Water Rate Study prepared for the Lassen Pines Mutual Water Company,

at the request of the State Water Resources Control Board

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This document was prepared using funds under Agreement 15-017-550 with the California State Water Resources Control Board; the total Agreeme is for $3,971,379 and will produce multiple documents.

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1. Lassen Pines Mutual Water Company

Community

Lassen Pines is an unincorporated community in Shasta County, California, about 11 miles northeast of Shingletown and 47 miles east of Redding on California Highway 44. At an elevation of approximately 4,200 ft, the community has cold snowy winters and dry hot summers.

The official Median Household Income (MHI) of Lassen Pines is estimated by the US Census to be $44,815.

The estimated number of residents is 600. Many residents are seasonal.

Company

On May 30, 1978, the Shasta County Department of Environmental Health issued permit to the Lassen Pines Mutual Water Company to operate "a community public water system comprising 185 metered services; well; 5000-gallon pressure tank, 2-10 horsepower pumps and distribution system."

The domestic water system is owned and operated by the Lassen Pines Mutual Water Company. The offices are located at the treatment plant site: 9367 Mountain Meadow Road, Shingletown, CA 96088.

This MWC has an elected seven-member board. Some of the board members are active in the operation and maintenance of the treatment and distribution system.

The MWC has not been successful in building substantial reserves due to the constant maintenance and repair needs.

The treatment and distribution is managed by a part-time certified operator.

System

The Company's water system consists of three wells that draw water from the same aquifer, which has been determined to be GWUDI. This water is treated to remove Giardia, Cryptosporidium, and virus through cartridge filtration, UV disinfection, and chlorine disinfection. The distribution system consists of one pressure zone and the pressure is maintained using two hydropneumatic pressure tanks. No other storage is provided in the distribution system. The system has no interconnections to other water systems. As of March 2017, the water system serves approximately 600 people through 180 unmetered service connections. An additional 100 lots are vacant.

Water Production

Year	Annual Demand (MG)	Max Month Demand (MG)	Max Day Demand (Gal.)	Max Day Demand (gpm)	Peak Hour Est. Demand (gpm)	Conn.	MDD GPM PDPC	Pop.
2013	34.5	4.6 (July)	203,460 (7/7)	141	282	179	0.79	600
2014	37.7	4.7 (July)	186,737 (8/3)	130	260	179	0.73	600
2015	33.3	6.1 (Aug)	174,538 (7/1)	121	242	190	0.64	600
Avg	35.17	5.13	188,245	131	261	183	0.72	-

Current Rates

A quarterly flat rate of $133 is billed to all active customers. The 18 unimproved lots are charged $63 per quarter.

The company is planning to apply for grants/loans to install water meters, a water storage tank and booster pumps. A new water rate study will have to be done when water meters are installed.

2. Guiding Principles of this Rate Study

Sustainability

Water rates should cover the costs to the system to allow it to provide water services for the foreseeable future.

Fair

Water rates should be fair to all rate payers. No single rate payer or group of rate payers should be singled out for different rates. Therefore, the proposed rates do not make any distinction between domestic, commercial or agricultural users. The rates are the same for all.

The company should not charge more for water than the cost to provide the water. However, the costs should include: operations, repairs, interest, loan principal, and all other costs related to the production, treatment and distribution of potable water now and in the foreseeable future.

Conservation

Water rates should promote conservation. Water is a limited resource and should be conserved. The company should expedite the installation of water meters.

Justifiable

Water rates must be based on actual needs of the company. Revenue generated from water rates can't be used for anything else but to pay for the costs of procuring, treating and distributing water within its service area, plus any administrative costs.

Therefore, the proposed rates are based on the Lassen Pines MWC Budget and Capital Replacement Program.

Purpose of this study

The purpose of this study is to make the Lassen Pines MWC aware of the need to raise water rates. The water system must be able to build reserves to cover the inevitable need to replace all components of the operation.

