

**TOWN OF PALMER LAKE, COLORADO**

**RESOLUTION NO. 73 - 2023**

**RESOLUTION TO ACCEPT THE FINAL WATER RATE STUDY REPORT FOR THE DRINKING WATER RATE STUDY FOR THE ENTERPRISE FUND, TOWN OF PALMER LAKE, COLORADO**

**WHEREAS**, the Board of Trustees of the Town of Palmer Lake, Colorado, pursuant to Colorado statute and the Town of Palmer Lake Municipal Code, is vested with the authority of administering the affairs of the Town of Palmer Lake, Colorado; and

**WHEREAS**, the Town of Palmer Lake, Colorado, Board of Trustees initiated a study of water rates and future capital improvement plan; and

**WHEREAS**, the Town Board received multiple draft versions in 2023 and modified the water usage tier structure and water rates effective the 9/15—10/15/2023 billing for the Town of Palmer Lake; and

**WHEREAS**, the report is finalized based on the discussions with the Board of Trustees.

**NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF PALMER LAKE, COLORADO AS FOLLOWS:**

1. The Board of Trustees for the Town of Palmer Lake hereby accept the final drinking water rate study report for the Town of Palmer Lake water enterprise fund, attached here as Exhibit A.
2. Severability. If any article, section, paragraph, sentence, clause, or phrase of this Resolution is held to be unconstitutional or invalid for any reason such decision shall not affect the validity or constitutionality of the remaining portions of this Resolution. The Board of Trustees hereby declares that it would have passed this resolution and each part or parts thereof irrespective of the fact that any one part or parts be declared unconstitutional or invalid.
3. Repeal. Existing resolutions or parts of resolutions covering the same matters embraced in this Resolution are hereby repealed and all resolutions or parts of resolutions inconsistent with the provisions of this Resolution are hereby repealed.

**INTRODUCED, RESOLVED, AND PASSED AT A REGULAR MEETING OF THE BOARD OF TRUSTEES OF THE TOWN OF PALMER LAKE ON THIS 14th DAY OF DECEMBER 2023.**

ATTEST:

TOWN OF PALMER LAKE, COLORADO

  
\_\_\_\_\_  
Dawn A. Collins  
Town Administrator/Clerk

BY:   
\_\_\_\_\_  
Grant Havenar  
Mayor

# Drinking Water Rate Study Town of Palmer Lake, Colorado

At the request of the Town Board of Trustees



*Prepared by: Chris Brandewie P.E., C.W.P.*

Water Rates by Brandewie LLC

**September 2023**

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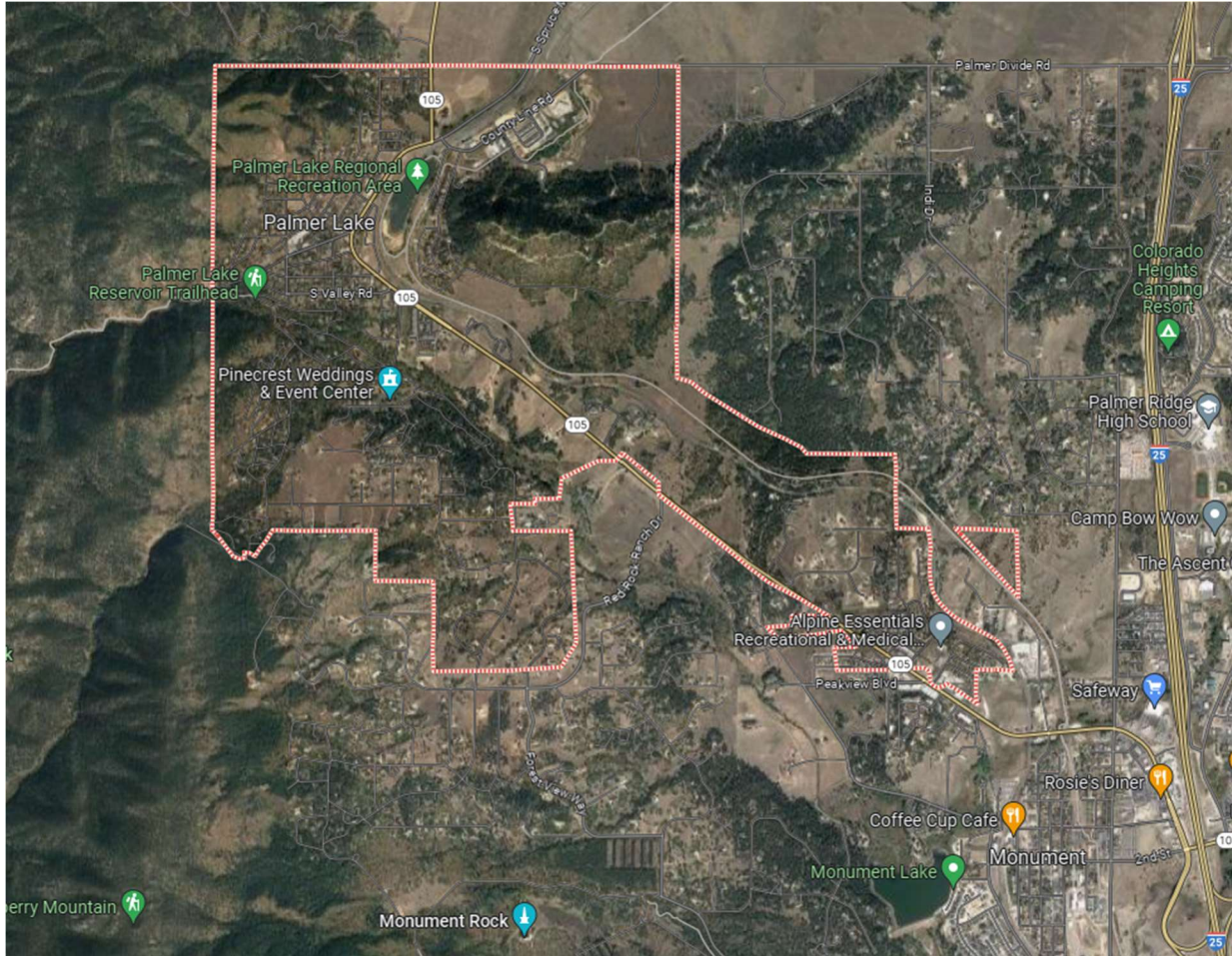
## 1. Town of Palmer Lake

### Community

The Town of Palmer Lake is located in El Paso County, in central Colorado along highway 105, between Larkspur and Monument. The Town was incorporated in 1889, however the original water system is said to have been built around 1867 which correlates to the water rights.

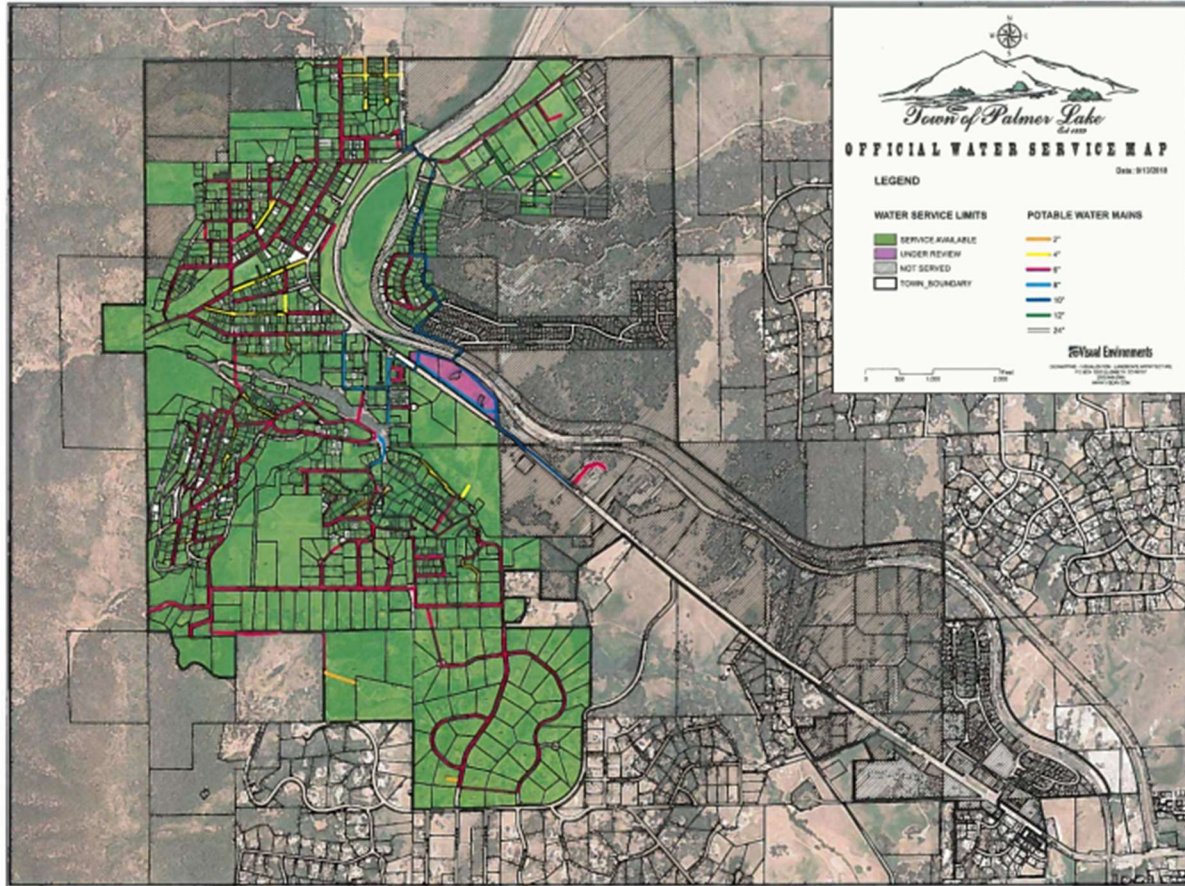
There are 1011 customers and approximately 2,636 residents. The majority of the customers are single family homes. There are a dozen restaurants among the 32 commercial accounts, one school and several condominiums.





The current water system service area does not cover the entire town of Palmer Lake. Based on limited resources to extend the distribution system to the southeast quadrant there are 141 private wells on individual properties for potable water supply. The official Median Household Income (MHI) is estimated to be \$92,333.

The Town recently had a comprehensive community master plan prepared to provide the Town with a roadmap into the future for growth and development. This makes it an opportune time to conduct a rate study to financially plan for the improvements.



### Local Government

The Town of Palmer Lake is a statutory town and governed by an elected seven-member Board, all volunteers, including the Town Mayor and six Trustees. The mayor has a two-year term and Trustees serve for four years. Members are elected in coordination with the El Paso County November General Election, in even-numbered years.

Palmer Lake was incorporated in 1889, the original water system to the town goes back to 1867. The Town manages the water enterprise, but not the sewer collection or treatment. The Palmer Lake Sanitation District is a separate entity and receives the sewage and treats it.





Left to Right: Shana Ball, Nick Ehrhardt, Sam Padgett, Kevin Dreher, Jess Farr, Dennis Stern, Glant Havenar)

The Town manages finance, billing and capital reserves for the enterprises.

### Customers

The Town staff provided customer billing data which shows the community has 1011 drinking water customers. The customers are currently only in customer classes based on meter size and billed accordingly. The Town Ordinance 8-85 allowed for property owners to drill private wells since the Town facilities are not able to provide water supply, to the southeastern quadrant. There are 141 private wells within the Town but outside the service boundary. Within the boundary there is little growth expected not to exceed 1.4% annually. In the mid to long term the Town will look at the feasibility of adding infrastructure required to extend water service beyond its current customers.

The current rate structure does not distinguish the four customers who are located outside the towns boundaries. The board accepted the recommendation to put those out-of-town customers in a new “Out of Town” customer class with a 50% surcharge. This is typical for customers located outside of the taxable town boundary and their bill will be 1.5 times the ¾-inch residential customer rate.

There is currently only one irrigation customer, however the board felt that this is a strain on the water supply and the system as a whole therefore decided to also put this one current and any future irrigation customer in a new category. The only irrigation customer has a 1-inch connection, and therefore the 50% surcharge is applied as 1.5 times the 1-inch customer rate.

### Current Processing Capacity

The Town has total water rights to 3,529 Acre-Feet per year, from two direct flow surface water rights decrees and an additional ground water right decree. The usage must include the metered water from the 141 private wells in some cases is augmented according to an augmentation plan. The groundwater rights far surpass the groundwater well capacities.

The A-2 well is 2,233 feet deep in the Arapahoe aquifer. The newly constructed D-2R is 1,630 feet into the Denver aquifer. Both wells pump to the Town’s ground water treatment plant (GW-WTP). With a

combined capacity of 500gpm the two wells produce 720,000gpd. The ground water treatment consists of iron oxidation and filtration.

The Surface Water Treatment Plant (SW-WTP) treats water piped from Glen Park Reservoir. The treatment includes, pre-chlorination, pre-straining and then pressure is reduced to be filtered by one of two Pall Aria AP-4 microfiltration units. Filtered water flows to a break tank then boosted by three 40-HP pumps. Chlorine dioxide gas is injected before the 24-inch pipe that provides disinfection contact time.

There are three treated water storage tanks, with a combined storage capacity of 1,000,000 gallons. High zone tank No. 1 is a buried concrete tank with 250,000 gallons storage from 1960. High zone tank No. 2 is also a buried 250,000-gallon concrete tank and built in 2019. Levels controls in these tanks signal the SW-WTP to turn on an off. The lower storage tank is made of welded steel, has 500,000 gallon capacity and is located at the GW-WTP. The Low Zone Tank booster pump station has the capacity to pump 120gpm to the distribution system or high zone tanks.

The distribution systems operate as a single pressure zone with gravity storage provide by the two 250,000 high zone storage tanks. In the center of Town, the pressure is at 125 psi and as high as 210 psi in other places. There is no pressure reducing valves in the system. There are 166 fire hydrants distributed approximately every 400 feet along the distribution system.

The majority of the distribution system is 6-inch PVC piping however some older segments are lead joint pipe and as small as 2-inches.

### **Funding Next Major Project**

The rate study process ran concurrently with the board deciding to proceed with the recommended priorities in the Water System Improvement PER in 2022 by GMS, Inc. Consulting. Addendum No. 1 to the PER in 2022 updated the costs of Priority One and Two and provided an estimate of the savings by proceeding with both priorities at the same time as opposed to phased separately.

The recommended improvements have been grouped into two priorities. The first priority includes the recommended new Arapahoe well, replacement of older segments of distribution system piping, and GW-WTP improvements. The estimated project cost for these improvements is \$4,691,700. The second priority of recommended improvements includes distribution system upgrades to loop and reinforce the distribution system. The estimated project cost for these improvements is \$1,436,300. With Priority One and Priority Two projects executed as a single project, the combined project cost estimate is \$5,952,600. This is a projected savings of \$175,400 due to administrative efficiencies.

### **Current Rates**

Customer classes are determined based on meter size connection. Customers are currently charged a monthly minimum base rate of \$68.23 for 3/4-inch meters. Customers with 1-inch meters are billed \$89.78 per month. Customers with 1.5-inch meters pay \$126.56 and 2-inch customers pay \$169.56.

	WATER RATES			
Tap Size	3/4"	1"	1 1/2"	2"
Monthly Base Rate	\$ 45.88	\$ 65.47	\$ 98.43	\$ 138.00
Capital Improvement Fee	\$ 4.59	\$ 6.55	\$ 9.84	\$ 13.80
Water Loan Payment	\$ 17.76	\$ 17.76	\$ 17.76	\$ 17.76
<b>TOTAL MINIMUM BILL</b>	\$ 68.23	\$ 89.78	\$ 126.03	\$ 169.56

The “Total Minimum Bill” is the term used in Palmer Lake to describe the set monthly payment before usage charges. It includes what the Town calls the “Monthly Base Rate”, the Capital Improvements Fee and the Water Loan Payment in this set monthly charge. Within this study the Monthly Base Rate is all three of these line items in one. There is not an option for a customer to pay less than the Total Minimum Bill or part of it. The continued operations and financial health of the enterprise depends on paying all its expenses with this consistent revenue.

There are only three tiers in the usage charges, and start from the first gallon consumed at \$0.84/100 gallons or as commonly described in the water industry as \$8.40/1000 gallons. The table below shows the tier breaks and the tier charges per gallon and 100 gallons.

WATER USAGE RATES			
min. gallons	max. gallons	\$ per gallon	\$ per 100 gal
1	4999	\$ 0.00840	\$ 0.840
5000	9999	\$ 0.01008	\$ 1.008
10000	99999	\$ 0.01210	\$ 1.210

### Disclaimer

The recommendations contained in this study are based on financial information provided to Water Rates by Brandewie LLC by the Town of Palmer Lake Staff and the Engineer’s Conceptual Opinion of Probable Costs presented in the PER and Addendum by GMS, Inc. Consulting Engineers completed in 2022 and 2023, respectively. 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.

For accounting advice, a CPA should be consulted. For legal advice, the County should seek the advice of their attorney.

## 2. Guiding Principles of this Rate Study

### Sustainability

Rates and fees are considered and established annually through the Town's budget process and in accordance with the Town of Palmer Lake Rules and Regulations, and applicable state statutes. Rates should cover the costs of the system to allow it to provide services now, and in the foreseeable future. The staff and board should stay aware of changes to existing laws, community growth, emerging contaminants, and water supply concerns to help keep their capital replacement plan up to date.

### Fair

Rates should be fair for all customers. No single rate payer or group of rate payers should be singled out for different rates without logic and justification. Current rates and proposed rates do not make any distinction between domestic, commercial, industrial users. Only for the proposed irrigation and out-of-town users are there distinctions. The proposed rates do address customers out of the town boundary according to normal surcharges. Since the Town's water system does is challenged to continually provide sufficient water the board decided to invoke a surcharge to the irrigation customers. The one irrigation customer consumes a lot of water which the town wants to conserve.

The enterprise should not charge more for the water service than the cost to provide that service. However, the costs should include operations, repairs, interest, loan principal, and all other costs related source development, treatment, storage of water and to the collection; now and into the foreseeable future.

Unreasonably low rates for current customers could require unreasonably high rates for future customers, which should be avoided. To keep revenue up with inflation, all scenarios considered in this study included an annual increase to the base rate year over year. This annual increase, referred to by the Town as the escalation, was previously 3%. This was paused during the Covid Pandemic of 2020 and the board decided to set the new annual increase at 5% to match closer to actual inflation being experienced.

### Justifiable

Water rates must be based on the needs of the system and the Community. System finances are managed through an enterprise fund meaning that revenue generated from water rates can't be used to pay anything other than the sourcing, treating, storage or distribution of the drinking water. For the enterprise the reserves set aside for future capital investments are also significant and are considered in the proposed rates.

### Purpose of this study

The purposes of this study are:

- Ensure the financial health of the water system into the future,
- Examine financial options for funding upgrades and repairs,
- Provide preliminary step to funding infrastructure improvements,
- Expose the need to set reserves aside for future replacement of failing components,

- Encourage the conservation of water

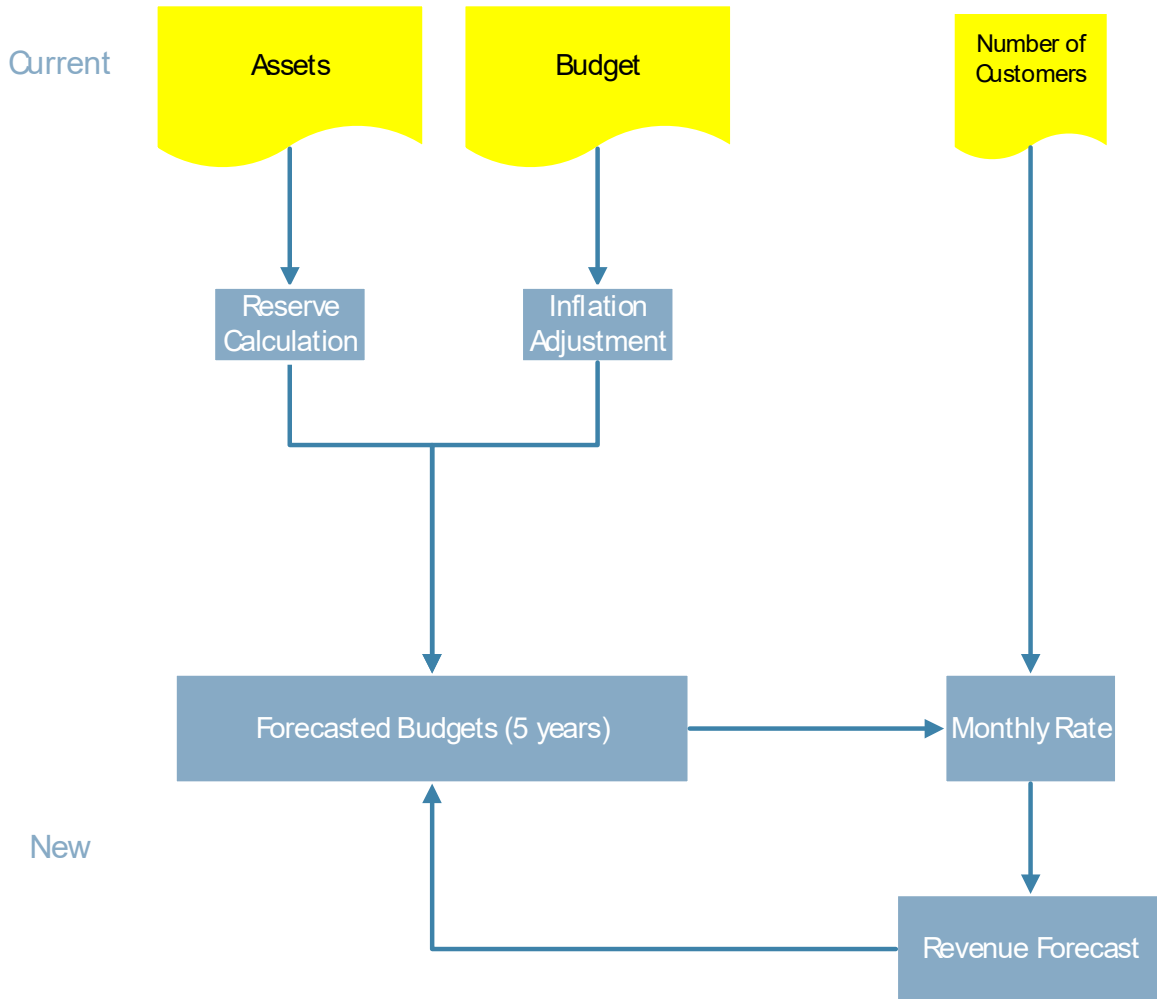
### **Board Decision**

This report documents financial options presented to and discussed with the Board of Trustees. The board has a fiduciary responsibility to set the rates at such a level that the enterprise will be able to continue to operate in the future, including providing funds to replace all parts of the system as they wear out, and keep rates affordable.

### 3. Rate Study Process

The figure<sup>1</sup> below explains the process of setting rates. The study employed a metered rate model, where the customer's connection or meter size dictates the distinct customer classes. The out-of-town and irrigation customers are based on their meter size in addition to other factors.

The rate setting process begins with the list of all capitalized assets, the current budget and the current number of customers, as provided by the Town staff.



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 directive from Board, was to limit the annual Capital Improvements Plan (CIP) to items only as far into the future as 30 years.

The Budget expenses are adjusted for 5.0% inflation year over year for the five-year forecast.

<sup>1</sup> In this report all yellow cells contain data obtained outside the model. All blue cells are calculated.



This report assumes that the number of customers in Palmer Lake will grow at 1.4% each year for the next five years. The study considers an initial conservation of water as a response to the adjustment at 5% the first year after rates increase and to slowly return to existing usage patterns. This ensures that a potential reduction in usage does not mean reduction in overall revenue.

The table below combines the conservation and community growth adjustment employed by the model.

**Growth of Consumption over Base year**

	Year 1	Year 2	Year 3	Year 4	Year 5
Conservation Factor	-5.0%	-4.0%	-3.0%	-2.0%	-1.0%
Community Growth Factor	1.4%	2.8%	3.2%	4.6%	6.0%
Total Consumption Adjustment (accumulative year to year)	-3.6%	-1.2%	0.2%	2.6%	5.0%

The expenses, including the reserve requirements are allocated among all the customers. The model calculates the shortfall in the budget and resulting shortfall in the ability to replace the failing components of the water system.

To lessen the impact on Palmer Lake water customers, rate increases were intended to be spread over five years.

**Source of the Data**

The data in the Capital Improvements Program (CIP) comes from the data supplied by the towns two operators and clerks. The CIP is shown on the first sheet of the Excel model as Exhibit 1 DW.

The list of the components, their installation date and their original costs or reasonable replacement or repair estimations were all supplied by the operators, the engineer and AWWA standards.

The Normal Estimated Life is based on AWWA standards and adjusted for actual conditions. The Estimated Remaining Life is based on the best judgement of the Operator in Responsible Charge, the Engineer and Water Rates By Brandewie LLC.

**Sources of Funding**

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

The possibility of receiving substantial grants or loan forgiveness for the Town is 0 – 10% considering the Medium Household Income is \$92,333 per year. This is significantly higher than the Colorado state average of \$80,184 per year.

The current affordability index for water services is at 1.27% which is below the range (1.5%-4% Medium Household Income/MHI) where funding agencies typically provide grants. In other words, the current rates are not considered a financial burden and do not make a favorable case for grant funding or loan forgiveness.

Affordability rating is calculated as the annual average cost of the utility as a percent of the MHI. This is a major factor considered by funding agencies when determining grant allocations. With the rate increases determined by this study this percentage raises to 1.89% in the 5<sup>th</sup> year.

This study assumes that small items will be funded with cash and larger replacement projects will be funded with the following schedules:

**Default Funding of Drinking Water Asset Investments**

Replacement Value	From	To	Cash	Grant	Loan
\$0	\$100,000		100%	0%	0%
\$100,001	\$500,000		20%	0%	80%
\$500,001	\$1,000,000		10%	0%	90%
\$1,000,001	\$99,999,999		2%	0%	98%

**Description**

The CIP provides a detail of the reserves needed or acceptable targets to replace the capital assets. The ‘Total’ line of the CIP table (Exhibit 1 DW, \$313,616) represents the amount the enterprise will put aside in 2024 to start reserves to fund the replacement of equipment for the systems. This reserve target will decrease when Priority One and Two projects are complete, however the debt expense will increase.

**Alternative**

If the Board decides not to fund the annual capital reserve requirement sufficiently, the systems will have to find funding from other sources, or from steeper rate increases in future years.

It will require a substantial effort by Town staff to obtain any percentage grant and low interest loans. The amount of grants obtained/forecasted for future projects has a large impact on the rates. Therefore, this study recommends a new rate study when new loans or grants are obtained.

