and revenue as projected by Pinnacle. It is assumed that the revenue increases would occur effective July 1 of each year. The revenue increases are initially high and taper off in the final three years. Cumulatively, rates are projected to increase 205.7% over the five-year period.

With these revenue increases, no subsidy is required from the County. Historically, the County has subsidized Coulterville's water rates. Revenue from current rates is only 73% of the current operations and maintenance (O%M) expenses. A revenue increase of 37% is needed simply so that rates would cover current O&M expenses.

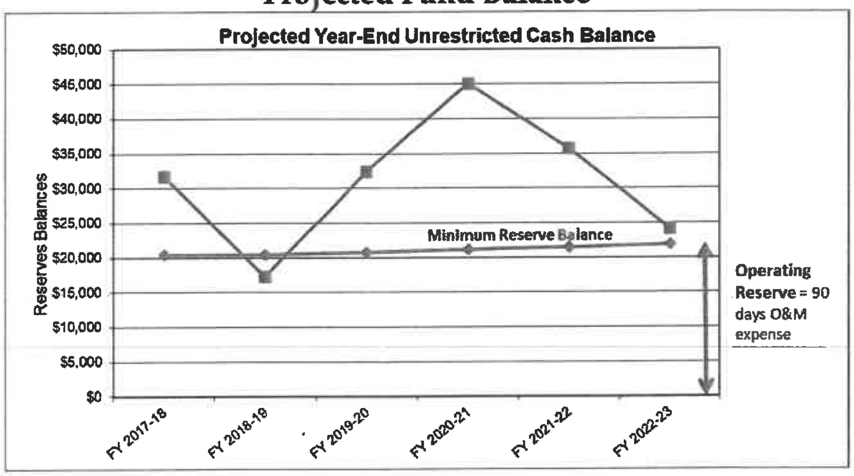
The Pinnacle projections include contributions to and from the fund balance. The effect of the use of the fund balance is shown in **Figure 2**. The green line with square symbols represents the projected fund balance. The red line with diamond symbols represents the minimum target balance, which is set at 25% (90 days) of the operating expenses. This target is appropriate given the fact that customers are billed on a monthly basis, which results in at least 30 days of lag time between when the County incurs expenses and when it receives revenue from customers. In effect, the minimum target provides sufficient working capital to cover daily operations barring unforeseen cash flow fluctuations.

Figure 2 shows that with the projected revenue increases maintain the fund balance above the target balance in most years. By the fifth year, the fund balance is above the target balance but on a downward trajectory.

Figure 1. Scenario 1 – Pinnacle Rate Projection
Projected Revenue Requirements, Revenue Increases, and Revenue

	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Revenue Requirements						
O&M		$82,783	$84,212	$85,674	$87,168	$88,697
Capital (PAYGo + Debt Service)		$8,000	$6,521	$10,521	$32,865	$35,452
Contribution to/(from) Reserves		($14,385)	$15,079	$12,705	($9,330)	($11,613)
County Subsidy		$0	$0	$0	$0	$0
Revenue Requirements		$76,399	$105,812	$108,900	$110,703	$112,536
Revenue Increases						
Annual		105.0%	40.0%	3.0%	1.7%	1.7%
Cumulative		105.0%	187.0%	195.6%	200.6%	205.7%
Revenue						
Rate Revenue	$35,870	$73,534	$102,947	$106,035	$107,838	$109,671
Non Rate Revenue		$2,865	$2,865	$2,865	$2,865	$2,865
Total Revenue		$76,399	$105,812	$108,900	$110,703	$112,536

Figure 2. Scenario 1 – Pinnacle Rate Projection
Projected Fund Balance



The revenue projections in **Figure 1** result in the projected monthly rates and bills in **Figure 3**. Customers are charged the sum of a fixed charge and a quantity charge. The quantity charge is the product of multiplying monthly metered water use time the volumetric rate. **Figure 3** first shows the current monthly rates for the current rate structure, projected over five years. **Figure 3** then shows the projected rates for a new rate structure that Pinnacle recommends. Pinnacle recommends converting the fixed charges to charges that are based on the capacity of the connections rather than on the residential and commercial customer classes. This is an industry standard with which we agree. The bottom of **Figure 3** shows average monthly bills for customers with a 1" meter and average monthly use of 4,210 gallons. The bills are based on the adjusted rate structure.