The second purpose is to raise rates enough so the system becomes eligible for state loans and grants. As a "Disadvantaged" community, Lassen Pines MWC must charge customers more than 1.5% of MHI (Median Household Income) to be ineligible for state funding of construction projects. The current affordability level is 1.17% of MHI, which makes the company ineligible for state funding under Prop 1.

Board Decision

While this document recommends certain rates, the ultimate decision rests with the company's board. However, the Board has a fiduciary responsibility to set the rates at such a level that the company will be able to continue to operate in the future, including providing funds to replace all parts of the system as they wear out.

Disclaimer

The recommendations contained in this rate study are based on financial information provided to RCAC by the company. Although every effort was made to assure the reliability of this information, no warranty is expressed or implied as to the correctness, accuracy or completeness of the information contained herein.

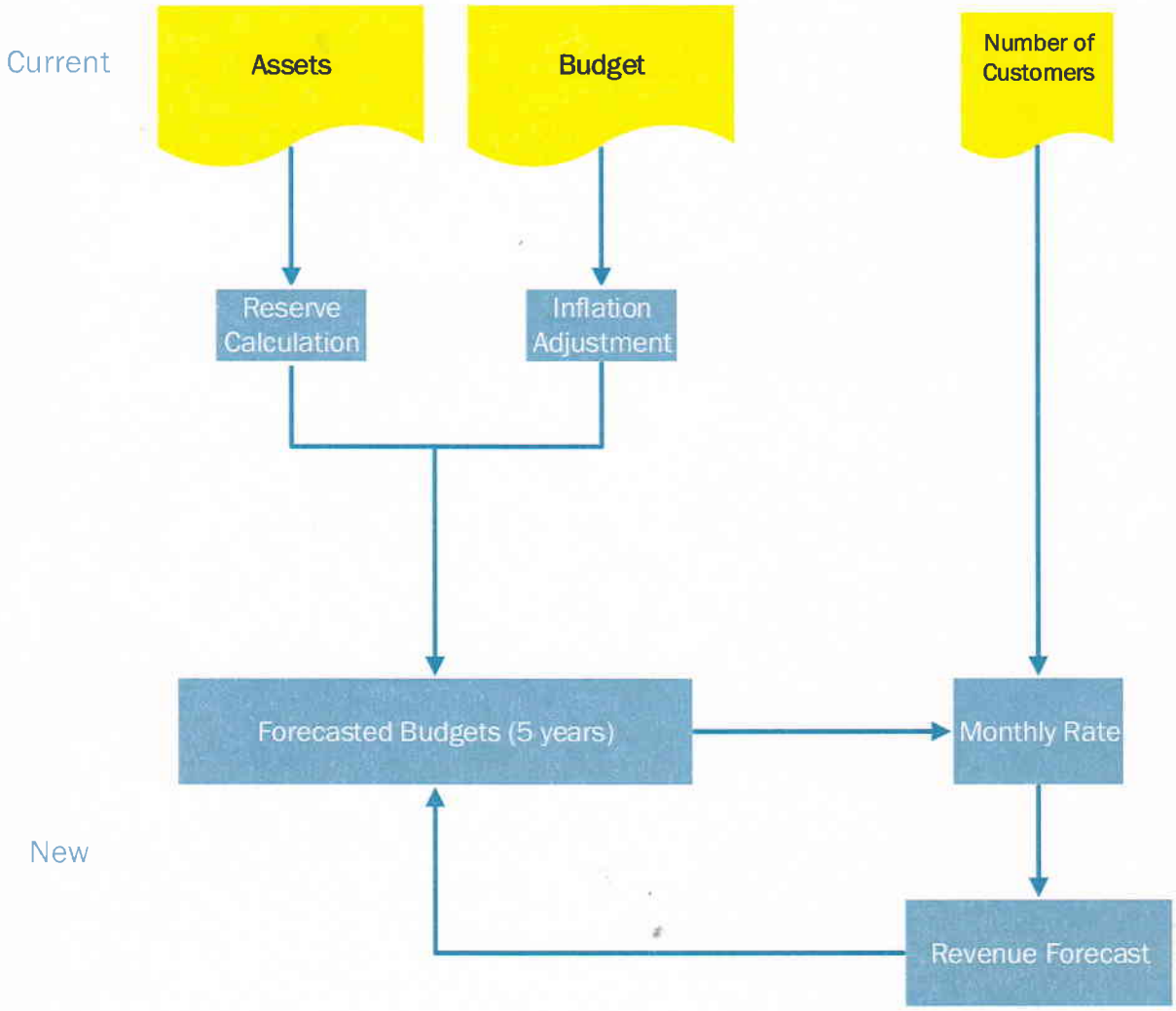
Any opinions, findings, and conclusions or recommendations expressed in this material are solely the responsibility of the authors and do not necessarily represent the official views of the State Water Resources Control Board.