Exhibit 1 DW CIP

Capital Replacement/Improvement Program		AWWA Cash-Needs Approach										Exhibit 1	
Palmer Lake												Date:	9/18/23
												System Number:	0
												Service Connections:	1,011
Quantity	Asset	Year Acquired	Unit Cost (Historic, Current or Future)	Cost Type (H, C, F)	Estimated Remaining Life	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required		
<b>Replacement of Existing Capital Assets</b>													
<b>REAL ESTATE</b>													
1	Maintenance Building	1983	601,000	C	20	398,658	20%	0%	100%	0	0		
1	Maintenance Building - Contents	2000	57,770	C	7	20,322	100%	0%	0%	2,514	2,501		
<b>VEHICLES</b>													
1	Ford Truck F-250 2005 DFZ901	2005	40,000	C	5	51,051	100%	0%	0%	6,962	8,716		
1	Dodge Ram 1500 2019 BSH031	2019	50,000	C	3	57,881	100%	0%	0%	8,703	16,297		
1	Dodge Ram 2015 779SWQ	2015	50,000	C	2	55,125	100%	0%	0%	8,703	23,142		
1	Chevey 1/2 Ton 2008 681RS	2014	45,000	C	1	47,250	100%	0%	0%	7,832	39,418		
1	Chevey 1/2 Ton 2005 219CLV	2005	40,000	C	1	42,000	100%	0%	0%	6,962	35,038		
1	John Deer Loader	2008	200,000	C	10	16,289	100%	0%	0%	1,741	1,419		
1	Road Grader JD	2006	300,000	C	8	22,162	100%	0%	0%	2,611	2,396		
1	Backhoe 310SJD	2008	100,000	C	12	8,979	100%	0%	0%	870	655		
1	Water Truck 3500 Gal Tank Freightliner	2005	60,000	C	6	4,020	100%	0%	0%	522	Not Cap.		
1	Dump Truck mini International	2001	60,000	C	4	3,647	100%	0%	0%	522	Not Cap.		
<b>SOURCE and TREATMENT</b>													
1	Spruce Mountain Pump Station D2 Well Station - 195 Spruce	1989	799,600	C	26	710,779	10%	0%	90%	3,479	2,433		
1	High Cap Pump (1200gpm) Fire Pump Would Replace with	2007	500,000	C	24	1,612,550	2%	0%	98%	1,741	1,196		
1	Service Pumps (300 gpm) Summit Submersible A2 Well	2018	400,000	H	2	562,840	10%	0%	90%	8,071	24,036		
1	Well D2 Original Redrilled 1630 feet	2023	635,779	C	30	2,747,800	2%	0%	98%	2,213	1,629		
1	Chlorinator Pump Hypo Chlorite Injection (2)	2021	3,000	H	1	3,473	100%	0%	0%	554	Not Cap.		
2	Rapid Filter (500 gpm filters) Media replenished (2)	2022	13,554	H	4	34,597	100%	0%	0%	4,860	7,370		
1	Well A2 2233 feet deep	2002	993,900	C	10	1,618,958	2%	0%	98%	3,460	2,820		
<b>Surface Water Treatment</b>													
1	Amiad 130 Micron Pre-Strainer 1999 replaced 2018	2018	35,000	C	15	72,762	100%	0%	0%	6,092	4,277		
3	40-HP distribution pumps one Replaced recently (3)	2011	6,000	C	6	24,122	100%	0%	0%	3,133	3,448		
1	Membrane Filter Pall skid 350 gpm Replaced 1 Module 2020	2011	1,208,527	H	18	5,223,184	2%	0%	98%	5,998	5,228		
44	22 Modules per skid Replaced Recently (44)	2020	9,229	H	7	661,455	10%	0%	90%	7,723	8,205		
1	Electrical Controls Auto Pall Controls Lightening strike	2020	29,800	H		2,980	100%	0%	0%	567	0		
1	SWTP Lab Equipment	2018	20,000	C	2	22,050	100%	0%	0%	3,481	9,257		
1	Chlorine Analyzer Obsolete No Parts	2002	8,000	C	4	9,724	100%	0%	0%	1,392	2,065		
6	Turbidity Analyzer Obsolete No Parts (6)	2011	6,000	C	4	43,758	100%	0%	0%	6,266	9,291		
2	Chlorine Gas System, Regulators, injectors Measurement (2)	2011	300,000	C	28	2,352,077	2%	0%	98%	2,089	1,495		
1	SCADA Replace PLC at GWTP Replacing this now?	2023	40,000	C	25	135,454	20%	0%	80%	1,392	964		
1	Scada at A2 and D2 Done recently	2022	58,654	H	19	155,627	20%	0%	80%	2,103	1,455		
<b>STORAGE</b>													
1	High Zone Water Storage Tank (250,000 Gal) Concrete Burr	1985	591,500	C	22	1,730,292	2%	0%	98%	2,059	1,398		
1	Low Zone Water Storage Tanks (500,000 Gal) Welded Steel	1955	751,100	C	7	1,056,873	2%	0%	98%	2,615	2,601		
1	Low Zone Water Storage Tank Booster Station	1994	377,700	C	31	1,714,018	2%	0%	98%	1,315	983		
<b>DISTRIBUTION system maps from GMS</b>													
8	8" Gate Valves (8)	2013	2,540	C	30	87,822	100%	0%	0%	3,537	2,603		
156	6" Gate Valves (156)	2013	2,090	C	30	1,409,126	2%	0%	98%	1,135	835		
5	4" Gate Valves (5)	2013	1,800	C	30	38,897	100%	0%	0%	1,566	1,153		
<b>Fire Hydrants 166 6" Hydrants</b>													
8	6" Hydrants 8	1950	9,050	C	7	101,874	20%	0%	80%	2,520	2,507		
<b>Subtotal Replacement of Existing Capital Assets</b>										132,532	230,369		

Quantity	Asset	Year Acquired	Unit Cost (Current or Future)	st Type (C,)	ated Remaining Life	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Replacement of Funded Project Assets</b>											
1	ARPA FUNDING 2023 Project TBD Dis System Replacement	2023	259,238	C	61	5,084,473	2%	0%	98%	259,238	0
1	ARPA Funding 2024 Project Dis System Replacement	2024	77,938	C	62	1,605,040	2%	0%	98%	77,938	0
<b>Subtotal Replacement of Funded Project Assets</b>										337,176	0

Enter Existing Reserves for Replacement of Funded Project Assets 

Quantity	Asset	Year to be Purchased	Unit Cost (Current or Future)	st Type (C,)	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required	
<b>Reserves for Additional Capital Assets</b>											
1	<b>New Araphahoe Well &amp; Dist Sys Loop Reinforce Priority</b>	<b>2025</b>	<b>5,952,600</b>	C	<b>6,562,742</b>	2%	0%	98%	0	65,464	
	Groundwater Treatment Plant Improvements (included above)	2025		C		100%	0%	0%	0		
	Distribution System Replacement (Included above in line item)	2025		C		100%	0%	0%	0		
						0%	0%	0%	0		
1	Distribution System Extention to Serve Properties on Private	2035	4,067,188	C	7,304,085	2%	0%	98%	0	11,842	
1	Back Up Generator for Tank Pump	2030	30,000	C	42,213	100%	0%	0%	0	5,941	
<b>Subtotal Reserves for Additional Capital Assets</b>											83,247

Enter Existing Reserves for Additional Capital Assets 

<b>Total Capital Reserves</b>											313,616
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## 4. Budget

### Source

All expenses shown in Exhibit 2 DW (5-Year Budget sheet) are based on Palmer Lakes 2023 proposed budgets and projections. Further review of each line-item cost was analyzed by staff, the project engineer, and Water Rates by Brandewie LLC to assure accuracy in the expense projection into the future.

The Cash Revenue required is a calculated number based on:

- Rates entered on the rates sheet
- 2023 & 2024 forecasted number of customers
- Future debt service, financing future expense above \$100,000
- Saving to pay in cash for replacement items under \$100,000
- An annual inflation factor of 5%

### Reserve Funding

There are four types of reserves the Systems must consider:

1. **Debt Reserve:** financial compliance assurances required by the SRF funding require one full year's debt service. This is allowed to be built up over a 10-year period. The CWRPDA Loan for SWTP Upgrades has achieved the required Debt Reserve of \$200,956. Regardless of the funding vehicle, it is wise to establish a debt reserve and may result in better loan terms for future financing.
2. **Operating Reserve:** Operating reserves are established to provide the enterprise with the ability to withstand short-term cash-flow fluctuations. A 45-day operating reserve is a frequently used industry norm, this equates to \$103,486. Since there is currently \$236,018 in operating reserves the excess is shifted to Emergency and CIP Reserves.
3. **Emergency Reserve:** Emergency reserves are intended to help utilities deal with short-term emergencies, such as main breaks or pump failures. An emergency is intended to fund the immediate replacement or reconstruction of the system's single most critical asset. It was estimated that \$200,000 would be sufficient for emergency reserves. There was \$181,393 allocated to emergency reserves and by contributing \$6,202 annually to the budget, this reserve target will be achieved in 3 years.
4. **Capital Replacement/Improvement Reserve:** This reserve is strictly to be used to fund the replacement of capital assets that wear out and infrastructure improvement. The annual reserve requirement of the Capital Improvement Program was presented in the previous section of this report. However, it is worth noting here that there was limited allocation prior to this study and after reorganizing reserves, there is \$132,532 available for Capital Reserves.

	2022	2023	% Belonging to Water	2024	2025	2026	2027	2028
<b>EXPENSES AND SOURCES OF FUNDS</b>								
<b>OPERATIONS &amp; MAINTENANCE EXPENSES</b>								
5007 Salaries/Wages on Call	19,110	15,308	100%	16,073	16,877	17,721	18,607	19,537
5026 Overtime, Civilian Unsched	1,470	1,482	100%	1,556	1,634	1,716	1,801	1,891
5210 General Services	1,000	27,870	100%	29,264	30,727	32,263	33,876	35,570
5211 General Services - Treatment	13,000	22,000	100%	23,100	24,255	25,468	26,741	28,078
5212 General Services - Distribution	13,000	22,000	100%	23,100	24,255	25,468	26,741	28,078
5202 General Supplies - Treatment	44,000	49,000	100%	51,450	54,023	56,724	59,560	62,538
5205 General Supplies - Distribution	36,000	45,000	100%	47,250	49,613	52,093	54,698	57,433
5310 Building Maintenance	2,000	2,000	100%	2,100	2,205	2,315	2,431	2,553
5330 Repair/Maint Supplies	65,000		100%	0	0	0	0	0
5331 Repair/Maint Supplies Distribution	214,030		100%	0	0	0	0	0
5220 Water Meters/Parts Replace	5,000	2,000	100%	2,100	2,205	2,315	2,431	2,553
5222 Water Meters / Repairs	5,000	3,000	100%	3,150	3,308	3,473	3,647	3,829
5300 Utilities - Electric	120,750	83,000	100%	87,150	91,508	96,083	100,887	105,931
5301 Utilities - Gas		18,400	100%	19,320	20,286	21,300	22,365	23,484
5302 Utilities - Water		12,500	100%	13,125	13,781	14,470	15,194	15,954
5303 Utilities - Sanitation		16,400	100%	17,220	18,081	18,985	19,934	20,931
5510 Vehicle Repair / Maint	6,000	8,000	100%	8,400	8,820	9,261	9,724	10,210
5520 Fuel/Lubricants	10,000	10,000	100%	10,500	11,025	11,576	12,155	12,763
5850 Vehicle Loan Principal	2,976	0	100%	0	0	0	0	0
5851 Vehicle Loan Interest	945	0	100%	0	0	0	0	0
5650 Water Line Repair			100%	0	0	0	0	0
5320 Equipment Maintenance	23,000	19,539	100%	20,516	21,542	22,619	23,750	24,937
5660 Reservoir/Dam Maintenance	13,000	13,000	100%	13,650	14,333	15,049	15,802	16,592
5610 Water Quality Testing	27,949	23,732	100%	24,919	26,165	27,473	28,846	30,289
			100%	0	0	0	0	0
			100%	0	0	0	0	0
<b>Total Operation and Maintenance Expenses:</b>	<b>623,230</b>	<b>394,231</b>		<b>413,943</b>	<b>434,640</b>	<b>456,372</b>	<b>479,190</b>	<b>503,150</b>
<b>GENERAL &amp; ADMINISTRATIVE EXPENSES</b>								
	2022	2023	Belonging	2024	2025	2026	2027	2028
Operating Reserve Funding				0	0	0	0	0
Emergency Reserve Funding				6,202	6,202	6,202	0	0
Debt Reserve Funding				0	0	0	0	0
Replacement of Existing Capital Assets				230,369	164,007	125,534	117,506	108,964
Replacement of Funded Project Assets				0	0	0	0	0
Reserves for Additional Capital Assets				83,247	83,247	17,783	17,783	17,783
Debt Service	183,229	183,229		284,784	284,784	611,832	611,832	611,832
5002 Salaries/Wages, Full-time	400,788	423,291	100%	444,456	466,678	490,012	514,513	540,238
5030 Social Security ER	27,358	27,285	100%	28,649	30,082	31,586	33,165	34,823
5032 Medicare ER	6,398	6,381	100%	6,700	7,035	7,387	7,756	8,144
5036 FUTA	281	239	100%	251	263	277	291	305
5006 Salaries/Wages, PT Sick	642	0	100%	0	0	0	0	0
5050 Retirement ER Match	16,855	17,603	100%	18,483	19,407	20,378	21,397	22,466
5060 Health Ins ER-pd	40,508	40,900	100%	42,945	45,092	47,347	49,714	52,200
5070 Life Ins ER-pd	1,233	1,245	100%	1,307	1,373	1,441	1,513	1,589
5038 Workers Comp Ins	28,487	29,172	100%	30,631	32,162	33,770	35,459	37,232
5103 Professional Svcs Legal	20,000	20,000	100%	21,000	22,050	23,153	24,310	25,526
5101 Professional Svcs Acctg	9,500	45,225	100%	47,486	49,861	52,354	54,971	57,720
5102 Professional Svcs IT/Water Billing	58,000	78,000	100%	81,900	85,995	90,295	94,809	99,550
5040 Employee Clothing	500	1,000	100%	1,050	1,103	1,158	1,216	1,276
5041 Employee Training	2,000	4,500	100%	4,725	4,961	5,209	5,470	5,743
5042 Employee Travel	5,000	6,000	100%	6,300	6,615	6,946	7,293	7,658
5043 Employee Per Diem		3,000	100%	3,150	3,308	3,473	3,647	3,829
5137 Memberships/Registration	10,000	10,000	100%	10,500	11,025	11,576	12,155	12,763
5121 Bank Fees / Services	400	100	100%	105	110	116	122	128
5140 Postage	0	0	100%	0	0	0	0	0
5133 Insurance	12,000	13,400	100%	14,070	14,774	15,512	16,288	17,102
5135 Legal Notices/Recordings	500	500	100%	525	551	579	608	638
5122 Communication	0	3,100	100%	3,255	3,418	3,589	3,768	3,956
5199 Misc Expense	800	800	100%	840	882	926	972	1,021
5201 General Supplies	2,000	3,000	100%	3,150	3,308	3,473	3,647	3,829
5500 Vehicle License / Fee			100%	0	0	0	0	0
6000 Cap Imp		133,254						
5109 Professional Svcs Other engineering	20,432	40,000						
6100 Capital Equipment	63,000	33,984						
6100 Capital Equipment IT	26,400	92,000						
Water Meter Lease Program????					50,000	50,000	50,000	50,000
	936,311	1,217,208		1,376,080	1,398,292	1,661,906	1,690,203	1,726,315
<b>TOTAL EXPENSES</b>	<b>1,559,541</b>	<b>1,611,439</b>		<b>1,790,023</b>	<b>1,832,931</b>	<b>2,118,278</b>	<b>2,169,394</b>	<b>2,229,465</b>
<b>SOURCE OF FUNDS / REVENUES RECEIVED</b>								
20-19-4410 - 4430 Sales Revenue (Base + Usur)	1,203,373	1,211,000		1,466,054	1,559,336	1,649,579	1,754,274	1,865,423
20-19-4440 Water Tap Fees	84,521	100,000	100%	105,000	110,250	115,763	121,551	127,628
20-19-4450 Water Meter Sales	2,000	3,000	100%	3,150	3,308	3,473	3,647	3,829
Uncollectable Receivables				0	0	0	0	0
20-19-4499 Service/Late Fees	16,644	14,000	100%	14,700	15,435	16,207	17,017	17,868
20-19-2322 Water Revenue Interest	4,000	7,000	100%	7,350	7,718	8,103	8,509	8,934
Misc	525	200	100%	210	221	232	243	255
20-19-2360 Water Dep. Misc.Revenue/TANK	0	0	100%	0	0	0	0	0
20-19-2350 ARP Funds	248,000	259,238						
20-19-2314 Water Reserve Interest	4,000	7,000		7,000	100	100	100	100
<b>TOTAL REVENUE</b>	<b>1,563,063</b>	<b>1,601,438</b>		<b>1,603,464</b>	<b>1,696,366</b>	<b>1,793,456</b>	<b>1,905,340</b>	<b>2,024,038</b>
<b>NET LOSS OR GAIN:</b>	<b>3,522</b>	<b>-10,001</b>		<b>-186,559</b>	<b>-136,565</b>	<b>-324,822</b>	<b>-264,054</b>	<b>-205,427</b>
<b>NET CASH FLOW (Contribution to Reserves)</b>	<b>3,522</b>	<b>-10,001</b>		<b>133,259</b>	<b>116,890</b>	<b>-175,302</b>	<b>-128,765</b>	<b>-78,681</b>
Affordability assuming MHI of \$92333 for residential meters.				1.49%	1.58%	1.67%	1.78%	1.89%
Does the Budget Balance?				No	No	No	No	No
Positive Annual Cash Flow?				Yes	Yes	No	No	No

<b>Existing Reserves</b>	<b>Amount</b>
Debt Reserve	\$200,956
Operating Reserve	\$236,018
Emergency Reserve	\$181,393
Capital Reserve	\$0
<b>Total</b>	<b>\$618,367</b>

<b>Reserve Targets</b>	<b>Amount</b>
Debt Reserve	\$200,956
Operating Reserve	\$103,486
Emergency Reserve	\$200,000
Available for Capital Reserve	\$132,532

### Alternatives

If the Board does not fund its budget by setting appropriate rates, it does not mean the enterprise can't pay its bills. It simply means that they are not providing for future replacement of the capital assets and will not be able to guarantee the continued operation of the utility service. The Board has a fiduciary responsibility to set rates to a level where the enterprise can continue to operate and provide services for the foreseeable future, per System Rules and Regulations.

### Investment changes

The current investment strategy may keep most funds in savings accounts at a very low interest rate. By identifying timing and need, certain funds can be invested for a longer term and at higher interest rates.

1. The Capital Reserve Accounts can be invested in a series of CDs with staggered maturities according to the future needs of the respective systems:
  - a. Recommend to split between 1- and 5-year CDs.
  - b. 1-year insured CD rates are up to 5% and 5-year rates are about 4%.
  - c. If the board feel comfortable with higher paying insured instruments, they have the option to do so.
2. The "Debt Reserve" account, previously known as "FMHA Tax Free Investments", should not be invested in tax free investments as the enterprises do not pay taxes. The enterprises may achieve higher rates of return when it invests in "taxable" investments, on which they do not pay taxes anyway because it is a non-profit government entity.
3. All other funds can be kept in savings accounts for liquidity.

Periodically, any excess funds above the target set should be transferred to the respective Capital Reserve Accounts.

## 6. Scenarios

The baseline scenario, or Scenario 0 was reviewed by the Town's staff to assure accuracy off all inputs prior to presenting to the Board on April 25th. The first scenarios presentation in April included an explanation of the model and a brief lecture on water rates. Information was provided by the staff and at the board meeting several questions were answered to eliminate variable to the model.

Important decisions made through this first round of scenarios were: The Capital Improvement Plan, built as far into the future as possible should only be funded for items needing replacement 30 years into the future. The recommendation for customers outside of the town boundary to establish a 50% surcharge was discussed and accepted. Therefore, these directions settled they were both included in all scenarios moving forward.

The following rounds of scenarios presented in May and June to the board provoked discussions regarding establishing a customer category for restaurants and irrigation customers, 3% to 10% annual increases (rate escalations) and increasing the number of tiers along with the tier prices. It was determined to follow 5% annual increase to both the Total Minimum Monthly Fee and Usage. One major variable was what part of the Preliminary Engineering Report from 2022 to build into the model. It was determined to include funding Priorities one and 2 but not 3 be included in the CIP. Priority One includes: a new Arapahoe Well, improvements to the groundwater treatment plant, and the remaining distribution system replacements required for fire hydrants. Priority Two will create loops in the distribution system to provide better water quality and reinforce the reliability of water delivery. Priority Three which would extend the distribution system to serve residents on private well to the south of town was not elected.

With many variables eliminated by board decisions allowed for the development of a final and accurate scenarios comparison. One of these final scenarios was directly prescribed by a board member, and the overall decision came down to the balancing the tiers and their prices. The final scenario recommendation in July 2023 was achieved by the board, staff and Water Rates by Brandewie LLC working as a team.

All scenarios document in their original form are presented in the appendix at the end of this report.



## 7. Conclusions

The process of conducting a rate study contributed to the board making the decision to formally pursue the capital improvement Priorities One and Two as outlined in the Preliminary Engineering Report by GMS, Inc. The costs presented in the report titled “Water Systems Improvement -2022” was updated in July of 2023 and integral to establishing the correct parameters of the financial model. The board decided to pursue funding for the New Arapahoe Well, Upgrades to the Groundwater Treatment Plant, and various beneficial improvements to the distribution system. Capital Reserves will save money for improvements, replacements and major repairs 30 years into the future, and these contributions are included in the annual budget.

The “Minimum Total Bill” includes a monthly base rate, a Capital Improvements Fee and Water Loan Payment. For the residential customer this was at \$68.23 and increased to \$85.00, which is an increase of 24.58%. The Usage fees were tiered and priced at 0-5,000 gallons \$0.84/100 gallons, 5,001-10,000 \$1.008/100 gallons and 10,001 and above \$1.21/100 gallons. Tiers were added and the prices per tier were increased. The first tier is now 0-1,000 gallons for \$0.84/100 gallons and instead of 3 tiers now there are 7 tiers. From 1,001-3,000 \$1.20/100 gallons, from 3,001-6,000 \$1.45/100 gallons, from 6,001-9,000 \$1.65/100 gallons, from 9,001-12,000 \$1.90/100 gallons, from 12,001-19,000 \$2.1/100 gallons and above 20,000 gallons and above the price is set at \$2.30/100 gallons.

The annual “Minimum Total Bill” in 2023 had it not changed would have brought in \$833,214. This number is from 12 months of predictable monthly revenue at \$69,434.51. The usage brought in \$444,760 in revenue for the whole year. The monthly usage revenue was estimated with 2022 usage data. The usage makes up 34.8% of the total revenue, \$1,277,974, if the rates would have remained unchanged for the entire year.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
\$29,996	\$26,887	\$24,558	\$40,401	\$34,494	\$43,841	\$52,067	\$46,555	\$48,439	\$40,246	\$30,492	\$26,785

For 2024 the “Minimum Total Bill” brings in \$835,390 (from \$86,726.29 per month) and the usage is estimated to bring in \$630,663 annually. The usage charges are estimated to bring in 43.0% of the total revenue, 1,671,381. With new usage tiers and prices the increase will affect the higher volume user more than those customers that stay below the average consumption of 3,174 gallons per month.

In 2024 the new rates are estimated to generate \$1,466,054 in revenue from monthly bills (\$91,062.81 monthly) and the usage is estimated to bring in \$682,175.75 annually.

A 5% annual increase to both “Minimum Total Bill” as well as usage, is set from 2025 through 2028. In the 5<sup>th</sup> year, 2028 the forecasted revenue is estimated to be \$2,115,000 in total. This is from \$105,426 monthly arriving at \$1264,999 annually from Total Minimum Base fees and \$850,001 in usage fees.

The affordability index for the residential customer with average usage was at 1.27% and in 2024 will be 1.49% and continues to increase to 1.89% at the end of the 5-year forecast. This range of affordability indices shows that the rates are affordable with respect to the median household income of Palmer Lake.

## 8. Appendix

### Prior Rate Resolutions and Memorandums

#### REMINDER – WATER BILLING IN 2023

##### NEW 2023 WATER RATES

In accordance with Resolution 4 of 2019, Water Base Rates are subject to an annual adjustment each year by a 3% inflationary factor. Capital Improvement Fee equals 10% of Base Rate.

Per Resolution 13 of 2023, Water Usage Rates shall be increased 7% to rates shown below:

<b>WATER RATES</b>				
Tap Size	3/4"	1"	1 1/2"	2"
Monthly Base Rate	\$ 45.88	\$ 65.47	\$ 98.43	\$ 138.00
Capital Improvement Fee	\$ 4.59	\$ 6.55	\$ 9.84	\$ 13.80
Water Loan Payment	\$ 17.76	\$ 17.76	\$ 17.76	\$ 17.76
<b>TOTAL MINIMUM BILL</b>	<b>\$ 68.23</b>	<b>\$ 89.78</b>	<b>\$ 126.03</b>	<b>\$ 169.56</b>
<b>WATER USAGE RATES</b>				
	min. gallons	max. gallons	\$ per gallon	\$ per 100 gal
	1	4999	\$ 0.00840	\$ 0.840
	5000	9999	\$ 0.01008	\$ 1.008
	10000	99999	\$ 0.01210	\$ 1.210

**NEW 2023 WATER TAPS FEE**

Per Resolution 13 of 2023, Water Tap Fees shall be increased 7% to rates shown below:

<b>3/4" Tap Fee:</b>	\$	22,703.26
<b>1" Tap Fee:</b>	\$	41,587.83
<b>1 1/2" Tap Fee:</b>	\$	73,061.36
<b>2" Tap Fee:</b>	\$	110,828.23

**ALWAYS CONFIRM YOUR ACCOUNT INFORMATION!**

Be sure to verify your water billing account information is current with a correct **phone number, email, and mailing address**. Go to [www.amcobi.com](http://www.amcobi.com) and log-in or create a new account to view your water account information online. Your account number is on the billing statement. Otherwise, send updated information in an email at [clientcare@amcobi.com](mailto:clientcare@amcobi.com) or to the Town at [info@palmer-lake.org](mailto:info@palmer-lake.org) and include your property address or account number in the subject line. Or feel free to call AMCOBI at 877-410-0167 x2 or the Town office at 719-481-2953.

**AVOID LATE FEES WITH TIMELY PAYMENTS DUE BY THE 20<sup>TH</sup>!**

Monthly statements are available online after the 1st of every month. Verify electronic or automatic payments are going directly to AMCOBI. Please allow up to 10 business days if you or your financial institution mail your payment. Mail delivery continues to lengthen and none of us have control or influence of the Post Office delivery time. Please note the following AMCOBI process for mailed payments –

- AMCOBI picks up mail daily from the Post Office at approximately noon
- Payments are posted on the same day received from Post Office or the next day, depending on mail volume - Monday’s mail/posting includes payments delivered on Saturday
- Payments received after the 20th will incur a \$15 late fee

Consider other payment options: set up eBill or ePay through [www.amcobi.com](http://www.amcobi.com), view/print online bills, initiate check payment early. Immediately call AMCOBI if your billing statement has not arrived by the first week of the month.

**PALMER LAKE, COLORADO**

**RESOLUTION NO. 13 - 2023**

**A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF PALMER LAKE, COLORADO, SETTING A DIFFERENT INCREASE TO THE WATER TAP FEE AND THE WATER USAGE RATE FOR THE TOWN**

WHEREAS pursuant to § 31-35-402(1)(f), C.R.S., the Town of Palmer Lake possesses the authority to prescribe, revise and collect fees for providing water service; and

WHEREAS, by Ordinance 5 of 2018, as codified in Section 13.02.020 of the Town of Palmer Lake Municipal Code, the Town has provided that the water base rates, tap fees, and usage fees may be set by resolution of the Board of Trustees ("Board"); and

WHEREAS, the Board engaged a third-party consultant to review the Town's water utility rate structure and to make recommendations to the Board to ensure that the Town is adequately funding existing operations, equipment repair and replacement, other capital improvement plans and debt service; and

WHEREAS, respective resolutions were passed in 2019 to increase these respective rates annually; and

WHEREAS, the increases did not appropriately take place; and

WHEREAS, it is recommended to increase the Water Tap Fee and Water Usage Rate by 7% in 2023 to bring those rates to the intended level.

**NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF PALMER LAKE, EL PASO COUNTY, COLORADO:**

**Section 1. Water Tap Fees.** In accordance with Section 13.08.020(a) of the Municipal Code, all water tap and service connections to the Town's water system shall pay one time tap fees (for new taps only) as follows, and, commencing with the next billing cycle following approval of this resolution, all customers shall pay monthly base rates dependent on tap size and meter type as follows:

Tap Size	Tap Fee
0.75"	\$ 22,703.26
1"	\$ 41,587.83
1.5"	\$ 73,061.36
2"	\$ 110,828.23

**The fees set forth above shall be adjusted at this rate for 2023 only and subsequently continue the intended 3% increase, unless directed otherwise by Resolution by the Board of Trustees.**



**Section 2. Water Usage Rates.** In accordance with Section 13.08.020(b) of the Municipal Code, all water sold by the Town shall be sold at the following per gallon usage rate:

2023 Usage Tiers		
Min	Max	\$ per gallon
1-	4999	0.00840
5000-	9999	0.01008
10000-	99999	0.01210

The rates set forth above shall be adjusted at this rate for 2023 only and subsequently continue the intended 3% increase, unless directed otherwise by Resolution by the Board of Trustees.

2. Severability. If any article, section, paragraph, sentence, clause, or phrase of this Resolution is held to be unconstitutional or invalid for any reason such decision shall not affect the validity or constitutionality of the remaining portions of this Resolution. The Board of Trustees hereby declares that it would have passed this resolution and each part or parts thereof irrespective of the fact that any one part or parts be declared unconstitutional or invalid.