**Figure 3. Scenario 1 – Pinnacle Rate Projection
Projected Monthly Rates and Bills**

	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Projected Monthly Rates - current structure						
Residential Fixed	$25.50	$52.28	$73.19	$75.38	$76.66	$77.97
Commercial Fixed	$17.80	$36.49	$51.09	$52.62	$53.51	$54.42
Volumetric: All Water Use	$1.70	$3.49	$4.88	$5.03	$5.11	$5.20
Projected Monthly Rates - adjusted structure						
1" meter	$21.33	$43.72	$61.20	$63.04	$64.11	$65.20
2" meter	$68.24	$139.90	$195.85	$201.73	$205.16	$208.65
Volumetric: All Water Use	$1.70	$3.49	$4.88	$5.03	$5.11	$5.20
Average Monthly Residential Bill - 4.21 Kgals						
1" meter	$28.49	$58.41	$81.74	$84.22	$85.62	$87.09

IIB. Scenario 2 - Fully Funded Rate Projection

By duplicating the Pinnacle analysis, we confirmed its accuracy. However, we note that although the Pinnacle revenue projections cover the projected O&M and capital expenses without a subsidy from the County, the revenue projections are not high enough to maintain adequate reserves. During the five-year period, the fund balance drops below the minimum target balance and are lower by the fifth year than in the first year. In addition, Pinnacle escalated the majority of O&M expenses at 1%, which may be low; we applied a 3% escalation factor instead.

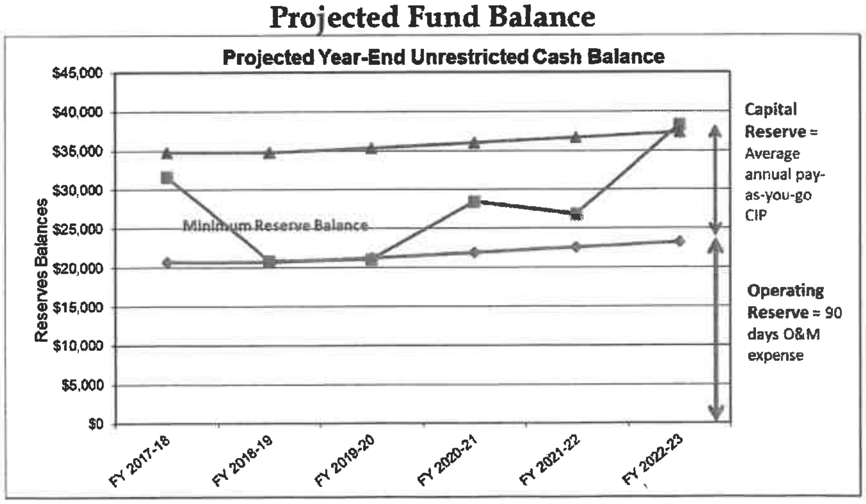
Scenario 2 was developed to fully fund reserves. **Figure 4** shows the higher annual increases that are needed. The cumulative revenue increase is 282.6%.

Figure 4. Scenario 2 – Fully Funded Rate Projection
Projected Revenue Requirements, Revenue Increases, and Revenue

	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Revenue Requirements						
O&M		$82,783	$85,266	$87,824	$90,459	$93,173
Capital (PAYGo + Debt Service)		$8,000	$6,521	$10,521	$32,865	$35,452
Contribution to/(from) Reserves		($10,798)	$152	$7,400	($1,632)	$11,485
County Subsidy		$0	$0	$0	$0	$0
Revenue Requirements		$79,986	$91,939	$105,746	$121,692	$140,110
Revenue Increases						
Annual		115.0%	15.5%	15.5%	15.5%	15.5%
Cumulative		115.0%	148.3%	186.8%	231.3%	282.6%
Revenue						
Rate Revenue	$35,870	$77,121	$89,074	$102,881	$118,827	$137,245
Non Rate Revenue		$2,865	$2,865	$2,865	$2,865	$2,865
Total Revenue		$79,986	$91,939	$105,746	$121,692	$140,110

Figure 5 contains the same minimum target balance as well as a higher target balance (solid blue line with triangular symbols) that includes an allowance for capital projects equal to the average annual capital expenses (not including debt-funded projects). With these revenue increases, the fund balance (green line) never drops below the minimum target balance. By the fifth year, the fund balance is projected to slightly exceed the target balance.