For accounting advice, a CPA should be consulted. For legal advice, the company should seek the advice of an attorney.

3. Rate Study Process

The figure[1] below explains the process of setting rates.

We begin with the list of all capitalized assets, the current budget and the current number of customers as provided by management of the MWC.



From the list of assets the required reserves are calculated (Section 4 of this report) and fed into a 5-year Budget projection (Section 5)

The Budget is adjusted for inflation, estimated to be 1.5% per year.

[1] All yellow fields or cells in the figures and exhibits of this report are based on external data. All blue fields or cells are calculated.

The number of customers is adjusted for unpaying customers and undeveloped lots.

The expenses, including the reserve requirements, are then allocated among the customers. The resulting rates were initially not acceptable to the board. An acceptable rate was negotiated and entered into the model. The model then calculated the shortfall in the budget and resulting shortfall in the allocation of reserves to replace the failing components of the wastewater system.

This process was repeated several times to arrive at an acceptable rate that would balance the budget by the third year. But by the fifth year, the budget shortfalls of the first two years were made up. This allowed rates to rise slowly over a five year period.

4. Capital Replacement Program

Source of the Data

The data in the Capital Replacement Program (CRP) comes from the data supplied by the company's Operator and AWWA standards. It is shown on attached Exhibit 1.

The list of the components, their installation date and their original costs were all supplied by the Operator.

The Normal Estimated Life is based on AWWA standards.

The Estimated Remaining Life is based on the best judgement of the Operator and RCAC, after a visual inspection of the condition of the component.

Sources of Funding

Funding of the replacement of components can only come from cash saved by the company, a grant or a loan.

The possibility of obtaining a grant for 100% of the cost is slim, given that the median Household Income (MHI) is estimated to be $45,575.

Each capital asset was reviewed for eligibility for grants. The results are shown on Exhibit 1. Most of the capital replacement costs will be paid for with cash. No loans were included in the model. The water meters, tank and booster pump and their installation is expected to be paid for with a split of 5/95 cash/grant.

Description

The CRP provides us with a detail of the reserves needed to replace the capital assets. The total line of the CRP table (Exhibit 1, $23,838) is the amount the MWC must put aside each year to be able to replace the assets listed when they reach the end of their life expectancy. There are three sections in the CRP:

- Existing Capital Replacement Program: assets the MWC currently has in place
- New Project Replacement Program: assets the MWC are currently replacing with outside funds. (None for Lassen Pines MWC.)
- Future Capital Improvement Program: assets the MWC wish to add in the near future. This includes the construction of a new office building and conference room.

Alternative

If the company decides not to fund the annual capital reserve requirement, the company will have to come up with these amounts from other sources, or from steeper rate increases in future years. The company can't count on the future generosity of the state or other government sources to provide any substantial grants.

It will require a significant effort of the MWC's staff and board to obtain these grants and/or loans. The amount of grants obtained for future projects has a very substantial impact on the water rates. Therefore this study recommends a new rate study when the exact amount of the grants for the meters and tank project is known.