3. Repeal. Existing resolutions or parts of resolutions covering the same matters embraced in this Resolution are hereby repealed and all resolutions or parts of resolutions inconsistent with the provisions of this Resolution are hereby repealed.

**INTRODUCED, RESOLVED, AND PASSED AT A REGULAR MEETING OF THE BOARD OF TRUSTEES OF THE TOWN OF PALMER LAKE ON THIS 12TH DAY OF JANUARY, 2023.**

ATTEST: \_\_\_\_\_ TOWN OF PALMER LAKE, COLORADO

  
 Dawn A. Collins  
 Town Administrator/Clerk

BY:   
 Grant Havenar  
 Mayor

New Rate Resolution

PALMER LAKE, COLORADO

RESOLUTION NO. 54 – 2023

**A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF PALMER LAKE, COLORADO, TO RESTRUCTURE TIERS AND SET A DIFFERENT INCREASE TO THE WATER TAP, BASE, AND USAGE RATES FOR THE TOWN**

**WHEREAS**, the Board of Trustees of the Town of Palmer Lake, Colorado, pursuant to Colorado statute and the Town of Palmer Lake Municipal Code, is vested with the authority of administering the affairs of the Town of Palmer Lake, Colorado; and

**WHEREAS**, pursuant to 31-35-402(1)(F), C.R.S., the Town of Palmer Lake possesses the authority to prescribe and collect fees for providing water services; and

**WHEREAS**, by ordinance 5 of 2018, the Town has provided that the water tap, base, and usage fees may be set by resolution of the Board of Trustees (“Board”); and

**WHEREAS**, a resolution was passed in 2019 to increase the respective water rates annually; and

**WHEREAS**, the Board adopted a Preliminary Engineering Report for the Town Water System Improvements advising of current and future capital projects; and

**WHEREAS**, the Board engaged a third-party consultant to review the Town’s water utility rate structure and to make recommendations to the Board of a five-year plan to ensure that the Town is adequately funding existing operations, equipment repair and replacement, other capital improvement plans and debt service; and

**WHEREAS**, it is recommended to prioritize capital projects to improve the water system; and

**WHEREAS**, the Board has determined that the water tap fees, water base rate, and water usage tiers and rates for the Town be modified as needed to meet the financial demands of the operating system, existing debt and future improvement projects; and

**WHEREAS**, the Board finds that an immediate increase of fees and revised tier structure will bring rates to the intended level and promote a financially sound water fund and will thereby promote the healthy, safety and general welfare of the community.

**NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF PALMER LAKE, EL PASO COUNTY, COLORADO.**

**Section 1. Water Tap Fees.** In accordance with Section 13.08.020(a) of the Municipal Code, all water taps and service connections to the Town’s water system shall pay a one-time tap fees (for new taps only) and shall be adjusted annually beginning in January 2024 at a 5% increase unless directed otherwise by Resolution by the Board of Trustees.

**Section 2. Water Usage Rates.** In accordance with Section 13.08.020(b) of the Municipal Code, all water sold by the Town shall be restructured to sell at the following tiers by per hundred gallon usage rate:

<b>WATER USAGE RATES (\$/100 gal)</b>						
<b>Min</b>	<b>Max</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>
1	999	\$0.840	\$0.88	\$0.93	\$0.97	\$1.02
1,000	2,999	\$1.20	\$1.26	\$1.32	\$1.39	\$1.46
3,000	5,999	\$1.45	\$1.52	\$1.60	\$1.68	\$1.76
6,000	8,999	\$1.65	\$1.73	\$1.82	\$1.91	\$2.01
9,000	11,999	\$1.90	\$2.00	\$2.10	\$2.20	\$2.31
12,000	19,999	\$2.10	\$2.22	\$2.32	\$2.43	\$2.55
20,000	20,000+	\$2.30	\$2.42	\$2.54	\$2.66	\$2.80

The usage rates set forth above shall be adjusted to the 2024 rate effective the September 2023 billing, and subsequently increase 5% annually beginning in January 2025, unless directed otherwise by Resolution by the Board of Trustees.

**Section 3. Water Base Fee.** In accordance with Section 13.08.020(b) of the Municipal Code, all customers connected to the water system, whether or not usage occurs, are required to pay the monthly Total Base Fee. This total Base Fee includes all operational and administrative expenses, includes contributions to Capital Improvement as well as debt service for the Water Loan that the system currently holds or will incur. The Total Base Fee for the Out-of-Town accounts and Irrigation accounts will be surcharged 1.5X their corresponding meter size fee.

**RESOLUTION 54-2023**

<b>Customer Type</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>
Residential/Com 3/4"	\$85.00	\$89.25	\$93.71	\$98.40	\$103.32
Commercial/Res 1"	\$111.85	\$117.44	\$123.31	\$129.48	\$135.95
Commercial 1.5"	\$157.01	\$164.86	\$173.10	\$181.76	\$190.85
Commercial 2"	\$211.24	\$221.80	\$232.89	\$244.54	\$256.76
Out of Town 3/4"	\$127.50	\$133.88	\$140.57	\$147.60	\$154.98
Irrigation Acct 1"	\$167.78	\$176.17	\$184.98	\$194.23	\$203.94
2.5"	\$277.04	\$290.89	\$305.43	\$320.71	\$336.74
4"	\$489.94	\$514.44	\$540.16	\$567.17	\$595.53

**The total Base Fee set forth above shall be adjusted to this rate effective with the September 2023 billing, and subsequently continue a 5% increase annually beginning in January 2025, with subsequent automatic increases ending December 31, 2028, unless directed otherwise by Resolution by Resolution the Board of Trustees.**

**Section 4. Severability.** If any article, section, paragraph, sentence, clause, or phrase of this Resolution is held to be unconstitutional or invalid for any reason such decision shall not affect the validity of constitutionality of the remaining portions of this Resolution. The Board of Trustees hereby declares that it would have passed this resolution and each part or parts thereof irrespective of the fact that any one part or parts be declared unconstitutional or invalid.

**Section 5. Repeal.** Existing resolutions or parts of resolutions covering the same matters embraced in this Resolution are hereby repealed and all resolutions or parts of resolutions inconsistent with the provisions of this Resolution are hereby repealed.

**INTRODUCED, RESOLVED AND PASSED AT THE REGULAR MEETING OF THE BOARD OF TRUSTEES OF THE TOWN OF PALMER LAKE ON THIS 27<sup>TH</sup> DAY OF JULY, 2023.**

ATTEST:

TOWN OF PALMER LAKE, COLORADO

  
\_\_\_\_\_  
Dawn A. Collins  
Town Administrator/Clerk

BY:   
\_\_\_\_\_  
Grant Havenar  
Mayor



**PALMER LAKE, COLORADO**

**RESOLUTION NO. 4 OF 2019**

**A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF PALMER LAKE, COLORADO, SETTING AND INCREASING THE WATER TAP FEES, WATER BASE RATES AND WATER USAGE RATES FOR THE TOWN**

WHEREAS, pursuant to § 31-35-402(1)(f), C.R.S., the Town of Palmer Lake possesses the authority to prescribe, revise and collect fees for providing water service; and

WHEREAS, by Ordinance 5 of 2018, as codified in Section 13.02.020 of the Town of Palmer Lake Municipal Code, the Town has provided that the water base rates, tap fees and usage fees may be set by resolution of the Board of Trustees (“Board”); and

WHEREAS, the Board engaged a third-party consultant to review the Town’s water utility rate structure and to make recommendations to the Board to ensure that the Town is adequately funding existing operations, equipment repair and replacement, other capital improvement plans and debt service; and

WHEREAS, based on recommendations presented to the Board at its February 28, 2018 meeting, the Board has determined that the water tap fees, water base and water usage rates for the Town should be modified and increased as needed to meet the financial demands of operating the system and servicing existing debt related to the system’s capital improvements and to provide for adequate reserves for future capital needs; and

WHEREAS, the Board finds that the immediate revision of water tap fees, water base and usage rates will promote a financially sound water system, promote conservation of supplies, and promote the provision of adequate water to the Palmer Lake community, and will thereby promote the health, safety and general welfare of the Palmer Lake community.

**NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF PALMER LAKE, EL PASO COUNTY, COLORADO:**

**Section 1.** **Water Tap Fees and Monthly Base Rate.** In accordance with Section 13.02.020(A) of the Municipal Code, all water tap and service connections to the Town’s water system shall pay one time tap fees (for new taps only) as follows, and, commencing with the next billing cycle following approval of this resolution, all customers shall pay monthly base rates dependent on tap size and meter type as follows:

<i>Tap Size in inches</i>	<i>Meter Type</i>	<i>Tap Fee (System Development Charge)</i>	<i>Monthly Base Rate (minimum monthly charge)</i>
.625	Displacement	\$ 10,000.00	\$62.41
.750	Displacement	\$10,000.00	\$62.41
1	Displacement	\$18,318.00	\$81.74
1.5	Displacement	\$32,181.00	\$113.96
2.0	Displacement	\$48,816.00	\$152.63
2.5	Displacement	\$73,768.00	\$210.63
3.0	Singlet	\$93,176.00	\$255.73
3.0	Compound, Class 1	\$93,176.00	\$255.73
3.0	Turbine, Class 1	\$101,494.00	\$275.07
4.0	Singlet	\$143,082.00	\$371.73
4.0	Compound, Class 1	\$143,082.00	\$371.73
4.0	Turbine, Class 1	\$176,352.00	\$449.06

The fees and rates set forth above shall be subject to annual adjustment in January of each ensuing year (commencing y January 2020) by a 3% inflationary factor.

**Section 2. Water Usage Rates.** In accordance with Section 13.02.020(B) of the Municipal Code, all water sold by the Town shall be sold at the following monthly 1000 gallon usage rate:

Monthly Water Usage Rate:


Volume Range	Unit Charge/1,000 gallons
0-4,999 gallons	\$ 7.40/1,000 gallons
5,000-9,999 gallons	\$8.88/1,000 gallons
10,000 and above gallons	\$10.66/1,000 gallons

The rates set forth above shall be subject to annual adjustment in January of each ensuing year (commencing y January 2020) by a 3% inflationary factor.

**Section 3. Severability.** It is hereby declared to be the intention of the Board of Trustees of the Town of Palmer Lake, Colorado that the sentences, clauses and phrases of this resolution are severable, and if any sentence, clause or phrase of this resolution be declared unconstitutional or invalid by the valid judgment or decree of Court of competent jurisdiction, such unconstitutionality or invalidity shall not affect any of the remaining sentences, clauses or phrases of this resolution

since the same would have been enacted by the Board of Trustees without the incorporation of any unconstitutional or invalid sentence, clause or phrase.

INTRODUCED, READ, AND ADOPTED AT A DULY NOTICED REGULAR MEETING OF THE TOWN BOARD OF TRUSTEES OF THE TOWN OF PALMER LAKE by a vote of 6 in favor and 0 against, this 11<sup>th</sup> day of April, 2019.

  
\_\_\_\_\_  
JOHN CRESSMAN, MAYOR  
ATTEST:  
\_\_\_\_\_  
VERLA BRUNER, TOWN CLERK

**PALMER LAKE, COLORADO**

**RESOLUTION NO. 11 OF 2019**

**A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF  
PALMER LAKE, COLORADO, SETTING AND INCREASING THE  
WATER TAP FEES FOR THE TOWN**

WHEREAS, pursuant to § 31-35-402(1)(f), C.R.S., the Town of Palmer Lake possesses the authority to prescribe, revise and collect fees for providing water services; and

WHEREAS, by Ordinance 5 of 2018, as codified in Section 13.02.020 of the Town of Palmer Lake Municipal Code, the Town has provided that the water base rates, tap fees and usage fees may be set by resolution of the Board of Trustees ("Board"); and

WHEREAS, the Board engaged a third-party consultant to review the Town's water utility rate structure and to make recommendations to the Board to ensure that the Town is adequately funding existing operations, equipment repair and replacement, other capital improvement plans and debt service; and

WHEREAS, based on recommendations presented to the Board at its February 28, 2018 meeting, the Board determined that the water tap fees, water base and water usage rates for the Town should be modified and increased as needed to meet the financial demands of operating the system and servicing existing debt related to the system's capital improvements and to provide for adequate reserves for future capital needs; and

WHEREAS, as set forth in Resolution 4 of 2019, the Board determined that the current water tap fees do not cover the costs of connection to its water system and its outstanding debt service requirements related to water system improvements; and

WHEREAS, on further study, the Board has determined that the water tap fees as adopted by Resolution 4 of 2019 should be further increased to promote a financially sound water system and promote the provision of adequate water to the Palmer Lake community, and thereby promote the health, safety and general welfare of the Palmer Lake community; and

WHEREAS, the tap fees as set forth herein bear a reasonable relationship to the cost to connect to the Town's water system.

**NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE  
TOWN OF PALMER LAKE, EL PASO COUNTY, COLORADO:**

**Section 1. Adoption of recitals.** The Board of Trustees adopts the recitals set forth herein.



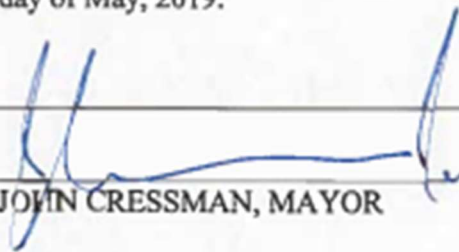
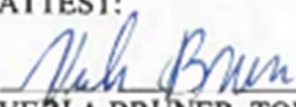
**Section 2. Water Tap Rates.** In accordance with Section 13.02.020(A) of the Municipal Code, all new tap and service connections to the Town's water system shall pay the following fees as shown in the column entitled "New Tap Fee":

<i>Tap Size in inches</i>	<i>Meter Type</i>	<i>Current Tap Fee (System Development Charge)</i>	<i>New Tap Fee</i>
.625	Displacement	\$ 10,000.00	\$20,000.00
.750	Displacement	\$10,000.00	\$20,000.00
1	Displacement	\$18,318.00	\$36,636.00
1.5	Displacement	\$32,181.00	\$64,362.00
2.0	Displacement	\$48,816.00	\$97,632.00
2.5	Displacement	\$73,768.00	\$147,536.00
3.0	Singlet	\$93,176.00	\$186,352.00
3.0	Compound, Class 1	\$93,176.00	\$186,352.00
3.0	Turbine, Class 1	\$101,494.00	\$202,988.00
4.0	Singlet	\$143,082.00	\$286,164.00
4.0	Compound, Class 1	\$143,082.00	\$286,164.00
4.0	Turbine, Class 1	\$176,352.00	\$352,704.00

The fees and rates set forth above shall be subject to annual adjustment in January of each ensuing year (commencing y January 2020) by a 3% inflationary factor.

**Section 3. Severability.** It is hereby declared to be the intention of the Board of Trustees of the Town of Palmer Lake, Colorado that the sentences, clauses and phrases of this resolution are severable, and if any sentence, clause or phrase of this resolution be declared unconstitutional or invalid by the valid judgment or decree of Court of competent jurisdiction, such unconstitutionality or invalidity shall not affect any of the remaining sentences, clauses or phrases of this resolution since the same would have been enacted by the Board of Trustees without the incorporation of any unconstitutional or invalid sentence, clause or phrase.

INTRODUCED, READ, AND ADOPTED AT A DULY NOTICED REGULAR MEETING OF THE TOWN BOARD OF TRUSTEES OF THE TOWN OF PALMER LAKE by a vote of 7 in favor and 0 against, this 23rd day of May, 2019.

  
 JOHN CRESSMAN, MAYOR  
 ATTEST:  
  
 VERLA BRUNER, TOWN CLERK

<i>Tap Size in inches</i>	<i>Meter Type</i>	<i>monthly charge</i>
5/8"		\$43.24
3/4"		\$45.88
1		\$65.47
1.5		\$98.43
2		\$138.00
2.5		\$186.02
3	Singlet	\$229.51
3	Compound, Class 1	\$229.51
3	Turbine, Class 1	\$248.17
4	Singlet	\$341.38
4	Compound, Class 1	\$341.38
4	Turbine, Class 1	\$415.97

### New Rates Year by Year with 5% Annual Increases

New 2023 water rates in accordance with Resolution 54 of 2023, Water Base Rates are subject to an annual adjustment each year by a 5% inflationary factor, for both base fee and tier usage charges.

Capital Improvement Fee equals 10% of Base Rate.

Per Resolution 54 of 2023, Water Usage Rates shall be increased as shown below for 2024 and then 5% annually. To sunset in 2029 if the board does not otherwise make adjustments.

	<b>WATER RATES 2024 (\$284,784 Debt Service)</b>					
Tap Size	¾"	1"	1 ½"	2"	¾" Out of Town	1" Irrigation
Monthly Base Rate	\$61.13	\$85.54	\$126.59	\$175.89	\$99.76	\$136.38
Capital Improvement Fee	\$6.11	\$8.55	\$12.66	\$17.59	\$9.98	\$13.64
Water Loan(s) Payment	\$17.76	\$17.76	\$17.76	\$17.76	\$17.76	\$17.76
<b>TOTAL MINIMUM BILL</b>	\$85.00	\$111.85	\$157.01	\$211.24	\$127.50	\$167.78

	<b>WATER RATES 2025 (\$284,784 Debt Service)</b>					
Tap Size	¾"	1"	1 ½"	2"	¾" Out of Town	1" Irrigation
Monthly Base Rate	\$64.99	\$90.62	\$133.73	\$185.49	\$105.56	\$144.01
Capital Improvement Fee	\$6.50	\$9.06	\$13.37	\$18.55	\$10.56	\$14.40
Water Loan(s) Payment	\$17.76	\$17.76	\$17.76	\$17.76	\$17.76	\$17.76
<b>TOTAL MINIMUM BILL</b>	\$89.25	\$117.44	\$164.86	\$221.80	\$133.88	\$176.17

	<b>WATER RATES 2026 (\$611,832 Debt Service)</b>					
Tap Size	¾"	1"	1 ½"	2"	¾" Out of Town	1" Irrigation
Monthly Base Rate	\$50.50	\$77.41	\$122.67	\$177.03	\$93.10	\$133.47
Capital Improvement Fee	\$5.05	\$7.74	\$12.27	\$17.70	\$9.31	\$13.35
Water Loan(s) Payment	\$38.16	\$38.16	\$38.16	\$38.16	\$38.16	\$38.16
<b>TOTAL MINIMUM BILL</b>	\$93.71	\$123.31	\$173.10	\$232.89	\$140.57	\$184.98

	<b>WATER RATES 2027 (\$611,832 Debt Service)</b>					
Tap Size	¾"	1"	1 ½"	2"	¾" Out of Town	1" Irrigation
Monthly Base Rate	\$54.76	\$83.02	\$130.54	\$187.62	\$99.49	\$141.88
Capital Improvement Fee	\$5.48	\$8.30	\$13.05	\$18.76	\$9.95	\$14.19
Water Loan(s) Payment	\$38.16	\$38.16	\$38.16	\$38.16	\$38.16	\$38.16
<b>TOTAL MINIMUM BILL</b>	\$98.40	\$129.48	\$181.76	\$244.54	\$147.60	\$194.23

<b>WATER RATES 2028 (\$611,832 Debt Service)</b>						
Tap Size	¾"	1"	1 ½"	2"	¾" Out of Town	1" Irrigation
Monthly Base Rate	\$59.24	\$88.90	\$138.81	\$198.73	\$106.20	\$150.71
Capital Improvement Fee	\$5.92	\$8.89	\$13.88	\$19.87	\$10.62	\$15.07
Water Loan(s) Payment	\$38.16	\$38.16	\$38.16	\$38.16	\$38.16	\$38.16
<b>TOTAL MINIMUM BILL</b>	\$103.32	\$135.95	\$190.85	\$256.76	\$154.98	\$203.94

<b>WATER USAGE RATES (\$/100 gal)</b>						
Min	Max	2024	2025	2026	2027	2028
1	999	\$0.840	\$0.88	\$0.93	\$0.97	\$1.02
1,000	2,999	\$1.20	\$1.26	\$1.32	\$1.39	\$1.46
3,000	5,999	\$1.45	\$1.52	\$1.60	\$1.68	\$1.76
6,000	8,999	\$1.65	\$1.73	\$1.82	\$1.91	\$2.01
9,000	11,999	\$1.90	\$2.00	\$2.10	\$2.20	\$2.31
12,000	19,999	\$2.10	\$2.22	\$2.32	\$2.43	\$2.55
20,000	20,000+	\$2.30	\$2.42	\$2.54	\$2.66	\$2.80

### Additional Tap Size Rates

Although there are currently no customers with 2.5-inch or 4-inch connections this herein defines the rates in the event the Town adds new customers with these meter sizes. Arriving at the 2023 bill for these non-existent customers, took some research and then matching the inflation from that historical price set in the past. Below is the breakdown for the rates:

<b>WATER RATES 2023 (\$284,784 Debt Service)</b>		
Tap Size	2.5"	4"
Monthly Base Rate	\$186.02	\$250.47
Capital Improvement Fee	\$18.60	\$25.05
Water Loan(s) Payment	\$17.76	\$17.76
<b>TOTAL MINIMUM BILL</b>	\$222.38	\$293.28

They increase by the same percentage

<b>WATER RATES 2024 (\$284,784 Debt Service)</b>		
Tap Size	2.5"	4"
Monthly Base Rate	\$235.71	\$429.25
Capital Improvement Fee	\$23.57	\$42.93
Water Loan(s) Payment	\$17.76	\$17.76
<b>TOTAL MINIMUM BILL</b>	\$277.04	\$489.94



<b>WATER RATES 2025 (\$284,784 Debt Service)</b>		
Tap Size	2.5"	4"
Monthly Base Rate	\$248.30	\$451.53
Capital Improvement Fee	\$24.83	\$45.15
Water Loan(s) Payment	\$17.76	\$17.76
<b>TOTAL MINIMUM BILL</b>	<b>\$290.89</b>	<b>\$514.44</b>

<b>WATER RATES 2026 (\$611,832 Debt Service)</b>		
Tap Size	2.5"	4"
Monthly Base Rate	\$242.97	\$456.36
Capital Improvement Fee	\$24.30	\$45.64
Water Loan(s) Payment	\$38.16	\$38.16
<b>TOTAL MINIMUM BILL</b>	<b>\$305.43</b>	<b>\$540.16</b>

<b>WATER RATES 2027 (\$611,832 Debt Service)</b>		
Tap Size	2.5"	4"
Monthly Base Rate	\$256.86	\$480.92
Capital Improvement Fee	\$25.69	\$48.09
Water Loan(s) Payment	\$38.16	\$38.16
<b>TOTAL MINIMUM BILL</b>	<b>\$320.71</b>	<b>\$567.17</b>

<b>WATER RATES 2028 (\$611,832 Debt Service)</b>		
Tap Size	2.5"	4"
Monthly Base Rate	\$271.44	\$506.70
Capital Improvement Fee	\$27.14	\$50.67
Water Loan(s) Payment	\$38.16	\$38.16
<b>TOTAL MINIMUM BILL</b>	<b>\$336.74</b>	<b>\$595.53</b>

**Tap Fees for New Connections to the System**

In the process of adjusting rates the board reaffirms that the tap fees for new connections are clearly presented.

The last time the whole list of customer meter sizes, including potential meter size connections that the town currently does not have was in 2019. Do to the Covid pandemic of 2020 those rates did not increase annually and held steady until April of 2021 when Tap Fees increased at 3% annually. The rates increased at 3% in 2022 and then in 2023 they increased by 7%. Starting in 2024 they increase by 5% annually.

TAP FEES									
% inc	Year	3/4"	1"	1 1/2"	2"	3/4" out of town	1" irrigation	2 1/2"	4"
5	2024	\$ 23,838.42	\$ 43,667.22	\$ 76,714.43	\$ 116,369.65	\$ 35,757.63	\$ 65,500.83	\$ 164,346.99	\$318,770.96
5	2025	\$ 25,030.34	\$ 45,850.58	\$ 80,550.15	\$ 122,188.13	\$ 37,545.51	\$ 68,775.87	\$ 172,564.34	\$334,709.51
5	2026	\$ 26,281.86	\$ 48,143.11	\$ 84,577.66	\$ 128,297.54	\$ 39,422.79	\$ 72,214.67	\$ 181,192.56	\$351,444.99
5	2027	\$ 27,595.95	\$ 50,550.27	\$ 88,806.54	\$ 134,712.42	\$ 41,393.93	\$ 75,825.41	\$ 190,252.19	\$369,017.24
5	2028	\$ 28,975.75	\$ 53,077.78	\$ 93,246.87	\$ 141,448.04	\$ 43,463.63	\$ 79,616.67	\$ 199,764.80	\$387,468.10

## Scenario for Board Decision

### Recommendations:

Out of Town Customers and Irrigation customers shall be billed 1.5X their corresponding meter size base Rate. This establishes new customer classes.

The town uses “Total Minimum Bill” to describe the base fee plus Capital Investment Fee plus the loan payment. All of this should be considered the Base Rate.

A list of all assets, best estimation of cost and remaining life span was developed and replacement of assets where replacement costs are limited to 30 years into the future and follow:

Default Funding of Asset Replacements				
Replacement Value From To		Cash	Grant	Loan
\$0	\$100,000	100%	0%	0%
\$100,001	\$500,000	20%	0%	80%
\$500,001	\$1,000,000	10%	30%	60%
\$1,000,001	\$9,999,999	2%	30%	68%

The model is built with a 5-year budget forecast. With current rates and including new engineering projects, asset replacement detailed in the CIP results in over \$2M in deficit over the next 5 years.

The average residential usage from actual historical data from Palmer Lake is **3,714 gallons** per month. This varies month to month. Monthly residential averages are shown below.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3205	2943	2653	4015	3443	4398	4904	4466	4572	3854	3225	2891

Meter Size	Base Rate	Tier	Volume Limit	Tier Price/1000 gal
0.750	\$85.00	1	1,000	\$8.40
1.000	\$111.85	2	3,000	\$12.00
1.500	\$157.01	3	6,000	\$14.50
2.000	\$8.79	4	9,000	\$16.50
		5	12,000	\$19.00
		6	20,000	\$21.00
		7	99,999,999	\$23.00

Results of the new rates	2024	2025	2026	2027	2028	5 Years
TOTAL EXPENSES	\$1,790,023	\$1,832,931	\$2,118,278	\$2,169,394	\$2,229,465	\$10,140,091
TOTAL REVENUE	\$1,808,791	\$1,911,960	\$2,019,830	\$2,143,032	\$2,273,614	\$10,157,227
NET LOSS OR GAIN: (Short/Over to Reserves)	\$18,769	\$79,029	-\$98,448	-\$26,362	\$44,149	\$17,137
NET CASH FLOW (Contribution to Reserves)	\$338,587	\$332,484	\$51,071	\$108,927	\$170,896	\$1,001,966
Affordability assuming MHI of \$92333 for residential meters.	1.70%	1.81%	1.91%	2.03%	2.15%	

Previously the escalation of rates or annual increase was set at 3%, it is recommended to increase this to 5% annually. This balances the budget and keeps revenue up with raising costs. This is shown below.

	2023	2024	2025	2026	2027	2028
Base Rate	\$68.23	\$85.00	\$89.25	\$93.71	\$98.39	\$103.32
Ave Resident Bill w Usage	\$102.41	\$132.72	\$140.88	\$148.86	\$157.99	\$167.68

## **WORKING SCENARIOS**

The following section includes the rate scenarios documents to provide a record of the study. This also shows the process of the study, the interim reports reviewed by the board and the efforts to come to the final decision.

The final scenarios document was presented to the board in July 2023 and shown first. Then the historical document from April, May and finally June are below in that order.

**Recommended Scenarios**

**PALMER LAKE WATER RATE STUDY - MAY 2023**

**Model Inputs, Explanations, and Scenarios based on Boards Direction**

Water Rates by Brandewie LLC

July 12, 2023

This Document is meant to show the inputs to the model starting with the financial and model parameters, followed by the Capital Improvements Program (CIP), then budget at current rates and the projected revenue. From there scenarios will be investigated based on the directives of the board and staff.