Figure 5. Scenario 2 – Fully Funded Rate Projection
Projected Fund Balance



The revenue projections in **Figure 4** result in the projected monthly rates and bills in **Figure 6**. The bills are based on the adjusted rate structure.

Figure 6. Scenario 2 – Fully Funded Rate Projection
Projected Monthly Rates and Bills

	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Projected Monthly Rates - current structure						
Residential Fixed	$25.50	$54.83	$63.32	$73.14	$84.47	$97.57
Commercial Fixed	$17.80	$38.27	$44.20	$51.05	$58.97	$68.11
Volumetric: All Water Use	$1.70	$3.66	$4.22	$4.88	$5.63	$6.50
Projected Monthly Rates - adjusted structure						
1" meter	$21.33	$45.86	$52.97	$61.18	$70.66	$81.61
2" meter	$68.24	$146.72	$169.46	$195.72	$226.06	$261.10
Volumetric: All Water Use	$1.70	$3.66	$4.22	$4.88	$5.63	$6.50
Average Monthly Residential Bill - 4.21 Kgals						
1" meter	$28.49	$61.25	$70.74	$81.71	$94.37	$109.00

IIC. Scenario 3 – Phased-In Rate Projection

Scenario 3 is built on Scenario 2. Whereas Scenario 2 has initial steep rate increases that flatten out, Scenario 3 has equal annual 30.8% increases that culminate with nearly the same overall 283% increase in the fifth year.

Figure 7. Scenario 3 – Phased-In Rate Projection
Projected Revenue Requirements, Revenue Increases, and Revenue

	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Revenue Requirements						
O&M		$82,783	$85,266	$87,824	$90,459	$93,173
Capital (PAYGo + Debt Service)		$8,000	$6,521	$10,521	$32,865	$35,452
Contribution to/(from) Reserves		($6,000)	$2,446	$4,790	($5,466)	$11,571
County Subsidy		($35,000)	($30,000)	($20,000)	($10,000)	$0
Revenue Requirements		$49,783	$64,234	$83,135	$107,858	$140,196
Revenue Increases						
Annual		30.8%	30.8%	30.8%	30.8%	30.8%
Cumulative		30.8%	71.1%	123.8%	192.7%	282.9%
Revenue						
Rate Revenue	$35,870	$46,918	$61,369	$80,270	$104,993	$137,331
Non Rate Revenue		$2,865	$2,865	$2,865	$2,865	$2,865
Total Revenue		$49,783	$64,234	$83,135	$107,858	$140,196

The result of phasing in the revenue increases is that the revenue requirement is not fully funded in the first four years. To cover the difference, a County Subsidy is shown, which totals $95,000. The subsidy gradually declines and ends by the fifth year. If this subsidy is not provided, costs must be reduced by an equivalent amount. We are unable to determine how cost reductions of this magnitude would affect the County's ability to provide service.

Figure 8 shows the fund balance with the phased-in revenue projections. During the five-year period, the fund balance stays above the minimum balance and slightly exceeds the target by the fifth year.

Figure 8. Scenario 3 – Phased-In Rate Projection
Projected Fund Balance

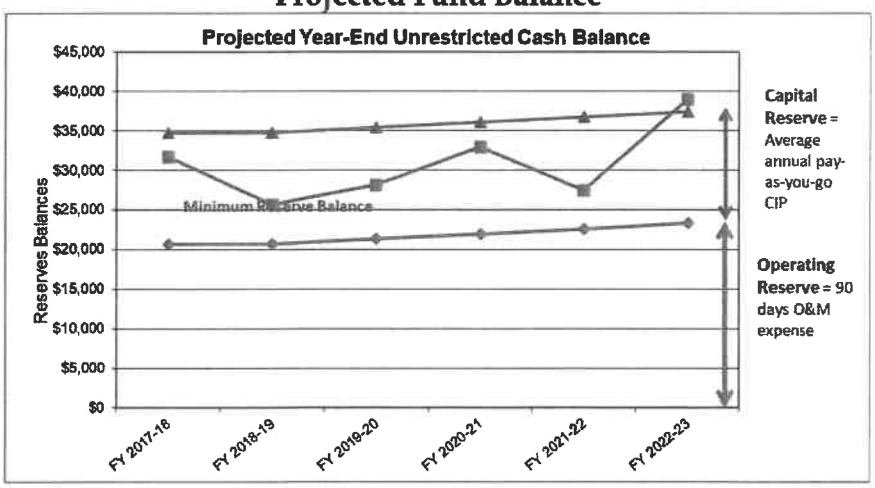


Figure 9 shows the projected monthly rates and bills for the phased-in projection. By the fifth year, the average bills are virtually the same for both Scenarios 2 and 3. The bills are based on the adjusted rate structure.