5. Budget

Source

All expenses shown in Exhibit 2 (5-Year Budget sheet) were provided by the company as their 2017 Budget. The only change made from the approved Budget is the increase from $4,000 to $12,000 per year for filters and an increase in Operator Salaries and Office Expense.

The Capital Replacement Program amount comes from the Reserves sheet.

The Cash Revenue shown is a calculated number based on:

- Water Rates entered on the Rates sheet
- The number of paying customers
- An annual inflation factor of 1.5%.

Reserve Funding

AWWA standards recommend a review of four types of reserves:

1. Debt Reserve: Since the company has no debt, hence no Debt Reserve is necessary. Should the company enter into a debt agreement in the future, it must be noted that almost all lenders will require a debt reserve of about one year's loan payment.
2. Operating Reserve: Operating Reserves are established to provide the utility with the ability to withstand short term cash-flow fluctuations. The industry standard calls for 1.5 times the revenue collected during a billing cycle. The target Operating Reserve is $38,846, and the existing Operating Reserve (on your checking account) is $10,000, we recommend that you put $5,769 aside each year for the next 5 years to build up your Operating Reserve.
3. Emergency Reserve: Emergency Reserves are intended to help utilities deal with short-term emergencies, such as main breaks or pump failures. An Emergency Reserve is intended to fund the immediate replacement or reconstruction of the system's single most critical asset. Your emergency reserve should be set at the replacement cost of the most expensive part that could fail. In Lassen Pines' case, $20,000 in emergency reserves is sufficient. However, you only have $10,026 in your CDs, you should put $1,995 aside each year for the next 5 years to build up your Emergency Reserve.
4. Capital Replacement Reserve: This reserve is strictly to be used to fund the company portion of any replacement of capital assets that are worn out. The company has about $130,000 in Capital Replacement Reserves at this time. This amount was applied to the CIP requirement and reduces the funds needed to be set aside each year for Capital Reserves.

The tables below show the Existing Reserves and the Reserve Targets for each of the four Reserve categories. The shortfall in Emergency Reserves an Operating Reserves is transferred to the Budget so these shortfalls can be funded over the next five years.

Existing Reserves	Amount	Source
Debt Reserve	0	As per lending agreement(s). None.
Operating Reserve	10,000	Cash in the Bank
Emergency Reserve	10,026	Cash in Savings
Capital Reserve	130,000	
Total	150,026	

Reserve Targets	Amount	Annual Reserve Shortfall to Budget	Excess funds to be transfer to CIP	Goal
Debt Reserve	0	0	0	As per lending agreement(s). None.
Operating Reserve	38,846	5,769	0	1.5 Revenue Cycles (from Budget)
Emergency Reserve	20,000	1,995	0	Cash in Savings
Capital Reserves Available	130,000	This is the total amount available for CIP. Transferred to CIP sheet.		

Sales Adjustments

Higher water rates cause a small reduction of the quantity of water sales as customers adjust to the new rates. It is expected that customers will return to their normal consumption patterns after a few years.

The Lassen Pines board expected the community to grow by about two new customer over the next five year.

Sales over Base Years	Year 1	Year 2	Year 3	Year 4	Year 5
Conservation Factor	-3%	-2%	-1%	0%	0%
Community Growth		1%	1%	1%	1%
Total Sales Adjustment	-3%	-1%	0%	1%	1%

Alternatives

If the board does not fund its Budget by setting appropriate water rates, it does not mean that the company can't pay its bills. It simply means that the company is not providing for future replacement of the capital assets and will not be able to guarantee the continuing operation of the water system.

The board has a fiduciary responsibility to set rates to a level where the company can continue to operate and provide clean water for the foreseeable future.