**Parameters**

<b>Parameters</b>	Enterprise	Water		
	System Name:	Palmer Lake		
	System Number			
	First year of rate increases	2024		
<b>Financial Constants</b>				
	Return on Invested Funds	0.50	%	
	Past Inflation	3.00	%	
	Future Inflation	5.00	%	
	Future Loan Interest Rate	3.25	%	
	Future Loan fees, legal, costs	0.00	%	(Included in loan)

<b>Existing Debt</b>					
Description	Annual Payment	Maturity	Reserve Required	Reserve Allocated	Make Up Period
CWRPDA - SWTP Upgrades	\$ 183,140	2030	\$ 200,956	\$ 200,956	
PL General Fund Loan (Avg '24-'39)	\$ 33,476	2039	\$0	\$0	
CWRPDA - Redrill D-2R	\$ 68,168	2038	\$0	\$0	
Total	\$ 284,784		\$ 200,956	\$ 200,956	

<b>Existing Reserves</b>		Amount	
Debt Reserve	\$200,956	As per lending agreement(s)	
Operating Reserve	\$236,018	Often in Checking Account	Expenses paid
Emergency Reserve	\$181,393	Often in Savings Account	
Capital Reserve	\$0	Mostly in CDs or other investments	
Total	\$618,367		

There are \$200,956 reserved for debt service. There is no obligation as researched by the staff to hold that debt reserve amount or any amount, however it is advisable to keep these funds here and

restricted. This will show potential lenders that Palmer Lake is fiscally responsible and will pay back the loans it takes out.

After some research it is understood that the CWRPDA loans require 3 months of Operating Reserves. The operational expenses are \$413,943 for 2024, but there is \$236,018 in operational reserves, which is closer to 6-months of operating expenses. The model calculates 3 months of operating expenses (\$413,943 annually op ex) which means there is already \$236,018 in that account and this will be rebalanced to the CIP account.

Reserve Targets	Amount	Make Up Period	First Year Reserve Addition	Excess funds to be transfer to CIP	Goal
Debt Reserve	\$200,956	See F20:F25	\$0	\$0	As per lending agreemen
Operating Reserve	\$103,486		\$0	\$132,532	3 months Operating Expe
Emergency Reserve	\$200,000	3	\$6,202	\$0	Critical equipment replac
Available for Capital Reserve	\$132,532	This is the total amount currently available for CIP. Transferred to CIP. It is the sum of what you already have in CIP and any excess funds i			

After the model rebalances these existing reserves with the reserve target, there is \$132,532 remaining unrestricted for Capital Improvements.

Note that the PL GF loan is the calculated average over the life of the loan.

Median Household Income	\$ 92,333	MHI Source	<a href="https://datausa.io/profile/geo/palmer-lake-co">https://datausa.io/profile/geo/palmer-lake-co</a>				
<b>Growth of Consumption over Base year</b>		Year 1	Year 2	Year 3	Year 4	Year 5	
Conservation Factor		-5.0%	-4.0%	-3.0%	-2.0%	-1.0%	Accumulative
Community Growth Factor		1.4%	2.8%	3.2%	4.6%	6.0%	
Total Consumption Adjustment		-3.6%	-1.2%	0.2%	2.6%	5.0%	
Receivable write off (% of Billing)		0.00%	0.00%	0.00%	0.00%	0.00%	The total individual per EQR
Unit of Service	1000 Gallons						
Billing Cycles	Currently	Proposed					
Billing Cycle	M	M					
Billings per year	12	12					

The -5% in red above reflects a noticeable reduction in customer usage based on increased usage charges. The scenarios will likely look at reducing the quantity in the tiers and adding more tiers for usage which can reasonably have a behavior change in customers to reduce their usage. Usually, the reduced use tapers off over the years and customers return to a normal water use pattern.

### Capital Improvements Plan

The default funding of asset replacement should be considered a significant variable. Costs under the capitalization threshold are currently set at \$5,000 which means if something costs less than \$5,000 it is



paid for in the operation budget and not on the list to save annually for it. This threshold should reflect how Palmer Lake spends. At the higher end of capital assets, it is more practical to save for a down payment for a loan or matching funds to secure a grant. GMS suggest that Palmer Lake would NOT likely qualify for significant grants and suggested 10 to 15% grant would be the maximum. The rest of the costs will assume to be funded by loans. The scenarios researched further along in this document will show several scenarios and each of those scenarios will show the effects of no grant along with 10% grant.

Default Funding of Asset Replacements		Cash	Grant	Loan
Replacement Value From	To			
\$0	\$100,000	100%	0%	0%
\$100,001	\$500,000	20%	0%	80%
\$500,001	\$1,000,000	10%	0%	90%
\$1,000,001	\$9,999,999	5%	0%	98%
\$10,000,000	\$9,999,999	5%	0%	98%
<b>Capitalization Threshold</b>	<b>\$ 5,000</b>	Any asset purchased below this value is not		

Funding CIP according to the table above results in an annual reserve target of \$7.2M if we include the cost to replace the upper and lower reservoirs and future all known/anticipated costs. After speaking with the operators, they are keeping up with the reservoirs, it's in the operating budget, however the opinion of the operators is that the reservoirs will not get rebuild if something happens to them, that likely mode of failure will be filling in with silt displacing reservoir volume. The operations are relying more and more on ground water.

Take out the reservoir replacement costs we removing nearly \$6M annually to upkeep the reservoirs the reserve. After a public board meeting and discussion, it was decided to only consider CIP line items that project only 30 years into the future. With these determinations, the contributions are reduced to \$457,987 annually. Which is approximately a 35% increase.

If the reserve targets are reduced down from 5% down to 2% for the replacement costs over \$1M the resulting reserve calculation for annual contributions would be \$313,616. This is approximately a 25% increase to the required revenue for CIP contributions only.

Default Funding of Asset Replacements		Cash	Grant	Loan
Replacement Value From	To			
\$0	\$100,000	100%	0%	0%
\$100,001	\$500,000	20%	0%	80%
\$500,001	\$1,000,000	10%	30%	60%
\$1,000,001	\$9,999,999	2%	30%	68%
\$10,000,000	\$9,999,999	2%	30%	68%

On the next page you can see the details of the infrastructure in the CIP that is on the 30-year horizon and not any further.

Quantity	Asset	Year Acquired	Unit Cost (Historic, Current or Future)	Cost Type (H, C, F)	% Belonging to Water	Normal Estimated Life	Estimated Remaining Life	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Replacement of Existing Capital Assets</b>													
<b>REAL ESTATE</b>													
					100%				0%	0%	100%	0	0
1	Maintenance Building	1983	601,000	C	25%	60	20	398,658	20%	0%	80%	5,230	3,539
1	Maintenance Building - Contents	2000	57,770	C	25%	30	7	20,322	100%	0%	0%	2,514	2,501
<b>VEHICLES</b>													
					100%				0%	0%	100%	0	0
1	Ford Truck F-250 2005 DFZ901	2005	40,000	C	100%	23	5	51,051	100%	0%	0%	6,962	8,716
1	Dodge Ram 1500 2019 BSH031	2019	50,000	C	100%	7	3	57,881	100%	0%	0%	8,703	16,297
1	Dodge Ram 2015 779SWQ	2015	50,000	C	100%	10	2	55,125	100%	0%	0%	8,703	23,142
1	Chevy 1/2 Ton 2008 681RS	2014	45,000	C	100%	10	1	47,250	100%	0%	0%	7,832	39,418
1	Chevy 1/2 Ton 2005 219CLV	2005	40,000	C	100%	19	1	42,000	100%	0%	0%	6,962	35,038
1	John Deer Loader	2008	200,000	C	5%	25	10	16,289	100%	0%	0%	1,741	1,419
1	Road Grader JD	2006	300,000	C	5%	25	8	22,162	100%	0%	0%	2,611	2,396
1	Backhoe 310SJD	2008	100,000	C	5%	27	12	8,979	100%	0%	0%	870	655
1	Water Truck 3500 Gal Tank Freightliner	2005	60,000	C	5%	24	6	4,020	100%	0%	0%	522	Not Cap.
1	Dump Truck mini International	2001	60,000	C	5%	26	4	3,647	100%	0%	0%	522	Not Cap.
<b>SOURCE and TREATMENT</b>													
					100%				0%	0%	100%	0	0
1	Spruce Mountain Pump Station D2 Well Station - 195 Spru	1989	799,600	C	25%	60	26	710,779	10%	10%	80%	3,479	2,433
1	High Cap Pump (1200gpm) Fire Pump Would Replace with	2007	500,000	C	100%	40	24	1,612,550	2%	10%	88%	1,741	1,196
1	Service Pumps (300 gpm) Summit Submersible A2 Well	2018	400,000	H	100%	7	2	562,840	10%	10%	80%	8,071	24,036
1	Well D2 Original Redrilled 1630 feet	2023	635,779	C	100%	30	30	2,747,800	2%	10%	88%	2,213	1,629
1	Chlorinator Pump Hypo Chlorite Injection (2)	2021	3,000	H	100%	3	1	3,473	100%	0%	0%	554	Not Cap.
2	Rapid Filter (500 gpm filters) Media replenished (2)	2022	13,554	H	100%	5	4	34,597	2%	10%	0%	4,860	7,370
1	Well A2 2233 feet deep	2002	993,900	C	100%	30	10	1,618,958	2%	10%	88%	3,460	2,820
<b>Surface Water Treatment</b>													
					100%				0%	0%	100%	0	0
1	Amiad 130 Micron Pre-Strainer 1999 replaced 2018	2018	35,000	C	100%	20	15	72,762	100%	0%	0%	6,092	4,277
3	40-HP distribution pumps one Replaced recently (3)	2011	6,000	C	100%	12	6	24,122	100%	0%	0%	3,133	3,448
					100%				0%	0%	100%	0	0
1	Membrane Filter Pall skid 350 gpm Replaced 1 Module 202	2011	1,208,527	H	100%	30	18	5,223,184	2%	10%	88%	5,998	5,228
44	22 Modules per skid Replaced Recently (44)	2020	9,229	H	100%	10	7	661,455	10%	10%	80%	7,723	8,205
1	Electrical Controls Auto Pall Controls Lightening strike	2020	29,800	H	10%			2,980	100%	0%	0%	567	0
					100%				0%	0%	100%	0	0
1	SWTP Lab Equipment	2018	20,000	C	100%	5	2	22,050	100%	0%	0%	3,481	9,257
1	Chlorine Analyzer Obsolete No Parts	2002	8,000	C	100%	25	4	9,724	100%	0%	0%	1,392	2,065
6	Turbidity Analyzer Obsolete No Parts (6)	2011	6,000	C	100%	16	4	43,758	100%	0%	0%	6,266	9,291
2	Chlorine Gas System, Regulators, injectors Measurement	2011	300,000	C	100%	40	28	2,352,077	2%	10%	88%	2,089	1,495
1	SCADA Replace PLC at GWTP Replacing this now?	2023	40,000	C	100%	25	25	135,454	20%	0%	80%	1,392	964
1	Scada at A2 and D2 Done recently	2022	58,654	H	100%	20	19	155,627	20%	0%	80%	2,103	1,455
<b>STORAGE</b>													
					100%				0%	0%	100%	0	0
1	High Zone Water Storage Tank (250,000 Gal) Concrete Bur	1985	591,500	C	100%	60	22	1,730,292	2%	10%	88%	2,059	1,398
1	Low Zone Water Storage Tanks (500,000 Gal) Welded Stee	1955	751,100	C	100%	75	7	1,056,873	2%	10%	88%	2,615	2,601
1	Low Zone Water Storage Tank Booster Station	1994	377,700	C	100%	60	31	1,714,018	2%	10%	88%	1,315	983
<b>DISTRIBUTION system maps from GMS</b>													
					100%				0%	0%	100%	0	0
8	8" Gate Valves (8)	2013	2,540	C	100%	40	30	87,822	100%	0%	0%	3,537	2,603
156	6" Gate Valves (156)	2013	2,090	C	100%	40	30	1,409,126	2%	10%	88%	1,135	835
5	4" Gate Valves (5)	2013	1,800	C	100%	40	30	38,897	100%	0%	0%	1,566	1,153
<b>Fire Hydrants 166 6" Hydrants</b>													
					100%				0%	0%	100%	0	0
8	6" Hydrants 8	1950	9,050	C	100%	80	7	101,874	20%	0%	80%	2,520	2,507
<b>Subtotal Replacement of Existing Capital Assets</b>												132,532	230,369

Quantity	Asset	Year Acquired	Unit Cost (Current or Future)	st Type (C)	Belonging to (C, Wate)	mal Estimated	ated Remaining Life	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Replacement of Funded Project Assets</b>													
1	ARPA FUNDING 2023 Project TBD Dis System Replacement	2023	259,238	C	100%	60	61	5,084,473	2%	0%	98%	259,238	0
1	ARPA Funding 2024 Project Dis System Replacement	2024	77,938	C	100%	60	62	1,605,040	2%	0%	98%	77,938	0
<b>Subtotal Replacement of Funded Project Assets</b>												337,176	0
Enter Existing Reserves for Replacement of Funded Project Assets													
Quantity	Asset	Year to be Purchased	Unit Cost (Current or Future)	st Type (C)	Belonging to (C, Wate)	mal Estimated		Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Reserves for Additional Capital Assets</b>													
1	New Araphahoe Well & Dist Sys Loop Reinforce Priority	2025	5,952,600	C	100%	60		6,562,742	2%	0%	98%	0	65,464
	Groundwater Treatment Plant Improvements (included above)	2025		C	100%	60			100%	0%	0%	0	0
	Distribution System Replacement (Included above in line item)	2025		C	100%	60			100%	0%	0%	0	0
					100%	80			0%	0%	0%	0	0
1	Distribution System Extention to Serve Properties on Private	2035	4,067,188	C	100%	80		7,304,085	2%	0%	98%	0	11,842
1	Back Up Generator for Tank Pump	2030	30,000	C	100%	40		42,213	100%	0%	0%	0	5,941
<b>Subtotal Reserves for Additional Capital Assets</b>													83,247
Enter Existing Reserves for Additional Capital Assets													
<b>Total Capital Reserves</b>													313,616

Before developing detailed scenarios, the reserve funding was selected to reduce variables. At the meeting with the board on April 27<sup>th</sup>, the mayor asked how far into the future should CIP items be considered? For example, PVC pipe is expected to last up to 100 years, and the board requested to see what the effects are for considering replacement items 90, 60, and 30 years out. The version of the CIP above is considering all known and expected costs 30 years into the future.

### CIP Items 30 Years Out

To limit the burden on current rate payers, replacement costs are limited to 30 years into the future, this eliminates the replacement of 111K feet of PVC pipe that is expected to last into the year 2100 in addition to 163 fire hydrants, the Spruce Mountain Pump Station Structure, SWTP – Structure, and the (2) Standby Generators, a filter bed, the newer high zone storage tank, and Town Hall Maintenance.

2024	2025	2026	2027	2028
\$313,616	\$247,253	\$143,317	\$135,289	\$126,747

Note that the reserve contributions decrease, however this is due to items on the CIP, being purchased with a large percentage loan and so debt service will be going up.

The current customers are categorized by meter size. This is related to the potential volume of water the connection can consume and base rates are based on this meter or connection size.

Current Rate Structure						
Current Customer Classes	Name of Class	Rate Structure			Schedule	
1	Residential/Com- 3/4"	Tiered Block			A	Go to row 13
2	Commercial/Res 1"	Tiered Block			B	Go to row 13
3	Commercial 1.5"	Tiered Block			C	Go to row 13
4	Commercial 2"	Tiered Block			D	Go to row 13
5	Out of Town - 3/4"	Tiered Block			E	Go to row 13
		Rate Schedules				
Tiered Block	Meter Size	A	B	C	D	E
Base	0.625					
	0.750	\$68.23				\$68.23
	1.000		\$89.78			
	1.500			\$126.03		
	2.000				\$169.56	
Tier Break	1	4,999	4,999	4,999	4,999	4,999
(All yellow cells in this Tier Break table must	2	9,999	9,999	9,999	9,999	9,999
	3	9,999,999	9,999,999	9,999,999	9,999,999	9,999,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40
	2	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08
	3	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	8	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
Total Revenue under Existing Rates		\$1,277,974.73	This number should closely approximate the sales nu			

The rate structure does not state that the “Out of Town” customer are billed any differently from customers within town limits, for this reason the \$68.23 is highlighted in red font. Usually a 25-50% surcharge is applied to customer outside of the town’s limits. It is recommended to create a new customer class that is charged a minimum of 1.25x but recommended 1.5x their meter size base rate. Usage is left at the same rate as the rest of the customers. For all scenarios considered the handful of out of town customers are being charged 1.5x the base rate.

Total Revenue with existing rates is calculated at \$1,277,974. The monthly revenue from the base charges is \$69,434.51 which is \$833,214 annually. The usage revenue ranges from \$24,500 to \$52,000 monthly, the total usage revenue over the year is \$444,760.

The model, at current rates and tiers, calculated \$67,000 over the revenue reported in 2022 and from what the model is predicting with the same monthly and usage fees. This 5% discrepancy is due to the staff setting the budget for revenue conservatively.

### Budget – Without CIP

The board expressed interest to see what the raise in rates would need to be to cover year to year operational costs. The table below takes out all contribution to CIP reserves with 0% grants but still shows deficits year over year.

	2024	2025	2026	2027	2028
Total Annual Expenses (without CIP)	\$1,476,407	\$1,585,678	\$1,927,909	\$1,987,053	\$2,055,666
Revenue at \$68.23 Base & 5% increases	\$1,494,634	\$1,582,244	\$1,673,742	\$1,779,925	\$1,892,718
<b>Deficit</b>	\$18,227	<b>(\$3,434)</b>	<b>(\$254,167)</b>	<b>(\$207,128)</b>	<b>(\$162,948)</b>

Looking only at this difference in operating expenses vs revenue from user fees, the monthly base rate for residential 3/4" connections would have to go up to **\$88.25**. This increase is \$20.02 per month for residential customers.

To save 2% for the Engineering Projects Priorities 1 & 2 together in 2025, a new generator in 2030 and extension of the distribution system in 2035 the budget will need to include \$83,247 in 2024 and 2025. This amounts to \$65,464 for the Priority One & Two and then in 2026, this drops to \$17,783. Additionally, to save for capital replacement of existing items within 30 years the reserve requirements is \$230,369 in 2024. This will require the monthly base rate to be **\$102.55**, or an additional \$14.30 per month for a total increase of \$34.32.

## Scenario 0 – Existing Rates

In this scenario, the existing base rate is shown to be increasing at 5%, annually, starting with \$71.64 in 2024 (68.23x1.05) tiers will remain the same. Grants are assumed to be 0%.

Tiered Block	Meter Size	A	B	C	D	E	F	G
	0.750	\$71.64				\$107.46		\$71.64
	1.000		\$94.27				\$94.27	\$94.27
	1.500			\$132.33				
	2.000				\$178.03			
Tier Break	1	4,999	4,999	4,999	4,999	4,999	4,999	4,999
(All yellow cells in this Tier Break table must contain data.)	2	9,999	9,999	9,999	9,999	9,999	9,999	9,999
	3	6,000	6,000	6,000	6,000	6,000	6,000	6,000
	4	9,000	9,000	9,000	9,000	9,000	9,000	9,000
	5	12,000	12,000	12,000	12,000	12,000	12,000	12,000
	6	15,000	15,000	15,000	15,000	15,000	15,000	15,000
	7	20,000	20,000	20,000	20,000	20,000	20,000	20,000
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40
	2	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08
	3	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	4	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	5	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	6	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	7	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	8	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5		
	Base		5.00%	5.00%	5.00%	5.00%		
	Usage		5.00%	5.00%	5.00%	5.00%		
Results of the new rates		2024	2025	2026	2027	2028	5 Years	
TOTAL EXPENSES		\$1,790,023	\$1,832,931	\$2,118,278	\$2,169,394	\$2,229,465	\$10,140,091	
TOTAL REVENUE		\$1,441,364	\$1,518,230	\$1,601,485	\$1,694,926	\$1,793,735	\$8,049,740	
NET LOSS OR GAIN: (Short/Over to Reserves)		-\$348,658	-\$314,702	-\$516,793	-\$474,468	-\$435,730	-\$2,090,351	
NET CASH FLOW (Contribution to Reserves)		-\$28,840	-\$61,246	-\$367,274	-\$339,179	-\$308,983	-\$1,105,522	
Affordability assuming MHI of \$92333 for residential meters.		1.35%	1.43%	1.50%	1.59%	1.69%		
Are you putting enough money in reserves?	No	No	No	No	No	No		
Positive Annual Cash Flow?	No	No	No	No	No	No		

At 5% percentage annual increase, the ¾” residential base rates will increase according to the following table.

Annual Increase	2023	2024	2025	2026	2027	2028
5% Base	\$68.23	\$71.64	\$75.22	\$78.98	\$82.93	\$87.08
5% Average Res Bill w Usage	\$102.41	\$104.48	\$110.63	\$116.73	\$123.60	\$130.86



## Scenario 2

A typical avenue to explore in a rate study is increasing the number of tiers and tier prices. Currently the rate structure has the first tier 0-5,000 gallons at \$8.40/1000 gallons, the second 5,001-10,000 gallons at \$10.08 and \$12.10/1000 gallons after that. There are only 3 tiers, here in this scenario more tiers will be added to investigate the results. The average residential usage from actual historical data from Palmer Lake customers shows that the overall average throughout the year is **3,714 gallons** per month. This varies month to month. Monthly residential averages are shown below. According to the EPA National average for residential use is 300 gallons per day which is 9,125 gallons per month. According to the town of Castle Rock, 4,000 gallons is the average monthly residential consumption.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3205	2943	2653	4015	3443	4398	4904	4466	4572	3854	3225	2891

The new rates should encourage conservation of water. There are many benefits to encouraging conservation from chemical use on a daily operational cost to the reduced need for infrastructure like a new tank, a new well or more treatment capacity. In this scenario the first tier selected is below the average which at 3,000 gallons. The first tier goes up to 3,000 gallons and then increases every 1,000 gallons and the price per tier raises 15% each tier, annual increases are set at 3%.

Tiered Block	Meter Size	Rate Schedules						
		A	B	C	D	E	F	G
	0.750	\$75.15					\$112.73	\$75.15
	1.000		\$98.89					\$98.89
	1.500			\$138.81				
	2.000				\$186.76			
Tier Break	1	2,999	2,999	2,999	2,999	2,999	2,999	2,999
(All yellow cells in this Tier Break table must contain data.)	2	3,999	3,999	3,999	3,999	3,999	3,999	3,999
	3	4,999	4,999	4,999	4,999	4,999	4,999	4,999
	4	5,999	5,999	5,999	5,999	5,999	5,999	5,999
	5	6,999	6,999	6,999	6,999	6,999	6,999	6,999
	6	7,999	7,999	7,999	7,999	7,999	7,999	7,999
	7	8,999	8,999	8,999	8,999	8,999	8,999	8,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$11.50	\$11.50	\$11.50	\$11.50	\$11.50	\$11.50	\$11.50
	2	\$12.23	\$12.23	\$12.23	\$12.23	\$12.23	\$12.23	\$12.23
	3	\$15.21	\$15.21	\$15.21	\$15.21	\$15.21	\$15.21	\$15.21
	4	\$17.49	\$17.49	\$17.49	\$17.49	\$17.49	\$17.49	\$17.49
	5	\$20.11	\$20.11	\$20.11	\$20.11	\$20.11	\$20.11	\$20.11
	6	\$23.13	\$23.13	\$23.13	\$23.13	\$23.13	\$23.13	\$23.13
	7	\$26.60	\$26.60	\$26.60	\$26.60	\$26.60	\$26.60	\$26.60
	8	\$30.59	\$30.59	\$30.59	\$30.59	\$30.59	\$30.59	\$30.59
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5		
	Base		5.00%	5.00%	5.00%	5.00%		
	Usage		5.00%	5.00%	5.00%	5.00%		
Results of the new rates		2024	2025	2026	2027	2028	5 Years	
	TOTAL EXPENSES	\$1,790,023	\$1,832,931	\$2,118,278	\$2,169,394	\$2,229,465	\$10,140,091	
	TOTAL REVENUE	\$1,797,584	\$1,904,681	\$2,015,003	\$2,143,143	\$2,279,327	\$10,139,737	
	NET LOSS OR GAIN: (Short/Over to Reserves)	\$7,561	\$71,750	-\$103,274	-\$26,251	\$49,862	-\$353	
	NET CASH FLOW (Contribution to Reserves)	\$327,379	\$325,206	\$46,245	\$109,038	\$176,608	\$984,476	
	Affordability assuming MHI of \$92333 for residential meters:	1.67%	1.77%	1.88%	2.00%	2.12%		
	Are you putting enough money in reserves?	Yes	Yes	No	No	Yes		
	Positive Annual Cash Flow?	Yes	Yes	Yes	Yes	Yes		

	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>
Base Rate	\$75.15	\$78.90	\$82.85	\$86.99	\$91.34
Average Bill with Usage	\$130.45	\$138.82	\$146.90	\$156.31	\$166.32
Base Rate if 10% Grant on CIP	\$74.05	\$77.75	\$81.64	\$85.72	\$90.00
Average Bill with Usage if 10% Grant on CIP	\$129.36	\$137.67	\$145.69	\$155.04	\$164.98

For 2024 this scenario would generate \$906,076 in revenue from the base rates, and another \$740,649 from usage. There is a reduction in usage anticipated at 5% factored into the model for this year, however with such a steep increase according to usage the customers usage behavior may decrease more dramatically which could end up generating less revenue for the system overall.

**Scenario 3.1 – Kevin Dreher Suggested Scenario - 10% increase to Monthly Base Rate**

Can you ask Chris to run the following scenario:

Base rates to be \$50.47 (increase of \$4.59) for a 3/4", \$72.02 (increase of \$6.55) for a 1", \$108.27 (Increase \$9.84) for a 1.5", and \$151.8 (increase \$13.80) for a two-inch line. This represents a 10% increase for each line.

For the tiers, increase rates for residential and commercial users to the following:

- 0-1000 gallon \$0 - included in base rate. This will protect our elderly
- 1001-2000 gallons - \$.00900 per gallon
- 2001-5000 gallons - \$.01200 per gallon
- 5001-8000 gallons - \$.01400 per gallon
- 8001-12,000 gallons - \$.0150 per gallon
- 12,001 - 24,000 gallons - \$.016 per gallon
- 24,000 + gallons - \$.017 per gallon

This is based on what TOPL calls the “Base Rate.” In the rate study I call the entire \$68.23 the base fee because we also have a usage fee and as discussed in previous meeting there is no option to pay only part of the “Base Rate” portion of the “Total Minimum Bill” as broken down below. The term “Total Minimum Bill” is not the best descriptor since in addition to this total minimum there is also a usage charge.

Per Resolution 13 of 2023, Water Usage Rates shall be increased 7% to rates shown below:

Tap Size	WATER RATES			
	3/4"	1"	1 1/2"	2"
Monthly Base Rate	\$ 45.88	\$ 65.47	\$ 98.43	\$ 138.00
Capital Improvement Fee	\$ 4.59	\$ 6.55	\$ 9.84	\$ 13.80
Water Loan Payment	\$ 17.76	\$ 17.76	\$ 17.76	\$ 17.76
<b>TOTAL MINIMUM BILL</b>	<b>\$ 68.23</b>	<b>\$ 89.78</b>	<b>\$ 126.03</b>	<b>\$ 169.56</b>
	WATER USAGE RATES			
	min. gallons	max. gallons	\$ per gallon	\$ per 100 gal
	1	4999	\$ 0.00840	\$ 0.840
	5000	9999	\$ 0.01008	\$ 1.008
	10000	99999	\$ 0.01210	\$ 1.210

		Rate Schedules						
Tiered Block	Meter Size	A	B	C	D	E	F	G
	0.750	\$72.82					\$109.23	
	1.000		\$96.33					\$96.33
	1.500			\$135.87				
	2.000				\$183.36			
Tier Break	1	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	2	2,000	2,000	2,000	2,000	2,000	2,000	2,000
(All yellow cells in this Tier Break table must contain data.)	3	5,000	5,000	5,000	5,000	5,000	5,000	5,000
	4	8,000	8,000	8,000	8,000	8,000	8,000	8,000
	5	12,000	12,000	12,000	12,000	12,000	12,000	12,000
	6	24,000	24,000	24,000	24,000	24,000	24,000	24,000
	7	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	2	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00
	3	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00
	4	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00
	5	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00
	6	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00
	7	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00
	8	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5		
	Base Usage		5.00%	5.00%	5.00%	5.00%		
			5.00%	5.00%	5.00%	5.00%		
<b>Results of the new rates</b>		<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>5 Years</b>	
TOTAL EXPENSES		\$1,790,023	\$1,832,931	\$2,118,278	\$2,169,394	\$2,229,465	\$10,140,091	
TOTAL REVENUE		\$1,475,465	\$1,558,344	\$1,646,300	\$1,746,806	\$1,853,302	\$8,280,217	
NET LOSS OR GAIN: (Short/Over to Reserves)		-\$314,558	-\$274,588	-\$471,977	-\$422,587	-\$376,163	-\$1,859,874	
NET CASH FLOW (Contribution to Reserves)		\$5,260	-\$21,132	-\$322,458	-\$287,298	-\$249,416	-\$875,045	
Affordability assuming MHI of \$92333 for residential meters.		1.37%	1.45%	1.53%	1.63%	1.73%		
Are you putting enough money in reserves?	No	No	No	No	No	No		
Positive Annual Cash Flow?	Yes	No	No	No	No	No		

This suggested scenarios increases the Monthly minimum bill (minus Cap Imp Fee, minus the Loan Payment) by 10% and this does not cover all the costs to operate the system, contribute to reserves and pay current and anticipated future debt.