Figure 9. Scenario 3 – Phased-In Rate Projection
Projected Monthly Rates and Bills

	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Projected Monthly Rates - current structure						
Residential Fixed	$25.50	$33.35	$43.63	$57.06	$74.64	$97.63
Commercial Fixed	$17.80	$23.28	$30.45	$39.83	$52.10	$68.15
Volumetric: All Water Use	$1.70	$2.22	$2.91	$3.80	$4.98	$6.51
Projected Monthly Rates - adjusted structure						
1" meter	$21.33	$27.90	$36.49	$47.73	$62.43	$81.66
2" meter	$68.24	$89.26	$116.75	$152.71	$199.74	$261.26
Volumetric: All Water Use	$1.70	$2.22	$2.91	$3.80	$4.98	$6.51
Average Monthly Residential Bill - 4.21 Kgals						
1" meter	$28.49	$37.26	$48.74	$63.75	$83.38	$109.07

III. FINDINGS

The following is a summary of our findings.

1. We find that the current rates cover only 73% of the current year's O&M expenses. A revenue increase of 37% is needed simply to cover today's O&M expenses without further diminishing reserves. This would increase average monthly bills from $33 to $45.
2. In order to cover the projected O&M expenses in the first year without reducing reserves, a revenue increase of 131% is required, which would increase monthly bills to $75.
3. Additional rate increases are needed to fully fund the revenue requirement. It was assumed that funding the capital improvements and maintaining adequate reserves would have to be deferred until O&M expenses are fully funded.
4. Our parallel analysis confirms the accuracy of the Pinnacle rate projections.
5. We agree with Pinnacle's recommended modification of the fixed monthly charges from charges that are based on customer classes to charges that are based on the size of the service connection.
6. Based on our review of Pinnacle's rate projections, we find that higher rate increases are required to maintain adequate reserves. Whereas Pinnacle projected revenue increases that cumulate to 206% over the first five years, we find that cumulative revenue increases of 283% are needed. By the fifth year, an average monthly would reach $109.

7. A phased-in approach was developed that would allow rates to increase 31% annually to achieve full funding by the fifth year. By the fifth year, an average monthly would also reach $109. Phasing in rates would require either a County Subsidy or cost reductions of $95,000 during the first four years.

Figure 10 compares the monthly bills under the three scenarios. The bill calculations are based on Pinnacle's recommended modification to the fixed charges.

Figure 10. Average Monthly Bill Comparison

	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Current Average Bill With No Rate Increase						
Residential (4,210 gal:	$32.66	$32.66	$32.66	$32.66	$32.66	$32.66
Scenario 1 - Pinnacle Rate Projection						
1" meter	$21.33	$43.72	$61.20	$63.04	$64.11	$65.20
4,210 gallons	$7.16	$14.69	$20.54	$21.18	$21.51	$21.89
Total monthly bill	$28.49	$58.41	$81.74	$84.22	$85.62	$87.09
Compared to current	-$4.17	$25.76	$49.09	$51.56	$52.97	$54.44
Scenario 2 - Fully Funded Rate Projection						
1" meter	$21.33	$45.86	$52.97	$61.18	$70.66	$81.61
4,210 gallons	$7.16	$15.39	$17.77	$20.53	$23.71	$27.38
Total monthly bill	$28.49	$61.25	$70.74	$81.71	$94.37	$109.00
Compared to current	-$4.17	$28.59	$38.08	$49.05	$61.71	$76.34
Scenario 3 - Phased-In Rate Projection						
1" meter	$21.33	$27.90	$36.49	$47.73	$62.43	$81.66
4,210 gallons	$7.16	$9.36	$12.24	$16.02	$20.95	$27.40
Total monthly bill	$28.49	$37.26	$48.74	$63.75	$83.38	$109.07
Compared to current	-$4.17	$4.60	$16.08	$31.09	$50.73	$76.41

We are available to discuss this report to you if you have any questions. It has been a pleasure working with you.

Very truly yours,

HF&H CONSULTANTS, LLC

John W. Farnkopf

John W. Farnkopf, P.E., Senior Vice President
Geoffrey Michalczyk, Associate Analyst