6. Rate Calculation

Current Rates		Per	Customers	Billings per Year
Improved	$133	Q	180	4
Unimproved	$63	Q	100	4

Current Affordability	1.17%

Year		2017	2018	2019	2020	2021
Expenses (from Budget)		$174,623	$173,320	$175,585	$175,245	$177,579
	Per					
Rate to Balance the Budget	Q	$183	$181	$184	$183	$186
Rate Increase to Balance		37%	-0.75%	1.31%	-0.19%	1.33%
New Rates						
Improved	Q	$175	$180	$185	$190	$195
Unimproved	Q	$103	$106	$109	$112	$115
Improved	M	$58	$60	$62	$63	$65
Unimproved	M	$34	$35	$36	$37	$38
Percentage Increase						
Improved		32%	3%	3%	3%	3%
Unimproved		64%	69%	73%	78%	83%
Income Generated by Selected Rate		$167,300	$172,080	$176,860	$181,640	$186,420
NET LOSS OR GAIN:		-$7,323	-$1,240	$1,275	$6,395	$8,841
Balanced Budget?		No	No	Yes	Yes	Yes
CONTRIBUTION TO RESERVES		$18,510	$21,058	$23,573	$26,054	$28,500
Target Contribution to Reserves		$25,833	$22,298	$22,298	$19,659	$19,659
Affordability						
Median Household Income	$45,575					
Affordability		1.54%	1.58%	1.62%	1.67%	1.71%
Should be between 1.5% and 4%		Yes	Yes	Yes	Yes	Yes

Current Rates

The current rates are $133 for improved lots and $63 for unimproved lots. The board decided to keep this ratio the same. The board also decided to continue to bill quarterly and not monthly or bi-monthly.

The current rates indicate that customers pay 1.17% of their MHI for water. That is far below the threshold of 1.5% for the company to be eligible for state financing of water projects.

Number of Customers

The number of paying customers was adjusted to 180 and the number of vacant lots was reduced to 100.

Expenses and Suggested New Rate

The Budget in Exhibit 2 calculated the Total Expenses for the next five years. Dividing the expenses among the number of customers gives us the proposed rate.

Rate Selected

In discussions with staff and the Lassen Pines MWC board on February 28, 2017, it was decided to present the public with an increase to $175, with annual increases of $5 for the following four years, to $195 per quarter.

Vacant cost for vacant lots will increase to $103, with $3 increases for the following four years, to $115 per quarter.

A public hearing has been scheduled for 10:00 AM on April 19, 2017. No location of the meeting has been selected as of this writing.

Income Generated by Selected Rate

The new rate would generate about $167,300 in the first year, climbing to $186,420 in the fifth year.

Impact on Budget

The new rate will not balance the budget until the third year.

Estimate Contribution to Reserves

Annual contributions to reserve will climb from $18,510 in the first year to $28,500 in the fifth year.