	2024	2025	2026	2027	2028
Base Rate	\$72.82	\$76.46	\$80.28	\$84.30	\$88.51
Average Bill with Usage	\$106.39	\$112.96	\$119.38	\$126.74	\$134.55

### Scenario 3.2

Since the scenario suggested by Kevin Dreher leaves deficit above \$1.8M after five years, this scenario looks to find the ¾” base rate that balances the budget. The tier volumes and tier prices are the same as Scenario 3.1.

Tiered Block	Meter Size	Rate Schedules						
		A	B	C	D	E	F	G
	0.750	\$100.35					\$150.53	\$100.35
	1.000		\$132.04					\$132.04
	1.500			\$185.36				
	2.000				\$249.38			
Tier Break	1	1,000	1,000	1,000	1,000	1,000	1,000	1,000
(All yellow cells in this Tier Break table must contain data.)	2	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	3	5,000	5,000	5,000	5,000	5,000	5,000	5,000
	4	8,000	8,000	8,000	8,000	8,000	8,000	8,000
	5	12,000	12,000	12,000	12,000	12,000	12,000	12,000
	6	24,000	24,000	24,000	24,000	24,000	24,000	24,000
	7	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	2	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00
	3	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00
	4	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00
	5	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00
	6	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00
	7	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00
	8	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5		
	Base Usage		5.00%	5.00%	5.00%	5.00%		
			5.00%	5.00%	5.00%	5.00%		
Results of the new rates		2024	2025	2026	2027	2028	5 Years	
TOTAL EXPENSES		\$1,790,023	\$1,832,931	\$2,118,278	\$2,169,394	\$2,229,465	\$10,140,091	
TOTAL REVENUE		\$1,812,189	\$1,911,904	\$2,017,539	\$2,136,606	\$2,262,592	\$10,140,830	
NET LOSS OR GAIN: (Short/Over to Reserves)		\$22,166	\$78,972	-\$100,739	-\$32,787	\$33,127	\$739	
NET CASH FLOW (Contribution to Reserves)		\$341,984	\$332,428	\$48,780	\$102,502	\$159,874	\$985,568	
Affordability assuming MHI of \$92333 for residential meters.		1.72%	1.83%	1.93%	2.04%	2.16%		
Are you putting enough money in reserves?	Yes	Yes	No	No	Yes			
Positive Annual Cash Flow?	Yes	Yes	Yes	Yes	Yes			

This results in a ¾” base rate or what TOPL calls Total Minimum Bill of \$100.35/month. That is a 47% increase in the base rate. The table below shows the base rate increasing at 5% beyond this proposed adjustment and the average monthly bill when usage is included.

	2024	2025	2026	2027	2028
Base Rate	\$100.35	\$105.37	\$110.64	\$116.17	\$121.98
Average Bill with Usage	\$133.92	\$141.87	\$149.73	\$158.61	\$168.02

### Scenario 3.3

Since scenario 3.1 suggested by Kevin Dreher leaves deficit above \$1.8M after five years, and scenario 3.2 results in a 47% increase in the base rate or Total Minimum Fee, we look here at this variation (scenario 3.2) to keep the suggested tier volumes but adjust the tier prices.

Tiered Block	Meter Size	Rate Schedules						
		A	B	C	D	E	F	G
	0.750	\$90.00					\$135.00	\$90.00
	1.000		\$118.43					\$118.43
	1.500			\$166.24				
	2.000				\$223.66			
Tier Break	1	1,000	1,000	1,000	1,000	1,000	1,000	1,000
(All yellow cells in this Tier Break table must contain data.)	2	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	3	5,000	5,000	5,000	5,000	5,000	5,000	5,000
	4	8,000	8,000	8,000	8,000	8,000	8,000	8,000
	5	12,000	12,000	12,000	12,000	12,000	12,000	12,000
	6	24,000	24,000	24,000	24,000	24,000	24,000	24,000
	7	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	2	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50
	3	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50
	4	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50
	5	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00
	6	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00
	7	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00
	8	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5		
	Base		5.00%	5.00%	5.00%	5.00%		
	Usage		5.00%	5.00%	5.00%	5.00%		
Results of the new rates		2024	2025	2026	2027	2028	5 Years	
TOTAL EXPENSES		\$1,790,023	\$1,832,931	\$2,118,278	\$2,169,394	\$2,229,465	\$10,140,091	
TOTAL REVENUE		\$1,805,356	\$1,908,869	\$2,016,899	\$2,140,544	\$2,271,595	\$10,143,262	
NET LOSS OR GAIN: (Short/Over to Reserves)		\$15,333	\$75,937	-\$101,379	-\$28,850	\$42,130	\$3,172	
NET CASH FLOW (Contribution to Reserves)		\$335,152	\$329,393	\$48,140	\$106,439	\$168,877	\$988,001	
Affordability assuming MHI of \$92333 for residential meters.		1.70%	1.80%	1.91%	2.02%	2.15%		
Are you putting enough money in reserves?	Yes	Yes	No	No	Yes			
Positive Annual Cash Flow?	Yes	Yes	Yes	Yes	Yes			

	2024	2025	2026	2027	2028
Base Rate	\$90.00	\$94.50	\$99.23	\$104.18	\$109.40
Average Bill with Usage	\$132.43	\$140.62	\$148.61	\$157.79	\$167.51



### Scenario 4

At the board meeting on 5-11-2023 the board did not come to a consensus about giving the restaurants a discount, but expressed interest in seeing what happens if the commercial customers are given a discount in the form of any rate increase only being 50% of 3/4" residential increases. This is a starting point and for comparison with Scenario 3.3 the tiers and tier prices are the same as developed just above.

Proposed Customer Classes	Name of Class	Rate Structure	Schedule	
1	Residential- 3/4"	Tiered Block	A	Go to row 69 and enter the Tiered Block Rates.
2	Commercial/Res-1"	Tiered Block	B	Go to row 69 and enter the Tiered Block Rates.
3	Commercial-1.5"	Tiered Block	C	Go to row 69 and enter the Tiered Block Rates.
4	Commercial-2"	Tiered Block	D	Go to row 69 and enter the Tiered Block Rates.
5	Out of Town - 3/4" 1.5x Res	Tiered Block	E	Go to row 69 and enter the Tiered Block Rates.
6	Irrigation Acct 1"	Tiered Block	F	Go to row 123 and enter the Tiered Block Rates.
7	Restraunts	Tiered Block	G	Go to row 123 and enter the Tiered Block Rates.
8	Commercial	Tiered Block	H	Go to row 123 and enter the Tiered Block Rates.

		Rate Schedules							
Tiered Block	Meter Size	A	B	C	D	E	F	G	H
	0.750	\$90.00				\$135.00		\$90.00	\$79.12
	1.000		\$118.43				\$118.43	\$118.43	\$93.33
	1.500			\$166.24					\$117.24
	2.000				\$223.66				\$145.95

Tier Break		1	2	3	4	5	6	7	8
(All yellow cells in this Tier Break table must contain data.)	1	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	2	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	3	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
	4	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
	5	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
	6	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
	7	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999

Usage Rate per 1000 Gallons		1	2	3	4	5	6	7	8
	1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	2	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50
	3	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50
	4	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50
	5	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00
	6	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00
	7	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00
	8	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00

Growth Factor of Rates		Year 2	Year 3	Year 4	Year 5
Base		5.00%	5.00%	5.00%	5.00%
Usage		5.00%	5.00%	5.00%	5.00%

Results of the new rates	2024	2025	2026	2027	2028	5 Years
TOTAL EXPENSES	\$1,790,023	\$1,832,931	\$2,118,278	\$2,169,394	\$2,229,465	\$10,140,091
TOTAL REVENUE	\$1,796,749	\$1,899,831	\$2,007,409	\$2,130,580	\$2,261,133	\$10,095,702
NET LOSS OR GAIN: (Short/Over to Reserves)	\$6,726	\$66,900	-\$110,869	-\$38,814	\$31,668	-\$44,389
NET CASH FLOW (Contribution to Reserves)	\$326,544	\$320,356	\$38,651	\$96,475	\$158,414	\$940,440
Affordability assuming MHI of \$92333 for residential meters.	1.70%	1.80%	1.91%	2.02%	2.15%	

Are you putting enough money in reserves?	Yes	Yes	No	No	Yes
Positive Annual Cash Flow?	Yes	Yes	Yes	Yes	Yes

This scenario results in over \$40,000 less revenue compared with Scenario 3.3.

PALMER LAKE WATER RATE STUDY 2023

Model Inputs, Explanations, Issues and Check for Accuracy

Water Rates by Brandewie LLC

April 1, 2023

This document is meant to show the inputs to the model Starting with the financial and model parameters, followed by the Capital Improvements program, then budget and then a summary of the customers.

**Parameters**



The -10% in red above reflects a significant reduction in customer usage based on increased usage charges. This usually tapers off over the years and customers return to a normal water use pattern. Please indicate if the town anticipates a significant reduction in usage from the customers.

<b>Unit of Service</b>	1000	Gallons			
<b>Billing Cycles</b>	Currently	Proposed			
Billing Cycle	M	M			
Billings per year	12	12			
<b>Default Funding of Asset Replacements</b>					
Replacement Value From To		Cash	Grant	Loan	
\$0	\$20,000	100%	0%	0%	
\$20,001	\$100,000	25%	0%	75%	
\$100,001	\$500,000	10%	30%	60%	
\$500,001	\$9,999,999	5%	30%	65%	
\$10,000,000	\$9,999,999	2%	30%	68%	
<b>Capitalization Threshold</b>	\$ 5,000	Any asset purchased below this value is not included in the CIP. It as			

The default funding of asset replacement should be considered a significant variable. Costs under the capitalization threshold are currently set at \$5,000 which means if something costs less than \$5,000 it is paid for in the operation budget and not on the list to save annually for it. This threshold should reflect how Palmer Lake spends. At the higher end of capital assets, it is more practical to save for a down payment for a loan or matching funds to secure a grant. If the town has a history of obtaining significant grants, that should be considered in the table above. The rest of the costs will assume to be funded by loans.

The current customers are categorized by meter size. This is related to the potential volume of water the connection can consume and base rates are based on this meter or connection size.

Current Rate Structure						
Current Customer Classes	Name of Class	Rate Structure			Schedule	
1	Residential/Com- 3/4"	Tiered Block			A	Go to row 13
2	Commercial/Res 1"	Tiered Block			B	Go to row 13
3	Commercial 1.5"	Tiered Block			C	Go to row 13
4	Commercial 2"	Tiered Block			D	Go to row 13
5	Out of Town - 3/4"	Tiered Block			E	Go to row 13
Rate Schedules						
Tiered Block	Meter Size	A	B	C	D	E
Base	0.625					
	0.750	\$68.23				\$68.23
	1.000		\$89.78			
	1.500			\$126.03		
	2.000				\$169.56	
Tier Break (All yellow cells in this Tier Break table must	1	4,999	4,999	4,999	4,999	4,999
	2	9,999	9,999	9,999	9,999	9,999
	3	9,999,999	9,999,999	9,999,999	9,999,999	9,999,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40
	2	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08
	3	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	8	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
Total Revenue under Existing Rates		\$1,277,974.73	This number should closely approximate the sales nu			

The rate structure does not state that the "Out of Town" customer are bill any differently from customers within town limit. **Is this correct?** Usually a 25-50% surcharge are applied to customer outside of the towns tax district.

Total Revenue with existing rates are calculated at \$1,277,974. The monthly revenue from the base charges is \$69,434.51 which is \$833,214. The usage revenue ranges from \$24,500 to \$52,000 monthly, but over the year sampled is \$444,760.

The model calculates \$67,000 over the revenue reported in 2022 and from what the model is predicting with the same monthly and usage fees. This is a 5% discrepancy. The budget dose not detail information where the usage revenue is separated from the base fee. **What information is available on Usage Revenue versus Base Revenue for 2022?**

## Capital Improvements Plan

The next 3 images show the capital improvement plan in detail. There are some issues worth highlighting for discussion or clarification. The default funding table can also be adjusted to work with realistic funding options.

Quantity	Asset	Year Acquired	Unit Cost (Historic, Current or Future)	Normal Estimated Life	Estimated Remaining Life	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Replacement of Existing Capital Assets</b>										
<b>REAL ESTATE</b>										
						0%	0%	100%	0	0
1	Town Office	2002	209,700	60	40	10%	30%	60%	1,443	800
1	Town Office - Contents	2002	34,662	60	40	25%	0%	75%	596	330
1	Town Hall	1930	487,900	60	40	5%	30%	65%	1,678	930
1	Town Hall -Contents	2000	23,108	60	40	25%	0%	75%	397	220
1	Maintenance Building	1983	601,000	60	20	10%	30%	60%	4,135	1,694
1	Maintenance Building - Contents	2000	57,770	30	7	25%	0%	75%	994	573
						0%	0%	100%	0	0
<b>VEHICLES</b>										
						0%	0%	100%	0	0
1	Ford Truck F-250 2005 DFZ901	2005	40,000	23	5	25%	0%	75%	2,752	1,977
1	Dodge Ram 1500 2019 BSH031	2019	50,000	7	3	25%	0%	75%	3,440	3,653
1	Dodge Ram 2015 779SWQ	2015	50,000	10	2	25%	0%	75%	3,440	5,153
1	Chevey 1/2 Ton 2008 681RS	2014	45,000	10	1	25%	0%	75%	3,096	8,717
1	Chevey 1/2 Ton 2005 219CLV	2005	40,000	19	1	25%	0%	75%	2,752	7,748
1	John Deer Loader	2008	200,000	25	10	100%	0%	0%	2,752	1,317
1	Road Grader JD	2006	300,000	25	8	25%	0%	75%	1,032	552
1	Backhoe 31OSJD	2008	100,000	27	12	100%	0%	0%	1,376	613
1	Water Truck 3500 Gal Tank Frieghtliner	2005	60,000	24	6	100%	0%	0%	826	Not Cap.
1	Dump Truck mini International	2001	60,000	26	4	100%	0%	0%	826	Not Cap.
						0%	0%	100%	0	0
						0%	0%	100%	0	0
						0%	0%	100%	0	0
<b>SOURCE and TREATMENT</b>										
						0%	0%	100%	0	0
1	Spruce Mountain Pump Station D2 Well Station - 195	1989	799,600	60	26	5%	30%	65%	2,751	1,178
1	High Cap Pump (1200gpm) Fire Pump Would Replace	2007	500,000	40	24	5%	30%	65%	6,880	2,884
1	Service Pumps (300 gpm) Summit Submersible A2 W	2018	400,000	7	2	5%	30%	65%	6,380	10,846
1	Well D2 Original Redrilled 1630 feet	2023	635,779	30	30	5%	30%	65%	8,748	3,965
2	Chlorinator Pump Hypo Chlorite Injection	2021	3,000	3	1	100%	0%	0%	1,752	5,194
2	Rapid Filter (500 gpm filters) Media replenished	2022	11,554	5	4	25%	0%	75%	1,637	1,420
1	Filter Bed	2002	26,226	60	39	10%	30%	60%	1,343	1,106
1	Well A2 2233 feet deep	2002	993,900	30	10	5%	30%	65%	13,676	6,547
1	Spuce Mountain Pump Station - 201 Spruce Ave STR	2013	1,456,400	80	70	2%	30%	68%	10,773	17,121

Note that the replacement costs for the Reservoirs below were taken out of the calculation. If the CIP included saving 2% of the \$30,000,000 estimated replacement costs, the CIP would recommend saving \$3M annually. This would mean multiplying the rates by 3X. The reservoir is well maintained by the operators and has a steady budget annually so by removing it from the CIP the annual reserve target drops to the range of \$600,000.



Quantity	Asset	Year Acquired	Unit Cost (Historic, Current or Future)	Normal Estimated Life	Estimated Remaining Life	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Replacement of Existing Capital Assets</b>										
	<b>Surface Water Treatment</b>					0%	0%	100%	0	0
	Upper Reservoir Glen Park Concrete	1905	20,000,000	120	60	100%	0%	0%	0	Not Cap.
	Lower Reservoir	1965	10,000,000	100	60	100%	0%	0%	0	Not Cap.
1	Intake Structure at lower reservoir	1967	2,000,000	100	60	2%	30%	68%	57,373	74,435
2	Stanby Generator 6.8L 48V 51Hz ? 30K is a guess G	2011	20,000	60	48	10%	30%	60%	1,096	746
1	Sureface Water Treatment Plant - Structure?	2011	2,967,600	60	50	2%	30%	68%	23,187	19,108
1	Amiad 130 Micron Pre-Strainer 1999 replaced 2018	2018	35,000	20	15	25%	0%	75%	2,398	1,011
3	40-HP distribution pumps one Replaced recently?	2011	6,000	12	6	25%	0%	75%	1,233	787
						0%	0%	100%	0	0
2	Membrane Filter Pall skid 350 gpm ????? Replaced M	2011	1,208,527	30	18	2%	30%	68%	18,885	10,072
44	22 Modules per skid Replaced Recently	2020	92,290	10	7	5%	30%	65%	60,792	37,858
1	Electrical Controls Auto Pall Controls ???? Lightening	2020	29,800			100%	0%	0%	892	0
						0%	0%	100%	0	0
1	SWTP Lab Equipment	2018	20,000	5	2	25%	0%	75%	1,370	2,064
1	Chlorine Analyzer Obsolete No Parts	2002	8,000	25	4	100%	0%	0%	2,192	1,865
6	Turbidity Analyzer Obsolete No Parts	2011	6,000	16	4	25%	0%	75%	2,466	2,098
	Cholorine Dioxide Generator Leased					0%	0%	100%	0	0
2	Chlorine Gas System, Regulators, injectors Measurem	2011	300,000	40	28	5%	30%	65%	8,220	3,630
1	SCADA Replace PLC at GWTP Replacing this now?	2023	40,000	25	25	10%	30%	60%	1,096	466
1	Scada at A2 and D2 Done recently	2022	58,654	20	19	10%	30%	60%	1,655	696
						0%	0%	100%	0	0
	<b>STORAGE</b>					0%	0%	100%	0	0
1	High Zone Water Storage Tank (250,000 Gal) Concret	1985	591,500	60	22	5%	30%	65%	8,104	3,362
1	High Zone Water Storage Tank (250,000 Gal) Concret	2018	1,600,000	60	55	2%	30%	68%	10,165	9,284
1	Low Zone Water Storage Tanks (500,000 Gal) Welded	1955	751,100	75	7	5%	30%	65%	10,290	5,967
1	Low Zone Water Storage Tank Booster Station	1994	377,700	60	31	5%	30%	65%	5,175	2,396
						0%	0%	100%	0	0
739	24 Inch Contact Piping	2013	120	100	90	5%	30%	65%	1,215	3,146
1,478	12 Inch	2013	120	100	90	2%	30%	68%	972	2,516
						0%	0%	100%	0	0
7,286	Main Line (10 inches)	2013	112	100	90	2%	30%	68%	4,472	11,578
						0%	0%	100%	0	0
6,969	Main Line (8 inches)	2013	112	100	90	2%	30%	68%	4,277	11,074
						0%	0%	100%	0	0
86,064	Main Line (6 inches)	2013	105	100	90	2%	30%	68%	49,522	128,217
9,345	Main Line (6 inches)	2025	105	100	90	2%	30%	68%	5,377	13,922
						0%	0%	100%	0	0
5,913	Service Lines (4 inches) REPLACEMENT COVERED IN FUTURE PROJECTS					0%	0%	100%	0	0
3,432	Service Lines (2 inches) REPLACEMENT COVERED IN FUTURE PROJECTS					0%	0%	100%	0	0

There is a line item in the budget at \$2,000 to replace and \$3,000 to repair meters. The model does include \$50,000 for the meter lease program, so that needs to be determined or can be put into a scenario, and defined for other scenarios.

At the bottom of the next page is the future projects. The year 2025 is rapidly approaching and if these improvements can be pushed out a few years that is worth exploring. It will help the annual reserve recommendation down.

Quantity	Asset	Year Acquired	Unit Cost (Historic, Current or Future)	Normal Estimated Life	Estimated Remaining Life	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Replacement of Existing Capital Assets</b>										
<b>Valves</b>										
8	8" Gate Valves	2013	2,540	40	30	25%	0%	75%	1,398	634
156	6" Gate Valves	2013	2,090	40	30	5%	30%	65%	4,486	2,033
5	4" Gate Valves	2013	1,800	40	30	25%	0%	75%	619	281
	2" Ball Valves \$160.00					0%	0%	100%	0	0
	1" Valve \$35.00					0%	0%	100%	0	0
						0%	0%	100%	0	0
						0%	0%	100%	0	0
<b>Fire Hydrants 166 6" Hydrants</b>										
8	6" Hydrants	1950	9,050	80	7	10%	30%	60%	1,992	1,149
158	6" Hydrants In reality these were installed/replaced	2013	9,050	80	70	2%	30%	68%	7,870	10,300
5	4" Hydrants	2013	6,040	80	70	5%	30%	65%	416	544
						0%	0%	100%	0	0
<b>Residential Meters</b>										
	3/4" Meter (997)	1990	350			100%	0%	0%	0	0
	1" Meters (11)	1990	600			100%	0%	0%	0	0
	1.5" Meters (2)	1990	900			100%	0%	0%	0	0
	2" Meter (1)	1990	1,200			100%	0%	0%	0	0
						0%	0%	100%	0	0
<b>Subtotal Replacement of Existing Capital Assets</b>						2%	30%	68%	384,238	445,009

Quantity	Asset	Year Acquired	Unit Cost (Current or Future)	Normal Estimated Life	Estimated Remaining Life	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Replacement of Funded Project Assets</b>										
						0%	0%	0%	0	0
						0%	0%	0%	0	0
						0%	0%	0%	0	0
<b>Subtotal Replacement of Funded Project Assets</b>						0%	0%	0%		0

Enter Existing Reserves for Replacement of Funded Project Assets

Quantity	Asset	Year to be Purchased	Unit Cost (Current or Future)	Normal Estimated Life		Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Reserves for Additional Capital Assets</b>										
1	New Araphahoe Formation Well	2025	2,787,837	30		5%	30%	65%	0	76,648
1	Groundwater Treatment Plant Improvements (Steve th	2025	588,250	40		5%	30%	65%	0	16,173
1	Distribution System Replacement	2025	1,399,353	80		5%	30%	65%	0	38,473
1	Distribution System Looping and Reinforcement	2030	1,258,932	80		5%	30%	65%	0	12,465
1	Distribution System Extension to Serve Properties on F	2035	4,067,188	80		5%	30%	65%	0	29,606
1	Back Up Generator for Tank Pump	2030	30,000	40		25%	0%	75%	0	1,485
<b>Subtotal Reserves for Additional Capital Assets</b>						5%	30%	65%		174,850

Enter Existing Reserves for Additional Capital Assets

<b>Total Capital Reserves</b>						2%	30%	68%	384,238	619,859
Including 2% for Reservoir Replacement			\$3,022,851							

As it can be seen above with the existing cash, grant, loan projections and annual reserves required add up to \$619,859 for 2024. Remember the default funding can be adjusted to justify a lower reserve.

Replacement Value From To	Cash	Grant	Loan
\$0 - \$20,000	100%	0%	0%
\$20,001 - \$100,000	25%	0%	75%
\$100,001 - \$500,000	10%	30%	60%
\$500,001 - \$9,999,999	5%	30%	65%
\$10,000,000 - \$9,999,999	2%	30%	68%



## Budget

EXPENSES AND SOURCES OF FUNDS	2021	2022	2023	% Belonging to Water	2024	2025	2026	2027	2028
<b>OPERATIONS &amp; MAINTENANCE EXPENSES</b>									
5007 Salaries/Wages on Call		19,110	15,308	100%	16,073	16,877	17,721	18,607	19,537
5026 Overtime, Civilian Unsched		1,470	1,482	100%	1,556	1,634	1,716	1,801	1,891
5109 Professional Svcs Other engineering				100%	0	0	0	0	0
5210 General Services	20,042	1,000	27,870	100%	29,264	30,727	32,263	33,876	35,570
5211 General Services - Treatment		13,000	22,000	100%	23,100	24,255	25,468	26,741	28,078
5212 General Services - Distribution		13,000	22,000	100%	23,100	24,255	25,468	26,741	28,078
5202 General Supplies - Treatment	42,879	44,000	49,000	100%	51,450	54,023	56,724	59,560	62,538
5205 General Supplies - Distribution	15,156	36,000	45,000	100%	47,250	49,613	52,093	54,698	57,433
5310 Building Maintenance	2,941	2,000	2,000	100%	2,100	2,205	2,315	2,431	2,553
5330 Repair/Maint Supplies		65,000		100%	0	0	0	0	0
5331 Repair/Maint Supplies Distribution	2,059	214,036		100%	0	0	0	0	0
5220 Water Meters/Parts Replace	5,515	5,000	2,000	100%	2,100	2,205	2,315	2,431	2,553
5222 Water Meters / Repairs	2,708	5,000	3,000	100%	3,150	3,308	3,473	3,647	3,829
5300 Utilities - Electric	121,042	120,750	83,000	100%	87,150	91,508	96,083	100,887	105,931
5301 Utilities - Gas			18,400	100%	19,320	20,286	21,300	22,365	23,484
5302 Utilities - Water			12,500	100%	13,125	13,781	14,470	15,194	15,954
5303 Utilities - Sanitation			16,400	100%	17,220	18,081	18,985	19,934	20,931
5510 Vehicle Repair / Maint	853	6,000	8,000	100%	8,400	8,820	9,261	9,724	10,210
5520 Fuel/Lubricants	6,124	10,000	10,000	100%	10,500	11,025	11,576	12,155	12,763
5850 Vehicle Loan Principal ???	3,373	2,976		100%	0	0	0	0	0
5851 Vehicle Loan Interest ???	940	945		100%	0	0	0	0	0
5650 Water Line Repair	21,234			100%	0	0	0	0	0
5320 Equipment Maintenance	34,612	23,000	19,539	100%	20,516	21,542	22,619	23,750	24,937
5660 Reservoir/Dam Maintenance	3,037	13,000	13,000	100%	13,650	14,333	15,049	15,802	16,592
5610 Water Quality Testing	22,573	27,949	23,732	100%	24,919	26,165	27,473	28,846	30,289
				100%	0	0	0	0	0
Capital Expenses				?					
5109 Professional Svcs Other engineering		40,000	40,000	?	?	?	?	?	?
<b>Total Operation and Maintenance Expenses:</b>	<b>305,088</b>	<b>663,230</b>	<b>434,231</b>		<b>413,943</b>	<b>434,640</b>	<b>456,372</b>	<b>479,190</b>	<b>503,150</b>

Engineering costs will accompany the pipeline replacement, improvement and extension projects. These estimated costs are included in those project costs. If there are other anticipated engineering costs they need to be discussed and added.