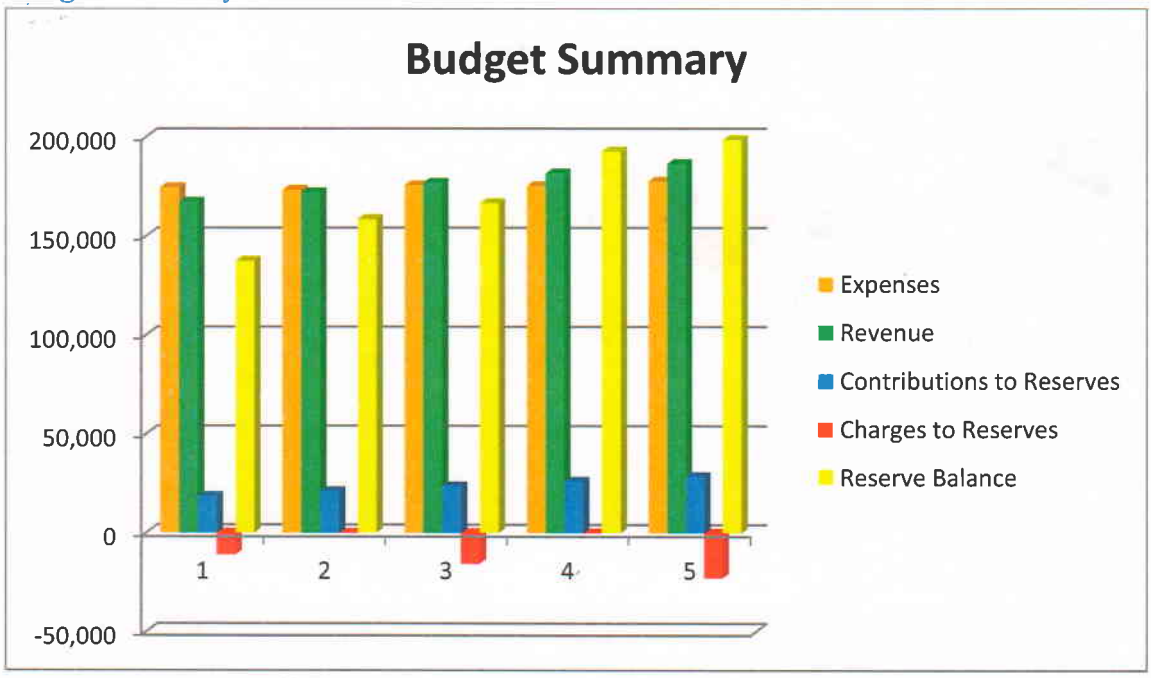
None of the reserves will be fully funded until the fifth year.

Be aware that we have assumed that we will fund some capital replacement with grants. Should the grants not materialize, further increases will be necessary. This puts pressure on the staff and board to obtain the grants necessary to balance the budget.

Affordability

The new rates bring the affordability index to 1.54% in the first year and 1.71% in the fifth year. This is still low for systems the size of Lassen Pines, but high enough to make the company eligible for state grants.

Budget Summary



- Expenses (orange bar) grow at the rate of inflation and include the Cedar line replacement project in the first year.
- Revenue (green bar) climbs each year.
- Contributions to reserves (blue bar) also climb steadily.
- Charges to Reserves (red bar) are the replacement costs of certain assets, according to the CRP.
- The Reserve Balance[2] (yellow bar) is the amount available to replace the system in future years.

The red bars indicate the need to dip into your reserves. They are a good indication of the maturities of the investments of your capital replacement reserves.

A new rate study should be done in five years or when a grant or loan is obtained.

[2] Total Reserves (Capital Replacement Reserves, Emergency Reserves, Debt Reserves, etc.)

7. Next Step

As a mutual water company, the board does not have to follow the procedures prescribed for other water system in Prop 218.

The board members should review this document and decide if they want to increase the rates as per the February 28, 2017 discussion.

The board may want to consult the By-Laws of the company to determine the procedures for a rate implementation.

Exhibits

1. Capital Improvement Program
2. Five Year Forecasted Budget

Capital Reserve Calculation — **Exhibit 1**

Lassen Pines MWC

Date: 03/09/17

System Number: 4500210

Service Connections: 180

Qty	Component	Year Acquired	Estimated Original Cost	Estimated Installed Cost	Normal Estimated Life	Current Age	Planned Remaining Life	Estimated Remaining Life	Estimated Current Cost	Future Replacement Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
	Existing Capital Replacement Program														
	Buildings and Improvements			$0										0	
0	Office Building	1988	2,690	$0	35	29	6	10	$0		50%	50%	0%	0	
0	Generator Shed	2007	5,398	$0	10	10	0	3	$0		100%		0%	0	
1	Equipment Building Improvements	2005	70,393	$70,393	35	12	23	20	$89,275	$120,241	50%	50%	0%	22,510	$1,605
1	Roll-up Door	2010	3,990	$3,990	28	7	21	21	$4,583	$6,266	50%	50%	0%	1,276	$74
0	Block Equipment Building	2005	43,042	$0	40	12	28	16	$0		100%		0%	0	
1	Alarm system	2008	750	$750	10	9	1	3	$896	$937	50%	50%	0%	240	$75
1	Alarm System Upgrade	2010	290	$290	10	7	3	3	$333	$348	50%	50%	0%	93	$27
1	Chain Link Fence	2012	10,379	$10,379	30	5	25	20	$11,459	$15,434	50%	50%	0%	3,319	$185
				$0										0	
	Machienery & Equipment			$0										0	
1	2011 Caterpillar Generator	2011	40,048	$40,048	10	6	4	15	$45,101	$56,386	100%		0%	25,613	$1,795
1	Generator System Modifications	2007	2,273	$2,273	10	10	0	15	$2,771	$3,464	100%		0%	1,454	$118
	Generator Fuel Tank	2007	1,815	$0	10	10	0	15	$0		100%		0%	0	
1	Waterproof Electric Panel	2007	2,018	$2,018	8	10	-2	15	$2,460	$3,075	100%		0%	1,291	$105
				$0										0	
	Office Equipment			$0										0	
1	HP Computer/Monitor	2007	1,442	$1,442	5	10	-5	1	$1,758	$1,784	100%		0%	922	$862
1	Copier	1994	2,591	$2,591	5	23	-18	1	$4,086	$4,147	100%		0%	1,657	$2,490
				$0										0	
	Other Equipment & Tools			$0										0	
1	Poulan Snow Blower	2011	600	$600	10	6	4	5	$676	$728	100%		0%	384	$66
1	Tools	2007	6,091	$6,091	15	10	5	5	$7,425	$7,999	100%		0%	3,896	$789
0	Sears Snow Blower	1997	1,211	$0	10	20	-10	5	$0		100%		0%	0	
1	Honda Gererator	2013	1,095	$1,095	10	4	6	5	$1,185	$1,277	100%		0%	700	$110
30	Water Meters (3/4")	2013	300	$9,000	15	4	11	12	$9,742	$11,648	100%		0%	5,756	$439
	Vehicles			$0										0	
1	2001 Dodge	2011	10,455	$10,455	6	6	0	5	$11,774	$12,684	100%		0%	6,687	$1,149
				$0										0	
	Water System			$0										0	
1	Chlorine Water Pump	2017	800	$800	10	0	10	10	$800	$928	100%		0%	512	$38
1	GE Flow Meter	2017	5,000	$5,000	10	0	10	1	$5,000	$5,075	100%		0%	3,198	$1,877
0	Chlorinator & Meter	2017	2,814	$0	10	0	10	1	$0		100%		0%	0	
1	Wells #1	2017	10,000	$10,000	30	0	30	30	$10,000	$15,631	100%		0%	6,396	$236
1	Wells #2 & #3	1991	17,010	$17,010	30	26	4	3	$28,465	$29,765	50%	50%	0%	5,439	$3,098
0	Air Compressor #2	1990	1,795	$0	10	27	-17	1	$0		100%		0%	0	
0	Air Compressor #1	1990	2,683	$0	10	27	-17	1	$0		100%		0%	0	
0	Water Storage Tanks	1990	27,059	$0	60	27	33	33	$0		100%		0%	0	
32	Hydrants & Hot Taps	1978	1,333	$42,656	50	39	11	20	$92,339	$124,368	20%	80%	0%	5,456	$857
1	Water System (Distribution System)	1978	259,585	$259,585	50	39	11	20	$561,935	$756,845	20%	80%	0%	33,204	$5,214
				$0										0	
				$0							100%		0%	0	
	Subtotal Existing Capital Replacement Program			$496,466								Existing Reserves		130,000	21,209
	New Project Replacement Program														
1	Water Tank	2020	500,000	$500,000	50	-3	53	60	$471,161	$1,151,150	5%	95%	0%	0	$705
250	Water Meters	2020	400	$100,000	15	-3	18	18	$94,232	$123,194	5%	95%	0%	0	$314
1	Pump Station	2020	80,000	$80,000	20	-3	23	18	$75,386	$98,555	5%	95%	0%	0	$251
				$0										0	
	Subtotal New Project Replacement Program			$680,000								Existing Reserves		$0	1,270.02
	Future Capital Improvement Program														
1	Office Building	2025	20000	$20,000	40			8	$20,000	$22,530	50%	50%	0%	0	$1,360
				$0				0	$0					0	
				$0				0	$0					0	
				$0				0	$0					0	
	Subtotal Future Capital Improvemenet Program			$20,000								Existing Reserves		$0	1,359.57
	Total Capital Programs			$1,196,466										130,000	$23,838.63