GENERAL & ADMINISTRATIVE EXPENSES	2021	2022	2023	Belonging	2024	2025	2026	2027	2028
Operating Reserve Funding					0	0	0	0	0
Emergency Reserve Funding					6,202	6,202	6,202	0	0
Debt Reserve Funding					17,531	17,531	0	0	0
Replacement of Existing Capital Assets					445,009	427,399	415,840	414,254	411,564
Replacement of Funded Project Assets					0	0	0	0	0
Reserves for Additional Capital Assets					174,850	174,850	43,556	43,556	43,556
Debt Service		183,229	183,229		284,784	291,137	511,686	518,654	526,096
5002 Salaries/Wages, Full-time	248,422	400,788	423,291	100%	444,456	466,678	490,012	514,513	540,238
5030 Social Security ER	14,351	27,358	27,285	100%	28,649	30,082	31,586	33,165	34,823
5032 Medicare ER	3,363	6,398	6,381	100%	6,700	7,035	7,387	7,756	8,144
5036 FUTA	164	281	239	100%	251	263	277	291	305
5006 Salaries/Wages, PT Sick	430	642	0	100%	0	0	0	0	0
5050 Retirement ER Match	2,659	16,855	17,603	100%	18,483	19,407	20,378	21,397	22,466
5060 Health Ins ER-pd		40,508	40,900	100%	42,945	45,092	47,347	49,714	52,200
5070 Life Ins ER-pd	312	1,233	1,245	100%	1,307	1,373	1,441	1,513	1,589
5038 Workers Comp Ins	14,960	28,487	29,172	100%	30,631	32,162	33,770	35,459	37,232
5103 Professional Svcs Legal	19,651	20,000	20,000	100%	21,000	22,050	23,153	24,310	25,526
5101 Professional Svcs Acctg	9,500	9,500	45,225	100%	47,486	49,861	52,354	54,971	57,720
5102 Professional Svcs IT/Water Billing	77,114	58,000	78,000	100%	81,900	85,995	90,295	94,809	99,550
5040 Employee Clothing	163	500	1,000	100%	1,050	1,103	1,158	1,216	1,276
5041 Employee Training	248	2,000	4,500	100%	4,725	4,961	5,209	5,470	5,743
5042 Employee Travel	661	5,000	6,000	100%	6,300	6,615	6,946	7,293	7,658
5043 Employee Per Diem			3,000	100%	3,150	3,308	3,473	3,647	3,829
5137 Memberships/Registration	9,156	10,000	10,000	100%	10,500	11,025	11,576	12,155	12,763
5121 Bank Fees / Services	18	400	100	100%	105	110	116	122	128
5140 Postage	611	0	0	100%	0	0	0	0	0
5133 Insurance	8,738	12,000	13,400	100%	14,070	14,774	15,512	16,288	17,102
5135 Legal Notices/Recordings	0	500	500	100%	525	551	579	608	638
5122 Communication	1,771	0	3,100	100%	3,255	3,418	3,589	3,768	3,956
5199 Misc Expense	0	800	800	100%	840	882	926	972	1,021
5201 General Supplies	0	2,000	3,000	100%	3,150	3,308	3,473	3,647	3,829
5500 Vehicle License / Fee				100%	0	0	0	0	0
8000 Cap Imp			133,254						
8000 Cap Imp - Water			125,984						
8100 Capital Equipment		63,000							
8100 Capital Equipment IT		26,400							
Water Meter Lease Program????						50,000	50,000	50,000	50,000
	412,292	915,879	1,177,208		1,699,855	1,777,172	1,877,838	1,919,546	1,968,952
<b>TOTAL EXPENSES</b>	<b>717,380</b>	<b>1,579,109</b>	<b>1,611,439</b>		<b>2,113,797</b>	<b>2,211,812</b>	<b>2,334,210</b>	<b>2,398,736</b>	<b>2,472,102</b>

Salaries/wages, PT Sick and Postage are small costs, but being at \$0 this year locks in 0 for all 5 years into the projection.

Another item that may need to be removed based on the boards direction is the meter lease program anticipated for 2025. Starting in 2025 the budget shows an estimated \$50,000 lease costs for the meter lease program.

The current budget shows an addition of roughly \$200,000 in debt in 2026 after the anticipated distribution projects are funded at 5% cash reserves and 65% loan, which means that depends on a 30% grant.

SOURCE OF FUNDS / REVENUES RECEIVED									
20-19-4410 - 4430 Sales Revenue (Base + Usaf	1,190,681	1,203,373	1,211,000		1,230,355	1,239,823	1,249,318	1,258,841	1,268,393
20-19-4440 Water Tap Fees	188,250	84,521	100,000	100%	105,000	110,250	115,763	121,551	127,628
20-19-4450 Water Meter Sales	2,163	2,000	3,000	100%	3,150	3,308	3,473	3,647	3,829
Uncollectable Receivables					0	0	0	0	0
20-19-4499 Service/Late Fees	12,272	16,644	14,000	100%	14,700	15,435	16,207	17,017	17,868
20-19-2314 Water Reserve Interest				100%	0	0	0	0	0
20-19-2322 Water Revenue Interest	95	4,000	7,000	100%	7,350	7,718	8,103	8,509	8,934
Misc		525	200	100%	210	221	232	243	255
20-19-2360 Water Dep. Misc.Revenue/TANK?	10,543	0	10,000	100%	10,500	11,025	11,576	12,155	12,763
				100%	0	0	0	0	0
20-19-2350 ARP Funds	167,114	248,000	259,238						
20-19-2314 Water Reserve Interest	85	4,000	7,000		7,000	100	100	100	100
<b>TOTAL REVENUE</b>	<b>1,571,203</b>	<b>1,563,063</b>	<b>1,611,438</b>		<b>1,378,265</b>	<b>1,387,878</b>	<b>1,404,771</b>	<b>1,422,062</b>	<b>1,439,770</b>
<b>NET LOSS OR GAIN:</b>	<b>853,823</b>	<b>-16,046</b>	<b>-1</b>		<b>-735,532</b>	<b>-823,934</b>	<b>-929,439</b>	<b>-976,674</b>	<b>-1,032,332</b>
<b>NET CASH FLOW (Contribution to Reserves)</b>	<b>853,823</b>	<b>-16,046</b>	<b>-1</b>		<b>-91,940</b>	<b>-197,951</b>	<b>-463,841</b>	<b>-518,864</b>	<b>-577,212</b>
Affordability assuming MHI of \$92333 for residential meters.					1.27%	1.28%	1.29%	1.30%	1.31%
Does the Budget Balance?					No	No	No	No	No
Positive Annual Cash Flow?					No	No	No	No	No

For the next several years the CIP calculated large reserve targets in anticipation of the pipeline projects.

GENERAL & ADMINISTRATIVE EXPENSES	2024	2025	2026	2027	2028
Operating Reserve Funding	0	0	0	0	0
Emergency Reserve Funding	6,202	6,202	6,202	0	0
Debt Reserve Funding	17,531	17,531	0	0	0
Replacement of Existing Capital Assets	445,009	427,399	415,840	414,254	411,564
Replacement of Funded Project Assets	0	0	0	0	0
Reserves for Additional Capital Assets	174,850	174,850	43,556	43,556	43,556
Debt Service	284,784	291,137	511,686	518,654	526,096

619,859      602,250      459,395      457,810      455,119

So by removing the newly suggested reverses Palmer Lakes five-year forecast should look like this. **Does this look like what was expected?**

<b>TOTAL EXPENSES</b>	717,380	1,579,109	1,611,439		2,113,797	2,211,812	2,334,210	2,398,736	2,472,102
<b>SOURCE OF FUNDS / REVENUES RECEIVED</b>									
20-19-4410 - 4430 Sales Revenue (Base + Usage)	1,190,681	1,203,373	1,211,000		1,230,355	1,239,823	1,249,318	1,258,841	1,268,393
20-19-4440 Water Tap Fees	188,250	84,521	100,000	100%	105,000	110,250	115,763	121,551	127,628
20-19-4450 Water Meter Sales	2,163	2,000	3,000	100%	3,150	3,308	3,473	3,647	3,829
Uncollectable Receivables					0	0	0	0	0
20-19-4499 Service/Late Fees	12,272	16,644	14,000	100%	14,700	15,435	16,207	17,017	17,868
20-19-2314 Water Reserve Interest				100%	0	0	0	0	0
20-19-2322 Water Revenue Interest	95	4,000	7,000	100%	7,350	7,718	8,103	8,509	8,934
Misc		525	200	100%	210	221	232	243	255
20-19-2360 Water Dep. Misc.Revenue/TANK?	10,543	0	10,000	100%	10,500	11,025	11,576	12,155	12,763
				100%	0	0	0	0	0
20-19-2350 ARP Funds	167,114	248,000	259,238		619,859	602,250	459,395	457,810	455,119
20-19-2314 Water Reserve Interest	85	4,000	7,000		7,000	100	100	100	100
<b>TOTAL REVENUE</b>	1,571,203	1,563,063	1,611,438		1,998,124	1,990,128	1,864,166	1,879,872	1,894,889
<b>NET LOSS OR GAIN:</b>	853,823	-16,046	-1		-115,673	-221,684	-470,044	-518,864	-577,213
<b>NET CASH FLOW (Contribution to Reserves)</b>	853,823	-16,046	-1		527,919	404,299	-4,446	-61,054	-122,093
Affordability assuming MHI of \$92333 for residential meters.					1.27%	1.28%	1.29%	1.30%	1.31%
Does the Budget Balance?					No	No	No	No	No
Positive Annual Cash Flow?					Yes	Yes	No	No	No

### New Customer Categories

There are several municipal accounts as well as one school account. If the board or staff would like to see special rates for these accounts, it can easily be investigated.

Proposed Customer Classes	Name of Class	Rate Structure	Schedule
1	Residential/Com- 3/4"	Tiered Block	A
2	Commercial/Res 1"	Tiered Block	B
3	Commercial 1.5"	Tiered Block	C
4	Commercial 2"	Tiered Block	D
5	Out of Town - 3/4"	Tiered Block	E
6			
7	Municipal 3/4"	Tiered Block	G
8	Municipal 1"	Tiered Block	H
9	Municipal 2"	Tiered Block	I
10	School 1"	Tiered Block	J

Tiered Block	Meter Size	A	B	C	D	E	
	0.750	\$68.23				\$68.23	
	1.000		\$89.78				
	1.500			\$126.03			
	2.000				\$169.56		
Tier Break		1	4,999	4,999	4,999	4,999	4,999
(All yellow cells in this		2	9,999	9,999	9,999	9,999	9,999
Tier Break table must		3	9,999,999	9,999,999	9,999,999	9,999,999	9,999,999
		8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons		1	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40
		2	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08
		3	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
		8	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10

Growth Factor of Rates		Year 2	Year 3	Year 4	Year 5		
Base		0.00%	0.00%	0.00%	0.00%		
Usage		0.00%	0.00%	0.00%	0.00%		
<b>Results of the new rates</b>		<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>5 Years</b>
TOTAL EXPENSES		\$2,113,797	\$2,211,812	\$2,334,210	\$2,398,736	\$2,472,102	\$11,530,657
TOTAL REVENUE		\$1,378,265	\$1,387,878	\$1,404,771	\$1,422,062	\$1,439,770	\$7,032,747
NET LOSS OR GAIN: (Short/Over to Reserves)		-\$735,532	-\$823,934	-\$929,439	-\$976,674	-\$1,032,332	-\$4,497,910
NET CASH FLOW (Contribution to Reserves)		-\$91,940	-\$197,951	-\$463,841	-\$518,864	-\$577,212	-\$1,849,808
Affordability assuming MHI of \$92333 for residential meters.		1.27%	1.28%	1.29%	1.30%	1.31%	
Are you putting enough money in reserves?	No	No	No	No	No	No	
Positive Annual Cash Flow?	No	No	No	No	No	No	

This document is meant to show the building of the model, logic and some issues to be reviewed by the Palmer Lake staff. Once this is reviewed or a meeting is convened to address the issue, we can explore scenarios.

## PALMER LAKE WATER RATE STUDY 2023

### Model Inputs, Explanations, Issues and Check for Accuracy

Water Rates by Brandewie LLC

April 24, 2023

This Document is meant to show the inputs to the model Starting with the financial and model parameters, followed by the Capital Improvements program, then budget and then a summary of the



customers and suggested new customer classes. Some variable savings targets are presented to show the full potential need for funding Capital Improvements.

**Parameters**

<b>Parameters</b>	Enterprise	Water		
	System Name:	Palmer Lake		
	System Number			
	First year of rate increases	2024		
<b>Financial Constants</b>				
	Return on Invested Funds	0.50	%	
	Past Inflation	3.00	%	
	Future Inflation	5.00	%	
	Future Loan Interest Rate	3.25	%	
	Future Loan fees, legal, costs	0.00	%	(Included in loan)

<b>Existing Debt</b>					
Description	Annual Payment	Maturity	Reserve Required	Reserve Allocated	Make Up Period
CWRPDA - SWTP Upgrades	\$ 183,140	2030	\$ 200,956	\$ 200,956	
PL General Fund Loan (Avg '24-'39)	\$ 33,476	2039	\$0	\$0	
CWRPDA - Redrill D-2R	\$ 68,168	2038	\$0	\$0	
Total	\$ 284,784		\$ 200,956	\$ 200,956	

<b>Existing Reserves</b>	Amount	
Debt Reserve	\$200,956	As per lending agreement(s)
Operating Reserve	\$236,018	Often in Checking Account
Emergency Reserve	\$181,393	Often in Savings Account
Capital Reserve	\$0	Mostly in CDs or other investments
Total	\$618,367	

There are \$200,956 reserved for debt service. There is no obligation as researched by the staff to hold that debt reserve amount or any amount, however it is advisable to keep these funds here and restricted.

After some research it is understood that the CWRPDA loans require 3 months of Operating Reserves. The operational expenses are \$413,943 for 2024, but there is \$236,018 in operational reserves, which is closer to 6-months of operating expenses. The model calculates 3 months of operating expenses (\$413,943 annually op ex) which means there is already \$236,018 in that account and this will be rebalanced to the CIP account.

<b>Reserve Targets</b>	Amount	Make Up Period	First Year Reserve Addition	Excess funds to be transfer to CIP	Goal
Debt Reserve	\$200,956	See F20:F25	\$0	\$0	As per lending agreement(
Operating Reserve	\$103,486		\$0	\$132,532	3 months Operating Expen
Emergency Reserve	\$200,000	3	\$6,202	\$0	Critical equipment replacer
Available for Capital Reserve	\$132,532	This is the total amount currently available for CIP. Transferred to CIP It is the sum of what you already have in CIP and any excess funds in			

After the model rebalances these existing reserves with the reserve target, there is \$132,532 remaining unrestricted for Capital Improvements.

Note that the PL GF loan is the calculated average over the life of the loan.

<b>Median Household Income</b>	\$ 92,333	MHI Source	<a href="https://datausa.io/profile/geo/palmer-lake">https://datausa.io/profile/geo/palmer-lake</a>			
<b>Growth of Consumption over Base year</b>		Year 1	Year 2	Year 3	Year 4	Year 5
Conservation Factor		-5.0%	-4.0%	-3.0%	-2.0%	-1.0%
Community Growth Factor		1.4%	1.4%	1.4%	1.4%	1.4%
Total Consumption Adjustment		-3.6%	-2.6%	-1.6%	-0.6%	0.4%
<b>Receivable write off (% of Billing)</b>		0.00%	0.00%	0.00%	0.00%	0.00%
<b>Unit of Service</b>	1000 Gallons					
<b>Billing Cycles</b>	Currently	Proposed				
Billing Cycle	M	M				
Billings per year	12	12				

The -5% in red above reflects a noticeable reduction in customer usage based on increased usage charges. The scenarios will likely look at reducing the quantity in the tiers and adding more tiers for usage which can reasonably have a behavior change in customers to reduce their usage. Usually, the reduced use tapers off over the years and customers return to a normal water use pattern.

## Capital Improvements Plan

The default funding of asset replacement should be considered a significant variable. Costs under the capitalization threshold are currently set at \$10,000 which means if something costs less than \$10,000 it is paid for in the operation budget and not on the list to save annually for it. This threshold should reflect how Palmer Lake spends. At the higher end of capital assets, it is more practical to save for a down payment for a loan or matching funds to secure a grant. If the town has a history of obtaining significant grants, that should be considered in the table below. The rest of the costs will assume to be funded by loans.

Default Funding of Asset Replacements		Cash	Grant	Loan
Replacement Value From	To			
\$0	\$100,000	100%	0%	0%
\$100,001	\$500,000	20%	0%	80%
\$500,001	\$1,000,000	10%	10%	75%
\$1,000,001	\$9,999,999	2%	10%	83%
\$10,000,000	\$9,999,999	2%	10%	83%

Funding CIP according to the table above results in an annual reserve target of \$7.2M if we include the cost to replace the upper and lower reservoir. After speaking with the operators, they are keeping up with the reservoirs, it's in the operating budget, however the opinion of the operators is that the reservoirs will not get rebuild if something happens to them. The operations are relying more and more on ground water.

Take out the reservoir replacement costs we removing nearly \$6M annually to upkeep the reservoirs the reserve contributions are reduced to \$1,048,792 annually. This would require the revenue to nearly double and therefore the rates would need to nearly double as well.

If the reserve targets are reduced down from 5% down to 2% for the replacement costs over \$1M the resulting reserve calculation for annual contributions would be \$550,429.

Default Funding of Asset Replacements		Cash	Grant	Loan
Replacement Value From	To			
\$0	\$100,000	100%	0%	0%
\$100,001	\$500,000	20%	0%	80%
\$500,001	\$1,000,000	10%	30%	60%
\$1,000,001	\$9,999,999	2%	30%	68%
\$10,000,000	\$9,999,999	2%	30%	68%

On the next page you can see the details of all the \$56M worth of infrastructure in the CIP.

Quantity	Asset	Year Acquired	Unit Cost (Historic, Current or Future)	Cost	Belonging to	Not Estimated	Estimated Remaining Life	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Replacement of Existing Capital Assets</b>													
<b>REAL ESTATE</b>													
1	Town Office	2002	209,700	C	25%	60	40	369,071	20%	0%	100%	0	0
1	Town Office - Contents	2002	34,662	C	25%	60	40	61,005	100%	0%	0%	885	1,359
1	Town Hall	1930	487,900	C	25%	60	40	858,703	10%	80%	0%	1,246	1,913
1	Town Hall -Contents	2000	23,108	C	25%	60	40	40,670	100%	0%	0%	590	906
1	Maintenance Building	1983	601,000	C	25%	60	20	398,658	20%	0%	80%	3,069	3,647
1	Maintenance Building - Contents	2000	57,770	C	25%	30	7	20,322	100%	0%	0%	1,475	2,649
<b>VEHICLES</b>													
1	Ford Truck F-250 2005 DFZ901	2005	40,000	C	100%	23	5	51,051	100%	0%	0%	4,085	9,292
1	Dodge Ram 1500 2019 BSH031	2019	50,000	C	100%	7	3	57,881	100%	0%	0%	5,106	17,496
1	Dodge Ram 2015 779SWQ	2015	50,000	C	100%	10	2	55,125	100%	0%	0%	5,106	24,941
1	Chevey 1/2 Ton 2008 681RS	2014	45,000	C	100%	10	1	47,250	100%	0%	0%	4,596	42,654
1	Chevey 1/2 Ton 2005 219CLV	2005	40,000	C	100%	19	1	42,000	100%	0%	0%	4,085	37,915
1	John Deer Loader	2008	200,000	C	5%	25	10	16,289	100%	0%	0%	1,021	1,490
1	Road Grader JD	2006	300,000	C	5%	25	8	22,162	100%	0%	0%	1,532	2,531
1	Backhoe 310SJD	2008	100,000	C	5%	27	12	8,979	100%	0%	0%	511	Not Cap.
1	Water Truck 3500 Gal Tank Frieghtliner	2005	60,000	C	5%	24	6	4,020	100%	0%	0%	306	Not Cap.
1	Dump Truck mini International	2001	60,000	C	5%	26	4	3,647	100%	0%	0%	306	Not Cap.
<b>SOURCE and TREATMENT</b>													
1	Spruce Mountain Pump Station D2 Well Station - 195 Spruce	1989	799,600	C	25%	60	26	710,779	10%	80%	0%	2,041	2,488
1	High Cap Pump (1200gpm) Fire Pump Would Replace with	2007	500,000	C	100%	40	24	1,612,550	2%	10%	88%	1,021	1,226
1	Service Pumps (300 gpm) Summit Submersible A2 Well	2018	400,000	H	100%	7	2	562,840	10%	10%	80%	4,736	25,704
1	Well D2 Original Redrilled 1630 feet	2023	635,779	C	100%	30	30	2,747,800	2%	10%	88%	1,299	1,659
2	Chlorinator Pump Hypo Chlorite Injection	2021	3,000	H	100%	3	1	6,946	100%	0%	0%	650	Not Cap.
2	Rapid Filter (500 gpm filters) Media replenished	2022	11,554	H	100%	5	4	29,492	100%	0%	0%	2,431	6,710
1	Filter Bed	2002	26,226	H	100%	60	39	489,880	20%	0%	80%	996	2,256
1	Well A2 2233 feet deep	2002	993,900	C	100%	30	10	1,618,958	2%	10%	88%	2,030	2,963
1	Spruce Mountain Pump Station - 201 Spruce Ave STRUCTURE	2013	1,456,400	H	100%	80	70	72,181,283	2%	10%	88%	3,998	17,218
<b>Surface Water Treatment</b>													
	Upper Reservoir Glen Park Concrete \$20M	1905		H	100%	120	60	0	100%	0%	0%	0	Not Cap.
	Lower Reservoir \$10M	1965		H	100%	100	60	0	100%	0%	0%	0	Not Cap.
	Intake Structure at lower reservoir	1967	2,000,000	H	100%	100	60	0	100%	0%	0%	0	Not Cap.
2	Stanby Generator 6.8L 48V 51Hz 30KW GENRAC	2011	20,000	C	100%	60	48	416,051	20%	0%	80%	817	1,521
1	Surface Water Treatment Plant - Structure	2011	2,967,600	H	100%	60	50	55,432,352	2%	10%	88%	8,642	19,399
1	Amiad 130 Micron Pre-Strainer 1999 replaced 2018	2018	35,000	C	100%	20	15	72,762	100%	0%	0%	3,574	4,445
3	40-HP distribution pumps one Replaced recently	2011	6,000	C	100%	12	6	24,122	100%	0%	0%	1,838	3,664
					100%				0%	0%	100%	0	0
2	Membrane Filter Pall skid 350 gpm Replaced 1 Module 2020	2011	1,208,527	H	100%	30	18	10,446,368	2%	10%	88%	7,039	10,731
44	22 Modules per skid Replaced Recently	2020	92,290	H	100%	10	7	6,614,550	2%	10%	88%	9,063	17,322
1	Electrical Controls Auto Pall Controls Lightening strike	2020	29,800	H	10%			2,980	100%	0%	0%	333	0
					100%				0%	0%	100%	0	0
1	SWTP Lab Equipment	2018	20,000	C	100%	5	2	22,050	100%	0%	0%	2,042	9,976
1	Chlorine Analyzer Obsolete No Parts	2002	8,000	C	100%	25	4	9,724	100%	0%	0%	817	Not Cap.
6	Turbidity Analyzer Obsolete No Parts	2011	6,000	C	100%	16	4	43,758	100%	0%	0%	3,676	9,939
	Chlorine Dioxide Generator Leased				100%				0%	0%	100%	0	0
2	Chlorine Gas System, Regulators, injectors Measurement	2011	300,000	C	100%	40	28	2,352,077	2%	10%	88%	1,225	1,526
1	SCADA Replace PLC at GWTP Replacing this now?	2023	40,000	C	100%	25	25	135,454	20%	0%	80%	817	987
	Scada at A2 and D2 Done recently	2022	58,654	H	100%	20	19	0	100%	0%	0%	0	Not Cap.
<b>STORAGE</b>													
1	High Zone Water Storage Tank (250,000 Gal) Concrete Burr	1985	591,500	C	100%	60	22	1,730,292	2%	10%	88%	1,208	1,437
1	High Zone Water Storage Tank (250,000 Gal) Concrete Burr	2018	1,600,000	H	100%	60	55	29,886,697	2%	10%	88%	3,788	9,400
1	Low Zone Water Storage Tanks (500,000 Gal) Welded Steel	1955	751,100	C	100%	75	7	1,056,873	2%	10%	88%	1,534	2,755
1	Low Zone Water Storage Tank Booster Station	1994	377,700	C	100%	60	31	1,714,018	2%	10%	88%	771	1,000
739	24 Inch Contact Piping 739	2013	120	C	100%	100	90	7,159,169	2%	10%	88%	181	1,262
1,478	12 Inch 1478	2013	120	C	100%	100	90	14,318,338	2%	10%	88%	362	2,523
7,286	Main Line (10 inches) 7286	2013	112	C	100%	100	90	65,878,561	2%	10%	88%	1,667	11,609
6,969	Main Line (8 inches) 6969	2013	112	C	100%	100	90	63,012,310	2%	10%	88%	1,594	11,104
86,064	Main Line (6 inches) 86064	2013	105	C	100%	100	90	729,537,704	2%	10%	88%	18,457	128,562
9,345	Main Line (6 inches) 9345	2025	105	C	100%	100	90	79,214,652	2%	10%	88%	2,004	13,960
5,913	Service Lines (4 inches) REPLACEMENT COVERED IN FUTURE PROJECTS				100%				0%	0%	100%	0	0
3,432	Service Lines (2 inches) REPLACEMENT COVERED IN FUTURE PROJECTS				100%				0%	0%	100%	0	0
<b>Valves</b>													
8	8" Gate Valves	2013	2,540	C	100%	40	30	87,822	100%	0%	0%	2,075	2,651
156	6" Gate Valves	2013	2,090	C	100%	40	30	1,409,126	2%	10%	88%	666	851
5	4" Gate Valves	2013	1,800	C	100%	40	30	38,897	100%	0%	0%	919	1,174
	2" Ball Valves \$160.00				100%				0%	0%	100%	0	0
	1" Valve \$35.00				100%				0%	0%	100%	0	0
<b>Fire Hydrants 166 6" Hydrants</b>													
	6" Hydrants 8	1950	9,050	C	100%	80	7	0	100%	0%	0%	0	Not Cap.
158	158 6" Hydrants these were installed/replaced when 6" PVC	2013	9,050	C	100%	80	70	43,506,746	2%	10%	88%	2,921	10,371
5	4" Hydrants 5	2013	6,040	C	100%	80	70	918,878	10%	10%	80%	308	1,095
<b>Residential Meters</b>													
	3/4" Meter (997)	1990	350	C	100%			0	100%	0%	0%	0	0
	1" Meters (11)	1990	600	C	100%			0	100%	0%	0%	0	0
	1.5" Meters (2)	1990	900	C	100%			0	100%	0%	0%	0	0

	2" Meter (1)	1990	1,200	C	100%			0	100%	0%	0%	0	0
					100%				0%	0%	100%	0	0
	<b>Subtotal Replacement of Existing Capital Assets</b>												
												132,532	487,929

Quantity	Asset	Year Acquired	Unit Cost (Current or Future)	Cost Type	Belonging to Water	Material Estimated	Remaining Life	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Replacement of Funded Project Assets</b>													
1	ARPA FUNDING 2023 Project TBD Dis System Replacement	2023	259,238	C	100%	60	61	5,084,473	2%	10%	88%	259,238	0
1	ARPA Funding 2024 Project Dis System Replacement	2024	77,938	C	100%	60	62	1,605,040	2%	10%	88%	77,938	0
					100%				0%	0%	0%	0	0
	<b>Subtotal Replacement of Funded Project Assets</b>												
												337,176	0

Enter Existing Reserves for Replacement of Funded Project Assets

Quantity	Asset	Year to be Purchased	Unit Cost (Current or Future)	Cost Type	Belonging to Water	Material Estimated	Remaining Life	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Reserves for Additional Capital Assets</b>													
1	<b>New Araphahoe Formation Well Priority 1</b>	2025	4,438,264	C	100%	60		4,893,186	2%	10%	88%	0	48,810
	Groundwater Treatment Plant Improvements (included above)	2025		C	100%	60			100%	0%	0%	0	0
	Distribution System Replacement (Included above in line item)	2025		C	100%	60			100%	0%	0%	0	0
1	<b>Distribution System Looping and Reinforcement Priority 1</b>	2025	1,258,932	C	100%	80		1,387,973	2%	10%	88%	0	13,845
1	Distribution System Extension to Serve Properties on Private	2035	4,067,188	C	100%	80		7,304,085	2%	10%	88%	0	11,842
1	Back Up Generator for Tank Pump	2030	30,000	C	100%	40		42,213	100%	0%	0%	0	5,941
	<b>Subtotal Reserves for Additional Capital Assets</b>												
													80,438

Enter Existing Reserves for Additional Capital Assets

<b>Total Capital Reserves</b>												469,708	568,366
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Before developing detailed scenarios, the reserve funding will need to be determined to reduce variables. At the meeting with the board on April 27<sup>th</sup>, they mayor asked how far into the future should we consider CIP items? For example, PVC pipe is expected to last 100 years, and the board requested to see what the effects are for considering replacement items 90, 60, and 30 years out. The version of the CIP above is considering all known and expected costs 90 years into the future.

2024	2025	2026	2027	2028
\$568,366	\$497,048	\$391,735	\$382,508	\$375,022

### CIP Limited to Items 60 Years Out

To limit the burden on current rate payers the board would like to see what the CIP results in when replacement costs are limited to 60 years into the future, this eliminated the replacement of 111K feet of PVC pipe that is expected to last into 2100.