Budget

Lassen Pines MWC

Exhibit 2

Date:	03/09/17
Inflation Factor (%):	1.50
Loan Interest Rate (%)	3.00
System Number:	4500210

EXPENSES AND SOURCES OF FUNDS	2017	2018	2019	2020	2021
OPERATIONS & MAINTENANCE EXPENSES					
Operator Salaries & Wages	58,240.00	59,113.60	60,000.30	60,900.31	61,813.81
Electric Expense	16,000.00	16,240.00	16,483.60	16,730.85	16,981.82
Lab Fees	1,500.00	1,522.50	1,545.34	1,568.52	1,592.05
Licenses & Permits	1,200.00	1,218.00	1,236.27	1,254.81	1,273.64
Clorine	1,800.00	1,827.00	1,854.41	1,882.22	1,910.45
UV Lights	1,050.00	1,065.75	1,081.74	1,097.96	1,114.43
Sub Micron Filters	14,000.00	14,210.00	14,423.15	14,639.50	14,859.09
Scada Monitoring	1,700.00	1,725.50	1,751.38	1,777.65	1,804.32
Internet Expense	600.00	609.00	618.14	627.41	636.82
Chemicals	1,000.00	1,015.00	1,030.23	1,045.68	1,061.36
Repair & Maintenance	5,000.00	5,075.00	5,151.13	5,228.39	5,306.82
Generator Expense	1,500.00	1,522.50	1,545.34	1,568.52	1,592.05
Total Operation and Maintenance Expenses:	103,590.00	105,143.85	106,721.01	108,321.82	109,946.65
GENERAL & ADMINISTRATIVE EXPENSES					
Office Expenses	18,500.00	18,777.50	19,059.16	19,345.05	19,635.23
Emergency Reserve Fund (flat)	1,994.80	1,994.80	1,994.80	1,994.80	1,994.80
Debt Reserve Funds	0.00	0.00	0.00	0.00	0.00
Existing Capital Replacement Program	21,209.04	17,673.67	17,673.67	15,034.32	15,034.32
New Project Replacement Program	1,270.02	1,270.02	1,270.02	1,270.02	1,270.02
Future Capital Improvement Program	1,359.57	1,359.57	1,359.57	1,359.57	1,359.57
Taxes	4,850.00	4,922.75	4,996.59	5,071.54	5,147.61
Debt Service	0.00	0.00	0.00	0.00	0.00
Auto Expense	2,500.00	2,537.50	2,575.56	2,614.20	2,653.41
All Other (legal, fees, Insurance)	19,350.00	19,640.25	19,934.85	20,233.88	20,537.38
Total General and Administrative Expenses:	71,033.43	68,176.06	68,864.23	66,923.37	67,632.34
TOTAL EXPENSES	174,623.43	173,319.91	175,585.23	175,245.19	177,578.99
SOURCE OF FUNDS / REVENUES RECEIVED					
Water Revenue	167,300.00	172,080.00	176,860.00	181,640.00	186,420.00
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
TOTAL REVENUE	167,300.00	172,080.00	176,860.00	181,640.00	186,420.00
NET LOSS OR GAIN:	-7,323.43	-1,239.91	1,274.77	6,394.81	8,841.01
CONTRIBUTION TO RESERVES	18,510.00	21,058.15	23,572.82	26,053.51	28,499.72