2024	2025	2026	2027	2028
\$381,897	\$312,850	\$209,093	\$200,312	\$193,225

### CIP Limited to Items 30 Years Out

To further limit the burden on current rate payers if replacement costs are limited to 30 years into the future, this eliminated the replacement of 111K feet of PVC pipe that is expected to last into 2100 in addition to 163 fire hydrants, the Spruce Mountain Pump Station Structure, SWTP – Structure, and the (2) Standby Generators, a filter bed, the newer high zone storage tank, and Town Hall Maintenance.

2024	2025	2026	2027	2028
\$318,883	\$252,744	\$150,977	\$142,766	\$136,190

The current customers are categorized by meter size. This is related to the potential volume of water the connection can consume and base rates are based on this meter or connection size.

Current Rate Structure							
Current Customer Classes	Name of Class	Rate Structure			Schedule		
1	Residential/Com- 3/4"	Tiered Block			A		Go to row 13
2	Commercial/Res 1"	Tiered Block			B		Go to row 13
3	Commercial 1.5"	Tiered Block			C		Go to row 13
4	Commercial 2"	Tiered Block			D		Go to row 13
5	Out of Town - 3/4"	Tiered Block			E		Go to row 13
Rate Schedules							
Tiered Block	Meter Size	A	B	C	D	E	
Base	0.625						
	0.750	\$68.23				\$68.23	
	1.000		\$89.78				
	1.500			\$126.03			
	2.000				\$169.56		
Tier Break (All yellow cells in this Tier Break table must	1	4,999	4,999	4,999	4,999	4,999	
	2	9,999	9,999	9,999	9,999	9,999	
	3	9,999,999	9,999,999	9,999,999	9,999,999	9,999,999	
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	
Usage Rate per 1000 Gallons	1	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40	
	2	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08	
	3	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	
	8	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	
Total Revenue under Existing Rates		\$1,277,974.73	This number should closely approximate the sales nu				

The rate structure does not state that the "Out of Town" customer are billed any differently from customers within town limits. Usually a 25-50% surcharge is applied to customer outside of the towns limits. It is recommended to create a new customer class that is charged a minimum of 1.25x but recommended 1.5x their meter size base rate. Usage is left at the same rate as the rest of the customers.

Total Revenue with existing rates is calculated at \$1,277,974. The monthly revenue from the base charges is \$69,434.51 which is \$833,214 annually. The usage revenue ranges from \$24,500 to \$52,000 monthly, the total over the year is \$444,760.

My model calculates \$67,000 over the revenue reported in 2022 and from what the model is predicting with the same monthly and usage fees. This 5% discrepancy is due to the staff setting the budget for revenue conservatively.

### Budget – Without CIP

The board expressed interest to see what the raise in rates would need to be to cover year to year operational costs.

	2024	2025	2026	2027	2028
Total Annual Expenses	1,476,407	1,585,678	1,647,913	1,707,057	1,775,670
Revenue with \$68.23 Base & 3% annual increase	1,389,609	1,431,590	1,482,218	1,534,659	1,588,978
Deficit	-86,798	-154,088	-165,694	-172,397	-186,692

To balance this budget looking only at this difference in expenses vs revenue, the monthly base rate for 3/4" connections would have to be **\$80.02**. This increase is \$11.79 per month.

To save 2% for the Engineering Projects Priority One & Two together the budget will need to include \$80.436 in 2024 and 2025, then drops to \$17,783. This will require the monthly base rate to be \$92.88, or another \$12.88 per month for a total increase of \$24.67.

To add back in the cost of saving for Capital Replacements 30 years into the future requires adding to reserve contributions to the budget the base rate would need to be **\$107.92**, which is an increase of \$39.69.



PALMER LAKE WATER RATE STUDY - MAY 2023

Model Inputs, Explanations, and Scenarios based on Boards Direction

Water Rates by Brandewie LLC

May 23, 2023

This Document is meant to show the inputs to the model starting with the financial and model parameters, followed by the Capital Improvements Program (CIP), then budget at current rates and the projected revenue. From there scenarios will be investigated based on the directives of the board and staff.

**Parameters**

<b>Parameters</b>	Enterprise	Water			
	System Name:	Palmer Lake			
	System Number				
	First year of rate increases	2024			
<b>Financial Constants</b>					
	Return on Invested Funds	0.50	%		
	Past Inflation	3.00	%		
	Future Inflation	5.00	%		
	Future Loan Interest Rate	3.25	%		
	Future Loan fees, legal, costs	0.00	%		(Included in loan)

<b>Existing Debt</b>					
Description	Annual Payment	Maturity	Reserve Required	Reserve Allocated	Make Up Period
CWRPDA - SWTP Upgrades	\$ 183,140	2030	\$ 200,956	\$ 200,956	
PL General Fund Loan (Avg '24-'39)	\$ 33,476	2039	\$0	\$0	
CWRPDA - Redrill D-2R	\$ 68,168	2038	\$0	\$0	
Total	\$ 284,784		\$ 200,956	\$ 200,956	

<b>Existing Reserves</b>		Amount	
Debt Reserve	\$200,956		As per lending agreement(s)
Operating Reserve	\$236,018		Often in Checking Account
Emergency Reserve	\$181,393		Often in Savings Account
Capital Reserve	\$0		Mostly in CDs or other investments
Total	\$618,367		

There are \$200,956 reserved for debt service. There is no obligation as researched by the staff to hold that debt reserve amount or any amount, however it is advisable to keep these funds here and

restricted. This will show potential lenders that Palmer Lake is fiscally responsible and will pay back the loans it takes out.

After some research it is understood that the CWRPDA loans require 3 months of Operating Reserves. The operational expenses are \$413,943 for 2024, but there is \$236,018 in operational reserves, which is closer to 6-months of operating expenses. The model calculates 3 months of operating expenses (\$413,943 annually op ex) which means there is already \$236,018 in that account and this will be rebalanced to the CIP account.

Reserve Targets	Amount	Make Up Period	First Year Reserve Addition	Excess funds to be transfer to CIP	Goal
Debt Reserve	\$200,956	See F20:F25	\$0	\$0	As per lending agreemen
Operating Reserve	\$103,486		\$0	\$132,532	3 months Operating Expe
Emergency Reserve	\$200,000	3	\$6,202	\$0	Critical equipment replac
Available for Capital Reserve	\$132,532	This is the total amount currently available for CIP. Transferred to CIP. It is the sum of what you already have in CIP and any excess funds i			

After the model rebalances these existing reserves with the reserve target, there is \$132,532 remaining unrestricted for Capital Improvements.

Note that the PL GF loan is the calculated average over the life of the loan.

Median Household Income	\$ 92,333	MHI Source	<a href="https://datausa.io/profile/geo/palmer-lake-co">https://datausa.io/profile/geo/palmer-lake-co</a>				
<b>Growth of Consumption over Base year</b>		Year 1	Year 2	Year 3	Year 4	Year 5	
Conservation Factor		-5.0%	-4.0%	-3.0%	-2.0%	-1.0%	Accumulative
Community Growth Factor		1.4%	2.8%	3.2%	4.6%	6.0%	
Total Consumption Adjustment		-3.6%	-1.2%	0.2%	2.6%	5.0%	
Receivable write off (% of Billing)		0.00%	0.00%	0.00%	0.00%	0.00%	The total individual per EQR
Unit of Service	1000 Gallons						
Billing Cycles	Currently	Proposed					
Billing Cycle	M	M					
Billings per year	12	12					

The -5% in red above reflects a noticeable reduction in customer usage based on increased usage charges. The scenarios will likely look at reducing the quantity in the tiers and adding more tiers for usage which can reasonably have a behavior change in customers to reduce their usage. Usually, the reduced use tapers off over the years and customers return to a normal water use pattern.

### Capital Improvements Plan

The default funding of asset replacement should be considered a significant variable. Costs under the capitalization threshold are currently set at \$5,000 which means if something costs less than \$5,000 it is

paid for in the operation budget and not on the list to save annually for it. This threshold should reflect how Palmer Lake spends. At the higher end of capital assets, it is more practical to save for a down payment for a loan or matching funds to secure a grant. GMS suggest that Palmer Lake would NOT likely qualify for significant grants and suggested 10 to 15% grant would be the maximum. The rest of the costs will assume to be funded by loans. The scenarios researched further along in this document will show several scenarios and each of those scenarios will show the effects of no grant along with 10% grant.

Default Funding of Asset Replacements		Cash	Grant	Loan
Replacement Value From	To			
\$0	\$100,000	100%	0%	0%
\$100,001	\$500,000	20%	0%	80%
\$500,001	\$1,000,000	10%	0%	90%
\$1,000,001	\$9,999,999	5%	0%	98%
\$10,000,000	\$9,999,999	5%	0%	98%
<b>Capitalization Threshold</b>	<b>\$ 5,000</b>	Any asset purchased below this value is not		

Funding CIP according to the table above results in an annual reserve target of \$7.2M if we include the cost to replace the upper and lower reservoirs and future all known/anticipated costs. After speaking with the operators, they are keeping up with the reservoirs, it's in the operating budget, however the opinion of the operators is that the reservoirs will not get rebuild if something happens to them, that likely mode of failure will be filling in with silt displacing reservoir volume. The operations are relying more and more on ground water.

Take out the reservoir replacement costs we removing nearly \$6M annually to upkeep the reservoirs the reserve. After a public board meeting and discussion, it was decided to only consider CIP line items that project only 30 years into the future. With these determinations, the contributions are reduced to \$457,987 annually. Which is approximately a 35% increase.

If the reserve targets are reduced down from 5% down to 2% for the replacement costs over \$1M the resulting reserve calculation for annual contributions would be \$310,807. This is approximately a 25% increase to the required revenue for CIP contributions only.

Default Funding of Asset Replacements		Cash	Grant	Loan
Replacement Value From	To			
\$0	\$100,000	100%	0%	0%
\$100,001	\$500,000	20%	0%	80%
\$500,001	\$1,000,000	10%	30%	60%
\$1,000,001	\$9,999,999	2%	30%	68%
\$10,000,000	\$9,999,999	2%	30%	68%

On the next page you can see the details of the infrastructure in the CIP that is on the 30-year horizon and not any further.

Quantity	Asset	Year Acquired	Unit Cost (Historic, Current or Future)	Cost Type (H, C, F)	% Belonging to Water	Normal Estimated Life	Estimated Remaining Life	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Replacement of Existing Capital Assets</b>													
<b>REAL ESTATE</b>													
					100%				0%	0%	100%	0	0
1	Maintenance Building	1983	601,000	C	25%	60	20	398,658	20%	0%	80%	5,230	3,539
1	Maintenance Building - Contents	2000	57,770	C	25%	30	7	20,322	100%	0%	0%	2,514	2,501
<b>VEHICLES</b>													
					100%				0%	0%	100%	0	0
1	Ford Truck F-250 2005 DFZ901	2005	40,000	C	100%	23	5	51,051	100%	0%	0%	6,962	8,716
1	Dodge Ram 1500 2019 BSH031	2019	50,000	C	100%	7	3	57,881	100%	0%	0%	8,703	16,297
1	Dodge Ram 2015 779SWQ	2015	50,000	C	100%	10	2	55,125	100%	0%	0%	8,703	23,142
1	Chevy 1/2 Ton 2008 681RS	2014	45,000	C	100%	10	1	47,250	100%	0%	0%	7,832	39,418
1	Chevy 1/2 Ton 2005 219CLV	2005	40,000	C	100%	19	1	42,000	100%	0%	0%	6,962	35,038
1	John Deer Loader	2008	200,000	C	5%	25	10	16,289	100%	0%	0%	1,741	1,419
1	Road Grader JD	2006	300,000	C	5%	25	8	22,162	100%	0%	0%	2,611	2,396
1	Backhoe 310SJD	2008	100,000	C	5%	27	12	8,979	100%	0%	0%	870	655
1	Water Truck 3500 Gal Tank Frieghtliner	2005	60,000	C	5%	24	6	4,020	100%	0%	0%	522	Not Cap.
1	Dump Truck mini International	2001	60,000	C	5%	26	4	3,647	100%	0%	0%	522	Not Cap.
<b>SOURCE and TREATMENT</b>													
					100%				0%	0%	100%	0	0
1	Spruce Mountain Pump Station D2 Well Station - 195 Spru	1989	799,600	C	25%	60	26	710,779	10%	10%	80%	3,479	2,433
1	High Cap Pump (1200gpm) Fire Pump Would Replace with	2007	500,000	C	100%	40	24	1,612,550	2%	10%	88%	1,741	1,196
1	Service Pumps (300 gpm) Summit Submersible A2 Well	2018	400,000	H	100%	7	2	562,840	10%	10%	80%	8,071	24,036
1	Well D2 Original Redrilled 1630 feet	2023	635,779	C	100%	30	30	2,747,800	2%	10%	88%	2,213	1,629
1	Chlorinator Pump Hypo Chlorite Injection (2)	2021	3,000	H	100%	3	1	3,473	100%	0%	0%	554	Not Cap.
2	Rapid Filter (500 gpm filters) Media replenished (2)	2022	13,554	H	100%	5	4	34,597	2%	10%	0%	4,860	7,370
1	Well A2 2233 feet deep	2002	993,900	C	100%	30	10	1,618,958	2%	10%	88%	3,460	2,820
<b>Surface Water Treatment</b>													
					100%				0%	0%	100%	0	0
1	Amiad 130 Micron Pre-Strainer 1999 replaced 2018	2018	35,000	C	100%	20	15	72,762	100%	0%	0%	6,092	4,277
3	40-HP distribution pumps one Replaced recently (3)	2011	6,000	C	100%	12	6	24,122	100%	0%	0%	3,133	3,448
					100%				0%	0%	100%	0	0
1	Membrane Filter Pall skid 350 gpm Replaced 1 Module 202	2011	1,208,527	H	100%	30	18	5,223,184	2%	10%	88%	5,998	5,228
44	22 Modules per skid Replaced Recently (44)	2020	9,229	H	100%	10	7	661,455	10%	10%	80%	7,723	8,205
1	Electrical Controls Auto Pall Controls Lightening strike	2020	29,800	H	10%			2,980	100%	0%	0%	567	0
					100%				0%	0%	100%	0	0
1	SWTP Lab Equipment	2018	20,000	C	100%	5	2	22,050	100%	0%	0%	3,481	9,257
1	Chlorine Analyzer Obsolete No Parts	2002	8,000	C	100%	25	4	9,724	100%	0%	0%	1,392	2,065
6	Turbidity Analyzer Obsolete No Parts (6)	2011	6,000	C	100%	16	4	43,758	100%	0%	0%	6,266	9,291
2	Chlorine Gas System, Regulators, injectors Measurement	2011	300,000	C	100%	40	28	2,352,077	2%	10%	88%	2,089	1,495
1	SCADA Replace PLC at GWTP Replacing this now?	2023	40,000	C	100%	25	25	135,454	20%	0%	80%	1,392	964
1	Scada at A2 and D2 Done recently	2022	58,654	H	100%	20	19	155,627	20%	0%	80%	2,103	1,455
<b>STORAGE</b>													
					100%				0%	0%	100%	0	0
1	High Zone Water Storage Tank (250,000 Gal) Concrete Bur	1985	591,500	C	100%	60	22	1,730,292	2%	10%	88%	2,059	1,398
1	Low Zone Water Storage Tanks (500,000 Gal) Welded Stee	1955	751,100	C	100%	75	7	1,056,873	2%	10%	88%	2,615	2,601
1	Low Zone Water Storage Tank Booster Station	1994	377,700	C	100%	60	31	1,714,018	2%	10%	88%	1,315	983
<b>DISTRIBUTION system maps from GMS</b>													
					100%				0%	0%	100%	0	0
8	8" Gate Valves (8)	2013	2,540	C	100%	40	30	87,822	100%	0%	0%	3,537	2,603
156	6" Gate Valves (156)	2013	2,090	C	100%	40	30	1,409,126	2%	10%	88%	1,135	835
5	4" Gate Valves (5)	2013	1,800	C	100%	40	30	38,897	100%	0%	0%	1,566	1,153
<b>Fire Hydrants 166 6" Hydrants</b>													
					100%				0%	0%	100%	0	0
8	6" Hydrants 8	1950	9,050	C	100%	80	7	101,874	20%	0%	80%	2,520	2,507
<b>Subtotal Replacement of Existing Capital Assets</b>												132,532	230,369

Quantity	Asset	Year Acquired	Unit Cost (Current or Future)	st Type (C)	Belonging to (Water)	mal Estimated	mate d Remainin	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Replacement of Funded Project Assets</b>													
1	ARPA FUNDING 2023 Project TBD Dis System Replacement	2023	259,238	C	100%	60	61	5,084,473	2%	10%	88%	259,238	0
1	ARPA Funding 2024 Project Dis System Replacement	2024	77,938	C	100%	60	62	1,605,040	2%	10%	88%	77,938	0
<b>Subtotal Replacement of Funded Project Assets</b>												337,176	0
Enter Existing Reserves for Replacement of Funded Project Assets													
Quantity	Asset	Year to be Purchased	Unit Cost (Current or Future)	st Type (C)	Belonging to (Water)	mal Estimated		Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Reserves for Additional Capital Assets</b>													
1	<b>New Araphahoe Formation Well Priority 1</b>	<b>2025</b>	<b>4,438,264</b>	C	100%	60		<b>4,893,186</b>	2%	10%	88%	0	48,810
	Groundwater Treatment Plant Improvements (included above)	2025		C	100%	60			100%	0%	0%	0	
	Distribution System Replacement (included above in line item)	2025		C	100%	60			100%	0%	0%	0	
1	<b>Distribution System Looping and Reinforcement Prior</b>	<b>2025</b>	<b>1,258,932</b>	C	100%	80		<b>1,387,973</b>	2%	10%	88%	0	13,845
1	Distribution System Extension to Serve Properties on Private	2035	4,067,188	C	100%	80		7,304,085	2%	10%	88%	0	11,842
1	Back Up Generator for Tank Pump	2030	30,000	C	100%	40		42,213	100%	0%	0%	0	5,941
<b>Subtotal Reserves for Additional Capital Assets</b>													80,438
Enter Existing Reserves for Additional Capital Assets													
<b>Total Capital Reserves</b>													310,807

Before developing detailed scenarios, the reserve funding was selected to reduce variables. At the meeting with the board on April 27<sup>th</sup>, the mayor asked how far into the future should CIP items be considered? For example, PVC pipe is expected to last up to 100 years, and the board requested to see what the effects are for considering replacement items 90, 60, and 30 years out. The version of the CIP above is considering all known and expected costs 30 years into the future. However, since the analysis was investigated previously, the summary of 90, 60, and 30-years considerations is shown below. Note that this analysis was done with 10% grants assumed and further below it shows 30-year CIP with 0% grant and updated SRF interest rates.

Years into Future	2024	2025	2026	2027	2028
90 years	\$568,366	\$497,048	\$391,735	\$382,508	\$375,022
60 years	\$381,897	\$312,850	\$209,093	\$200,312	\$193,225
30 years	\$310,807	\$244,445	\$143,317	\$135,289	\$126,747

### CIP Limited to Items 30 Years Out

To limit the burden on current rate payers, replacement costs are limited to 30 years into the future, this eliminates the replacement of 111K feet of PVC pipe that is expected to last into the year 2100 in addition to 163 fire hydrants, the Spruce Mountain Pump Station Structure, SWTP – Structure, and the (2) Standby Generators, a filter bed, the newer high zone storage tank, and Town Hall Maintenance.

2024	2025	2026	2027	2028
\$318,883	\$252,744	\$150,977	\$142,766	\$136,190

The current customers are categorized by meter size. This is related to the potential volume of water the connection can consume and base rates are based on this meter or connection size.

Current Rate Structure						
Current Customer Classes	Name of Class	Rate Structure			Schedule	
1	Residential/Com- 3/4"	Tiered Block			A	Go to row 13
2	Commercial/Res 1"	Tiered Block			B	Go to row 13
3	Commercial 1.5"	Tiered Block			C	Go to row 13
4	Commercial 2"	Tiered Block			D	Go to row 13
5	Out of Town - 3/4"	Tiered Block			E	Go to row 13
Rate Schedules						
Tiered Block	Meter Size	A	B	C	D	E
Base	0.625					
	0.750	\$68.23				\$68.23
	1.000		\$89.78			
	1.500			\$126.03		
	2.000				\$169.56	
Tier Break (All yellow cells in this Tier Break table must	1	4,999	4,999	4,999	4,999	4,999
	2	9,999	9,999	9,999	9,999	9,999
	3	9,999,999	9,999,999	9,999,999	9,999,999	9,999,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40
	2	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08
	3	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	8	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
Total Revenue under Existing Rates		\$1,277,974.73	This number should closely approximate the sales nu			

The rate structure does not state that the “Out of Town” customer are billed any differently from customers within town limits, for this reason the \$68.23 is highlighted in red font. Usually a 25-50% surcharge is applied to customer outside of the town’s limits. It is recommended to create a new customer class that is charged a minimum of 1.25x but recommended 1.5x their meter size base rate. Usage is left at the same rate as the rest of the customers. For all scenarios considered the handful of out of town customers are being charged 1.5x the base rate.

Total Revenue with existing rates is calculated at \$1,277,974. The monthly revenue from the base charges is \$69,434.51 which is \$833,214 annually. The usage revenue ranges from \$24,500 to \$52,000 monthly, the total usage revenue over the year is \$444,760.

The model, at current rates and tiers, calculated \$67,000 over the revenue reported in 2022 and from what the model is predicting with the same monthly and usage fees. This 5% discrepancy is due to the staff setting the budget for revenue conservatively.

### Budget – Without CIP

The board expressed interest to see what the raise in rates would need to be to cover year to year operational costs. The table below takes out all contribution to CIP reserves with 0% grants but still shows deficits year over year.

	2024	2025	2026	2027	2028
Total Annual Expenses	\$1,476,407	\$1,585,678	\$1,927,909	\$1,987,053	\$2,055,666
Revenue at \$68.23 Base & 3% increases	\$1,389,609	\$1,438,314	\$1,491,139	\$1,551,038	\$1,613,289
Deficit	<b>-\$86,798</b>	<b>-\$147,364</b>	<b>-\$436,770</b>	<b>-\$436,014</b>	<b>-\$442,378</b>

Looking only at this difference in operating expenses vs revenue from user fees, the monthly base rate for residential 3/4" connections would have to go up to **\$93.60**. This increase is \$25.37 per month for residential customers.

To save 2% for the Engineering Projects Priorities 1 & 2 together the budget will need to include \$80,438 in 2024 and 2025, and to save for capital replacement items within 30 years the reserve requirements are \$230,369. This will require the monthly base rate to be **\$108.38**, or an additional \$14.78 per month for a total increase of \$40.15.



### Scenario 0 – Existing Rates

In this scenario, the existing base rate is shown to be increasing at 3%, annually, tiers will remain the same. Grants are assumed to be 0%. To show the effects of annual increases to base and usage (current tiers) 5% and 10% are summarized.

Tiered Block	Meter Size	Rate Schedules						
		A	B	C	D	E	F	G
	0.750	\$107.50				\$161.25		\$107.50
	1.000		\$141.45				\$141.45	\$141.45
	1.500			\$198.57				
	2.000				\$267.15			
Tier Break	1	4,999	4,999	4,999	4,999	4,999	4,999	4,999
(All yellow cells in this	2	9,999	9,999	9,999	9,999	9,999	9,999	9,999
Tier Break table must	3	9,999,999	9,999,999	9,999,999	9,999,999	9,999,999	9,999,999	9,999,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40
	2	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08
	3	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	8	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5		
	Base		3.00%	3.00%	3.00%	3.00%		
	Usage		3.00%	3.00%	3.00%	3.00%		
<b>Results of the new rates</b>		<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>5 Years</b>	
TOTAL EXPENSES		\$1,787,214	\$1,830,123	\$2,103,872	\$2,154,988	\$2,215,060	\$10,091,257	
TOTAL REVENUE		\$1,880,299	\$1,944,025	\$2,012,201	\$2,088,051	\$2,166,741	\$10,091,317	
NET LOSS OR GAIN: (Short/Over to Reserves)		\$93,085	\$113,902	-\$91,671	-\$66,938	-\$48,318	\$60	
NET CASH FLOW (Contribution to Reserves)		\$410,094	\$364,549	\$57,848	\$68,351	\$78,428	\$979,271	
Affordability assuming MHI of \$92333 for residential meters.		1.81%	1.88%	1.94%	2.01%	2.09%		
Are you putting enough money in reserves?	Yes	Yes	No	No	No			
Positive Annual Cash Flow?	Yes	Yes	Yes	Yes	Yes			

At various percentage annual increase, the ¾” residential base rates will increase according to the following table. For sake of labeling, we can call them Scenario 1.03, Scenario 1.05 and Scenario 1.10.

Annual Increase	2023	2024	2025	2026	2027	2028
3% to Base	\$68.23	\$107.50	\$110.73	\$114.05	\$117.47	\$120.99
3% Average Res Bill w Usage	\$102.41	\$140.36	\$145.48	\$150.39	\$155.87	\$161.55
5% Base	\$68.23	\$101.82	\$106.91	\$112.26	\$117.87	\$123.76
5% Average Res Bill w Usage	\$102.41	\$134.68	\$142.34	\$150.02	\$158.55	\$167.56
10% to Base	\$68.23	\$88.60	\$97.46	\$107.21	\$117.93	\$129.72
10% Average Res Bill w Usage	\$102.41	\$121.46	\$134.57	\$148.65	\$164.70	\$182.47

## Scenario 2

A typical avenue to explore in a rate study is increasing the number of tiers and tier prices. Currently the rate structure has the first tier 0-5,000 gallons at \$8.40/1000 gallons, the second 5,001-10,000 gallons at \$10.08 and \$12.10/1000 gallons after that. There are only 3 tiers, here in this scenario more tiers will be added to investigate the results. The average residential usage from actual historical data from Palmer Lake customers shows that the overall average throughout the year is **3,714 gallons** per month. This varies month to month. According to the EPA National average for residential use is 300 gallons per day which is 9,125 gallons per month. According to the town of Castle Rock, 4,000 gallons is the average monthly residential consumption.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3205	2943	2653	4015	3443	4398	4904	4466	4572	3854	3225	2891

The new rates should encourage conservation of water. There are many benefits to encouraging conservation from chemical use on a daily operational cost to the reduced need for infrastructure like a new tank, a new well or more treatment capacity. In this scenario the first tier selected is below the average which at 3,000 gallons. The first tier goes up to 3,000 gallons and then increases every 1,000 gallons and the price per tier raises 15% each tier, annual increases are set at 3%.

Tiered Block	Meter Size	Rate Schedules						
		A	B	C	D	E	F	G
	0.750	\$79.75				\$119.63		\$79.75
	1.000		\$104.94				\$104.94	\$104.94
	1.500			\$147.31				
	2.000				\$198.19			
Tier Break	1	2,999	2,999	2,999	2,999	2,999	2,999	2,999
(All yellow cells in this	2	3,999	3,999	3,999	3,999	3,999	3,999	3,999
Tier Break table must	3	4,999	4,999	4,999	4,999	4,999	4,999	4,999
contain data.)	4	5,999	5,999	5,999	5,999	5,999	5,999	5,999
	5	6,999	6,999	6,999	6,999	6,999	6,999	6,999
	6	7,999	7,999	7,999	7,999	7,999	7,999	7,999
	7	8,999	8,999	8,999	8,999	8,999	8,999	8,999
	8	10,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	10,999
Usage Rate per 1000 Gallons	1	\$11.50	\$11.50	\$11.50	\$11.50	\$11.50	\$11.50	\$11.50
	2	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23
	3	\$15.21	\$15.21	\$15.21	\$15.21	\$15.21	\$15.21	\$15.21
	4	\$17.49	\$17.49	\$17.49	\$17.49	\$17.49	\$17.49	\$17.49
	5	\$20.11	\$20.11	\$20.11	\$20.11	\$20.11	\$20.11	\$20.11
	6	\$23.13	\$23.13	\$23.13	\$23.13	\$23.13	\$23.13	\$23.13
	7	\$26.60	\$26.60	\$26.60	\$26.60	\$26.60	\$26.60	\$26.60
	8	\$30.59	\$30.59	\$30.59	\$30.59	\$30.59	\$30.59	\$30.59
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5		
	Base		3.00%	3.00%	3.00%	3.00%		
	Usage		3.00%	3.00%	3.00%	3.00%		
Results of the new rates		2024	2025	2026	2027	2028	5 Years	
TOTAL EXPENSES		\$1,787,214	\$1,830,123	\$2,103,872	\$2,154,988	\$2,215,060	\$10,091,257	
TOTAL REVENUE		\$1,858,405	\$1,933,831	\$2,009,205	\$2,098,389	\$2,191,413	\$10,091,243	
NET LOSS OR GAIN: (Short/Over to Reserves)		\$71,191	\$103,708	-\$94,667	-\$56,600	-\$23,647	-\$15	
NET CASH FLOW (Contribution to Reserves)		\$388,201	\$354,355	\$54,852	\$78,690	\$103,100	\$979,197	
Affordability assuming MHI of \$92333 for residential meters.		1.73%	1.81%	1.87%	1.95%	2.04%		
Are you putting enough money in reserves?	Yes	Yes	No	No	No			
Positive Annual Cash Flow?	Yes	Yes	Yes	Yes	Yes			

	2024	2025	2026	2027	2028
Base Rate	\$79.75	\$82.14	\$84.61	\$87.14	\$89.76
Average Bill with Usage	\$135.42	\$141.31	\$146.65	\$153.01	\$159.65
Base Rate if 10% Grant on CIP	\$78.66	\$81.02	\$83.45	\$85.95	\$88.53
Average Bill with Usage if 10% Grant on CIP	\$134.33	\$140.18	\$145.49	\$151.82	\$158.42

For 2024 this scenario would generate \$975,808 in revenue from the base rates, and another \$745,186 from usage. There is a reduction in usage anticipated at 5% factored into the model for this year, however with such a steep increase according to usage the customers usage behavior may decrease more dramatically which could end up generating less revenue for the system overall.



### Scenario 3

The previous scenario increased tiers and prices on usage very steeply. Here the tiers prices will step up at 15% however the tier volumes will only be increasing every 3000 gallons.

Tiered Block	Meter Size	Rate Schedules						
		A	B	C	D	E	F	G
	0.750	\$86.82				\$130.23		\$86.82
	1.000		\$114.24				\$114.24	\$114.24
	1.500			\$160.37				
	2.000				\$215.76			
Tier Break		1	2,999	2,999	2,999	2,999	2,999	2,999
(All yellow cells in this Tier Break table must contain data.)		2	5,999	5,999	5,999	5,999	5,999	5,999
		3	8,999	8,999	8,999	8,999	8,999	8,999
		4	11,999	11,999	11,999	11,999	11,999	11,999
		5	14,999	14,999	14,999	14,999	14,999	14,999
		6	17,999	17,999	17,999	17,999	17,999	17,999
		7	20,999	20,999	20,999	20,999	20,999	20,999
		8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons		1	\$11.50	\$11.50	\$11.50	\$11.50	\$11.50	\$11.50
		2	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23
		3	\$15.21	\$15.21	\$15.21	\$15.21	\$15.21	\$15.21
		4	\$17.49	\$17.49	\$17.49	\$17.49	\$17.49	\$17.49
		5	\$20.11	\$20.11	\$20.11	\$20.11	\$20.11	\$20.11
		6	\$23.13	\$23.13	\$23.13	\$23.13	\$23.13	\$23.13
		7	\$26.60	\$26.60	\$26.60	\$26.60	\$26.60	\$26.60
		8	\$30.59	\$30.59	\$30.59	\$30.59	\$30.59	\$30.59
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5		
	Base		3.00%	3.00%	3.00%	3.00%		
	Usage		3.00%	3.00%	3.00%	3.00%		
Results of the new rates		2024	2025	2026	2027	2028	5 Years	
TOTAL EXPENSES		\$1,787,214	\$1,830,123	\$2,103,872	\$2,154,988	\$2,215,060	\$10,091,257	
TOTAL REVENUE		\$1,865,729	\$1,937,233	\$2,010,178	\$2,094,839	\$2,182,964	\$10,090,943	
NET LOSS OR GAIN: (Short/Over to Reserves)		\$78,515	\$107,111	-\$93,695	-\$60,150	-\$32,095	-\$314	
NET CASH FLOW (Contribution to Reserves)		\$395,524	\$357,758	\$55,825	\$75,139	\$94,651	\$978,898	
Affordability assuming MHI of \$92333 for residential meters.		1.75%	1.82%	1.89%	1.96%	2.04%		
Are you putting enough money in reserves?	Yes	Yes	No	No	No			
Positive Annual Cash Flow?	Yes	Yes	Yes	Yes	Yes			

	2024	2025	2026	2027	2028
Base Rate	\$86.82	\$89.42	\$92.11	\$94.87	\$97.72
Average Bill with Usage	\$136.70	\$142.29	\$147.46	\$153.49	\$159.75
Base Rate if 10% Grant on CIP	\$85.75	\$88.32	\$90.97	\$93.70	\$96.51
Average Bill with Usage if 10% Grant on CIP	\$135.63	\$141.19	\$146.33	\$152.32	\$158.55

### Scenario 4

At the board meeting on 5-11-2023 the board expressed interest in seeing where the tiers have to increase to leave the base fees where they are. There is no single answer to this question so more variation of annual increase will be explored. Assume 0% grants for CIP. Tiers volumes start at 3,000 gallons then go up by 2,000 gallons each tier until 15,000 where prices will remain at the highest price per 1,000 gallons.

With the first tier at \$8.40/1,000 gallons the increase would require each tier price increase by 37.5%. Notice that the last tier, above 15,000 gallons the price per gallon is over the cost of just the base rate.

Tiered Block	Meter Size	Rate Schedules						
		A	B	C	D	E	F	G
	0.750	\$68.23					\$102.35	\$68.23
	1.000		\$89.78				\$89.78	\$89.78
	1.500			\$126.03				
	2.000				\$169.56			
Tier Break	1	2,999	2,999	2,999	2,999	2,999	2,999	2,999
(All yellow cells in this	2	4,999	4,999	4,999	4,999	4,999	4,999	4,999
Tier Break table must	3	6,999	6,999	6,999	6,999	6,999	6,999	6,999
contain data.)	4	8,999	8,999	8,999	8,999	8,999	8,999	8,999
	5	10,999	10,999	10,999	10,999	10,999	10,999	10,999
	6	12,999	12,999	12,999	12,999	12,999	12,999	12,999
	7	14,999	14,999	14,999	14,999	14,999	14,999	14,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40
	2	\$11.55	\$11.55	\$11.55	\$11.55	\$11.55	\$11.55	\$11.55
	3	\$15.88	\$15.88	\$15.88	\$15.88	\$15.88	\$15.88	\$15.88
	4	\$21.84	\$21.84	\$21.84	\$21.84	\$21.84	\$21.84	\$21.84
	5	\$30.03	\$30.03	\$30.03	\$30.03	\$30.03	\$30.03	\$30.03
	6	\$41.29	\$41.29	\$41.29	\$41.29	\$41.29	\$41.29	\$41.29
	7	\$56.77	\$56.77	\$56.77	\$56.77	\$56.77	\$56.77	\$56.77
	8	\$78.05	\$78.05	\$78.05	\$78.05	\$78.05	\$78.05	\$78.05
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5		
	Base		3.00%	3.00%	3.00%	3.00%		
	Usage		3.00%	3.00%	3.00%	3.00%		
<b>Results of the new rates</b>		<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>5 Years</b>	
TOTAL EXPENSES		\$1,787,214	\$1,830,123	\$2,103,872	\$2,154,988	\$2,215,060	\$10,091,257	
TOTAL REVENUE		\$1,842,578	\$1,926,875	\$2,007,799	\$2,107,375	\$2,211,731	\$10,096,358	
NET LOSS OR GAIN: (Short/Over to Reserves)		\$55,364	\$96,752	-\$96,074	-\$47,614	-\$3,328	\$5,101	
NET CASH FLOW (Contribution to Reserves)		\$372,374	\$347,399	\$53,446	\$87,675	\$123,418	\$984,312	
Affordability assuming MHI of \$92333 for residential meters.		1.59%	1.67%	1.74%	1.82%	1.91%		

## June Scenarios

### Scenario 1

**From:** Kevin Dreher <[kdreher@palmer-lake.org](mailto:kdreher@palmer-lake.org)>

**Sent:** Sunday, June 4, 2023 10:18 PM

**To:** Dawn Collins <[dawn@palmer-lake.org](mailto:dawn@palmer-lake.org)>; Glant Havenar <[ghavenar@palmer-lake.org](mailto:ghavenar@palmer-lake.org)>

**Subject:** Fw: Board of Trustees Virtual Workshop 6/7

*Number of customers at level of usage?*

Start	End	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22
0	2000	328	357	406	363	349	268
2001	5000	496	493	478	483	428	413
5001	8000	118	105	81	105	145	171
8001	12000	39	28	22	30	51	89
12001	24000	9	10	7	9	17	48
24001	+	4	1	2	6	6	7
<b>Totals</b>		<b>994</b>	<b>994</b>	<b>996</b>	<b>996</b>	<b>996</b>	<b>996</b>

Dawn,

Above is the information you sent me regarding users based on the tiers I requested. Our current base rates are \$45.88 for a 3/4" line, \$65.47 for a 1" line, \$98.43 for a 1.5" line, and \$138.00 for a two-inch line. Water usage rates are \$.0084/gal for 1-4999 gallons, \$.01008/gal for 5000-9999, and \$.01210/gal for 10,000 - 99999.

Can you ask Chris to run the following scenario:

Base rates to be \$50.47 (*increase of \$4.59*) for a 3/4", \$72.02 (*increase of \$6.55*) for a 1", \$108.27 (*Increase \$9.84*) for a 1.5", and \$151.8 (*increase \$13.80*) for a two-inch line. This represents a 10% increase for each line.

For the tiers, increase rates for residential and commercial users to the following:

0-1000 gallon \$0 - included in base rate. This will protect our elderly  
1001-2000 gallons - \$.00900 per gallon  
2001-5000 gallons - \$.01200 per gallon  
5001-8000 gallons - \$.01400 per gallon  
8001-12,000 gallons - \$.0150 per gallon  
12,001 - 24,000 gallons - \$.016 per gallon  
24,000 + gallons - \$.017 per gallon

Chris could use the middle point of each tier to keep it simple.



I have read through Chris's presentation a few times and it is like reading a textbook. It would be very beneficial for at least me to see what a scenario looks like. I don't need all the other information. I know where we are at. I know we have a serious shortfall that needs to be addressed.

Tiered Block	Meter Size	Rate Schedules						
		A	B	C	D	E	F	G
	0.750	\$72.82				\$109.23		\$72.82
	1.000		\$96.33				\$96.33	\$96.33
	1.500			\$135.87				
	2.000				\$183.36			
Tier Break	1	1,000	1,000	1,000	1,000	1,000	1,000	1,000
(All yellow cells in this Tier Break table must contain data.)	2	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	3	5,000	5,000	5,000	5,000	5,000	5,000	5,000
	4	8,000	8,000	8,000	8,000	8,000	8,000	8,000
	5	12,000	12,000	12,000	12,000	12,000	12,000	12,000
	6	24,000	24,000	24,000	24,000	24,000	24,000	24,000
	7	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	2	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00
	3	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00
	4	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00
	5	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00
	6	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00
	7	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00
	8	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5		
	Base		5.00%	5.00%	5.00%	5.00%		
	Usage		5.00%	5.00%	5.00%	5.00%		
Results of the new rates		2024	2025	2026	2027	2028	5 Years	
	TOTAL EXPENSES	\$1,787,214	\$1,830,123	\$2,103,872	\$2,154,988	\$2,215,060	\$10,091,257	
	TOTAL REVENUE	\$1,540,795	\$1,628,639	\$1,721,143	\$1,827,231	\$1,939,659	\$8,657,468	
	NET LOSS OR GAIN: (Short/Over to Reserves)	-\$246,419	-\$201,483	-\$382,729	-\$327,758	-\$275,401	-\$1,433,789	
	NET CASH FLOW (Contribution to Reserves)	\$70,591	\$49,164	-\$233,210	-\$192,469	-\$148,654	-\$454,578	
	Affordability assuming MHI of \$92333 for residential meters.	1.43%	1.52%	1.61%	1.71%	1.82%		
	Are you putting enough money in reserves?	No	No	No	No	No		
	Positive Annual Cash Flow?	Yes	Yes	No	No	No		

## Scenario 2

Dawn Collins

Jun 6, 2023, 3:27 PM (15 hours ago)

to me

Chris, FYI –

Mayor and one Trustee were in today and talked through a few questions/ideas re: water.

The following should be noted and addressed for the workshop on Wednesday –

- The 0–1000 (tier) should only be at no cost when someone is less than the 1000 gl (not all users) *Ill have to think about if possible, how to program that into my model. Before we spend much time on that we should determine if your billing software compute that automatically or if that will take human effort each month.*
- Could you break down the fees based on the Amcobi bill (line items – base, capital, loan, etc.)? *Not easily done at this point with all the scenario and moving parts. This can be done for the final report.*
- How much more should capital improvement be to meet the funding needs of Priority One and Two? (Though I believe you provided this in your last version.)

### Budget – Without CIP

The board expressed interest to see what the raise in rates would need to be to cover year to year operational costs.

	2024	2025	2026	2027	2028
Total Annual Expenses	1,476,407	1,585,678	1,647,913	1,707,057	1,775,670
Revenue with \$68.23 Base & 3% annual increase	1,389,609	1,431,590	1,482,218	1,534,659	1,588,978
Deficit	-86,798	-154,088	-165,694	-172,397	-186,692

To balance this budget looking only at this difference in expenses vs revenue, the monthly base rate for 3/4” connections would have to be **\$80.02**. This increase is \$11.79 per month.

To save 2% for the Engineering Projects Priority 1 & 2 together the budget will need to include \$80,436 in 2024 and 2025, then drops to \$17,783. This will require the monthly base rate to be \$92.88, or another \$12.88 per month for a total increase of \$24.67.

To add back in the cost of saving for Capital Replacements 30 years into the future requires adding to reserve contributions to the budget the base rate would need to be **\$107.92**, which is an increase of \$39.69.

Comments from meeting.

DO KEVINS SCENARIOS plus this one.

Irrigation accounts 50%

0-1000 included in base should be for residential customers

Commercial should increase at 50% of the residential base

PALMER LAKE WATER RATE STUDY - MAY 2023

Model Inputs, Explanations, and Scenarios based on Boards Direction

Water Rates by Brandewie LLC

July 12, 2023

This Document is meant to show the inputs to the model starting with the financial and model parameters, followed by the Capital Improvements Program (CIP), then budget at current rates and the projected revenue. From there scenarios will be investigated based on the directives of the board and staff.

**Parameters**

<b>Parameters</b>	Enterprise	Water		
	System Name:	Palmer Lake		
	System Number			
	First year of rate increases	2024		
<b>Financial Constants</b>				
	Return on Invested Funds	0.50	%	
	Past Inflation	3.00	%	
	Future Inflation	5.00	%	
	Future Loan Interest Rate	3.25	%	
	Future Loan fees, legal, costs	0.00	%	(Included in loan)

<b>Existing Debt</b>					
Description	Annual Payment	Maturity	Reserve Required	Reserve Allocated	Make Up Period
CWRPDA - SWTP Upgrades	\$ 183,140	2030	\$ 200,956	\$ 200,956	
PL General Fund Loan (Avg '24-'39)	\$ 33,476	2039	\$0	\$0	
CWRPDA - Redrill D-2R	\$ 68,168	2038	\$0	\$0	
Total	\$ 284,784		\$ 200,956	\$ 200,956	

<b>Existing Reserves</b>		Amount	
Debt Reserve	\$200,956	As per lending agreement(s)	
Operating Reserve	\$236,018	Often in Checking Account	Expenses paid
Emergency Reserve	\$181,393	Often in Savings Account	
Capital Reserve	\$0	Mostly in CDs or other investments	
Total	\$618,367		

There are \$200,956 reserved for debt service. There is no obligation as researched by the staff to hold that debt reserve amount or any amount, however it is advisable to keep these funds here and

restricted. This will show potential lenders that Palmer Lake is fiscally responsible and will pay back the loans it takes out.

After some research it is understood that the CWRPDA loans require 3 months of Operating Reserves. The operational expenses are \$413,943 for 2024, but there is \$236,018 in operational reserves, which is closer to 6-months of operating expenses. The model calculates 3 months of operating expenses (\$413,943 annually op ex) which means there is already \$236,018 in that account and this will be rebalanced to the CIP account.

Reserve Targets	Amount	Make Up Period	First Year Reserve Addition	Excess funds to be transfer to CIP	Goal
Debt Reserve	\$200,956	See F20:F25	\$0	\$0	As per lending agreemen
Operating Reserve	\$103,486		\$0	\$132,532	3 months Operating Expe
Emergency Reserve	\$200,000	3	\$6,202	\$0	Critical equipment replac
Available for Capital Reserve	\$132,532	This is the total amount currently available for CIP. Transferred to CIP. It is the sum of what you already have in CIP and any excess funds i			

After the model rebalances these existing reserves with the reserve target, there is \$132,532 remaining unrestricted for Capital Improvements.

Note that the PL GF loan is the calculated average over the life of the loan.

Median Household Income	\$ 92,333	MHI Source	<a href="https://datausa.io/profile/geo/palmer-lake-co">https://datausa.io/profile/geo/palmer-lake-co</a>			
<b>Growth of Consumption over Base year</b>		Year 1	Year 2	Year 3	Year 4	Year 5
Conservation Factor		-5.0%	-4.0%	-3.0%	-2.0%	-1.0%
Community Growth Factor		1.4%	2.8%	3.2%	4.6%	6.0%
Total Consumption Adjustment		-3.6%	-1.2%	0.2%	2.6%	5.0%
Receivable write off (% of Billing)		0.00%	0.00%	0.00%	0.00%	0.00%
Unit of Service	1000 Gallons					
Billing Cycles	Currently	Proposed				
Billing Cycle	M	M				
Billings per year	12	12				

The -5% in red above reflects a noticeable reduction in customer usage based on increased usage charges. The scenarios will likely look at reducing the quantity in the tiers and adding more tiers for usage which can reasonably have a behavior change in customers to reduce their usage. Usually, the reduced use tapers off over the years and customers return to a normal water use pattern.

### Capital Improvements Plan

The default funding of asset replacement should be considered a significant variable. Costs under the capitalization threshold are currently set at \$5,000 which means if something costs less than \$5,000 it is

paid for in the operation budget and not on the list to save annually for it. This threshold should reflect how Palmer Lake spends. At the higher end of capital assets, it is more practical to save for a down payment for a loan or matching funds to secure a grant. GMS suggest that Palmer Lake would NOT likely qualify for significant grants and suggested 10 to 15% grant would be the maximum. The rest of the costs will assume to be funded by loans. The scenarios researched further along in this document will show several scenarios and each of those scenarios will show the effects of no grant along with 10% grant.

Default Funding of Asset Replacements		Cash	Grant	Loan
Replacement Value From	To			
\$0	\$100,000	100%	0%	0%
\$100,001	\$500,000	20%	0%	80%
\$500,001	\$1,000,000	10%	0%	90%
\$1,000,001	\$9,999,999	5%	0%	98%
\$10,000,000	\$9,999,999	5%	0%	98%
<b>Capitalization Threshold</b>	<b>\$ 5,000</b>	Any asset purchased below this value is not		

Funding CIP according to the table above results in an annual reserve target of \$7.2M if we include the cost to replace the upper and lower reservoirs and future all known/anticipated costs. After speaking with the operators, they are keeping up with the reservoirs, it's in the operating budget, however the opinion of the operators is that the reservoirs will not get rebuild if something happens to them, that likely mode of failure will be filling in with silt displacing reservoir volume. The operations are relying more and more on ground water.

Take out the reservoir replacement costs we removing nearly \$6M annually to upkeep the reservoirs the reserve. After a public board meeting and discussion, it was decided to only consider CIP line items that project only 30 years into the future. With these determinations, the contributions are reduced to \$457,987 annually. Which is approximately a 35% increase.

If the reserve targets are reduced down from 5% down to 2% for the replacement costs over \$1M the resulting reserve calculation for annual contributions would be \$313,616. This is approximately a 25% increase to the required revenue for CIP contributions only.

Default Funding of Asset Replacements		Cash	Grant	Loan
Replacement Value From	To			
\$0	\$100,000	100%	0%	0%
\$100,001	\$500,000	20%	0%	80%
\$500,001	\$1,000,000	10%	30%	60%
\$1,000,001	\$9,999,999	2%	30%	68%
\$10,000,000	\$9,999,999	2%	30%	68%

On the next page you can see the details of the infrastructure in the CIP that is on the 30-year horizon and not any further.

Quantity	Asset	Year Acquired	Unit Cost (Historic, Current or Future)	Cost Type (H, C, F)	% Belonging to Water	Normal Estimated Life	Estimated Remaining Life	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Replacement of Existing Capital Assets</b>													
<b>REAL ESTATE</b>													
					100%				0%	0%	100%	0	0
1	Maintenance Building	1983	601,000	C	25%	60	20	398,658	20%	0%	80%	5,230	3,539
1	Maintenance Building - Contents	2000	57,770	C	25%	30	7	20,322	100%	0%	0%	2,514	2,501
<b>VEHICLES</b>													
					100%				0%	0%	100%	0	0
1	Ford Truck F-250 2005 DFZ901	2005	40,000	C	100%	23	5	51,051	100%	0%	0%	6,962	8,716
1	Dodge Ram 1500 2019 BSH031	2019	50,000	C	100%	7	3	57,881	100%	0%	0%	8,703	16,297
1	Dodge Ram 2015 779SWQ	2015	50,000	C	100%	10	2	55,125	100%	0%	0%	8,703	23,142
1	Chevy 1/2 Ton 2008 681RS	2014	45,000	C	100%	10	1	47,250	100%	0%	0%	7,832	39,418
1	Chevy 1/2 Ton 2005 219CLV	2005	40,000	C	100%	19	1	42,000	100%	0%	0%	6,962	35,038
1	John Deer Loader	2008	200,000	C	5%	25	10	16,289	100%	0%	0%	1,741	1,419
1	Road Grader JD	2006	300,000	C	5%	25	8	22,162	100%	0%	0%	2,611	2,396
1	Backhoe 310SJD	2008	100,000	C	5%	27	12	8,979	100%	0%	0%	870	655
1	Water Truck 3500 Gal Tank Freightliner	2005	60,000	C	5%	24	6	4,020	100%	0%	0%	522	Not Cap.
1	Dump Truck mini International	2001	60,000	C	5%	26	4	3,647	100%	0%	0%	522	Not Cap.
<b>SOURCE and TREATMENT</b>													
					100%				0%	0%	100%	0	0
1	Spruce Mountain Pump Station D2 Well Station - 195 Spru	1989	799,600	C	25%	60	26	710,779	10%	10%	80%	3,479	2,433
1	High Cap Pump (1200gpm) Fire Pump Would Replace with	2007	500,000	C	100%	40	24	1,612,550	2%	10%	88%	1,741	1,196
1	Service Pumps (300 gpm) Summit Submersible A2 Well	2018	400,000	H	100%	7	2	562,840	10%	10%	80%	8,071	24,036
1	Well D2 Original Redrilled 1630 feet	2023	635,779	C	100%	30	30	2,747,800	2%	10%	88%	2,213	1,629
1	Chlorinator Pump Hypo Chlorite Injection (2)	2021	3,000	H	100%	3	1	3,473	100%	0%	0%	554	Not Cap.
2	Rapid Filter (500 gpm filters) Media replenished (2)	2022	13,554	H	100%	5	4	34,597	2%	10%	0%	4,860	7,370
1	Well A2 2233 feet deep	2002	993,900	C	100%	30	10	1,618,958	2%	10%	88%	3,460	2,820
<b>Surface Water Treatment</b>													
					100%				0%	0%	100%	0	0
1	Amiad 130 Micron Pre-Strainer 1999 replaced 2018	2018	35,000	C	100%	20	15	72,762	100%	0%	0%	6,092	4,277
3	40-HP distribution pumps one Replaced recently (3)	2011	6,000	C	100%	12	6	24,122	100%	0%	0%	3,133	3,448
					100%				0%	0%	100%	0	0
1	Membrane Filter Pall skid 350 gpm Replaced 1 Module 202	2011	1,208,527	H	100%	30	18	5,223,184	2%	10%	88%	5,998	5,228
44	22 Modules per skid Replaced Recently (44)	2020	9,229	H	100%	10	7	661,455	10%	10%	80%	7,723	8,205
1	Electrical Controls Auto Pall Controls Lightening strike	2020	29,800	H	10%			2,980	100%	0%	0%	567	0
					100%				0%	0%	100%	0	0
1	SWTP Lab Equipment	2018	20,000	C	100%	5	2	22,050	100%	0%	0%	3,481	9,257
1	Chlorine Analyzer Obsolete No Parts	2002	8,000	C	100%	25	4	9,724	100%	0%	0%	1,392	2,065
6	Turbidity Analyzer Obsolete No Parts (6)	2011	6,000	C	100%	16	4	43,758	100%	0%	0%	6,266	9,291
2	Chlorine Gas System, Regulators, injectors Measurement	2011	300,000	C	100%	40	28	2,352,077	2%	10%	88%	2,089	1,495
1	SCADA Replace PLC at GWTP Replacing this now?	2023	40,000	C	100%	25	25	135,454	20%	0%	80%	1,392	964
1	Scada at A2 and D2 Done recently	2022	58,654	H	100%	20	19	155,627	20%	0%	80%	2,103	1,455
<b>STORAGE</b>													
					100%				0%	0%	100%	0	0
1	High Zone Water Storage Tank (250,000 Gal) Concrete Bur	1985	591,500	C	100%	60	22	1,730,292	2%	10%	88%	2,059	1,398
1	Low Zone Water Storage Tanks (500,000 Gal) Welded Stee	1955	751,100	C	100%	75	7	1,056,873	2%	10%	88%	2,615	2,601
1	Low Zone Water Storage Tank Booster Station	1994	377,700	C	100%	60	31	1,714,018	2%	10%	88%	1,315	983
<b>DISTRIBUTION system maps from GMS</b>													
					100%				0%	0%	100%	0	0
8	8" Gate Valves (8)	2013	2,540	C	100%	40	30	87,822	100%	0%	0%	3,537	2,603
156	6" Gate Valves (156)	2013	2,090	C	100%	40	30	1,409,126	2%	10%	88%	1,135	835
5	4" Gate Valves (5)	2013	1,800	C	100%	40	30	38,897	100%	0%	0%	1,566	1,153
<b>Fire Hydrants 166 6" Hydrants</b>													
					100%				0%	0%	100%	0	0
8	6" Hydrants 8	1950	9,050	C	100%	80	7	101,874	20%	0%	80%	2,520	2,507
<b>Subtotal Replacement of Existing Capital Assets</b>												132,532	230,369



Quantity	Asset	Year Acquired	Unit Cost (Current or Future)	st Type (C)	Belonging to (C, Wate)	mal Estimated	ated Remaining Life	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Replacement of Funded Project Assets</b>													
1	ARPA FUNDING 2023 Project TBD Dis System Replacement	2023	259,238	C	100%	60	61	5,084,473	2%	0%	98%	259,238	0
1	ARPA Funding 2024 Project Dis System Replacement	2024	77,938	C	100%	60	62	1,605,040	2%	0%	98%	77,938	0
<b>Subtotal Replacement of Funded Project Assets</b>												337,176	0
Enter Existing Reserves for Replacement of Funded Project Assets													
Quantity	Asset	Year to be Purchased	Unit Cost (Current or Future)	st Type (C)	Belonging to (C, Wate)	mal Estimated		Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
<b>Reserves for Additional Capital Assets</b>													
1	New Araphahoe Well & Dist Sys Loop Reinforce Priority	2025	5,952,600	C	100%	60		6,562,742	2%	0%	98%	0	65,464
	Groundwater Treatment Plant Improvements (included above)	2025		C	100%	60			100%	0%	0%	0	0
	Distribution System Replacement (Included above in line item)	2025		C	100%	60			100%	0%	0%	0	0
					100%	80			0%	0%	0%	0	0
1	Distribution System Extention to Serve Properties on Private	2035	4,067,188	C	100%	80		7,304,085	2%	0%	98%	0	11,842
1	Back Up Generator for Tank Pump	2030	30,000	C	100%	40		42,213	100%	0%	0%	0	5,941
<b>Subtotal Reserves for Additional Capital Assets</b>													83,247
Enter Existing Reserves for Additional Capital Assets													
<b>Total Capital Reserves</b>													313,616

Before developing detailed scenarios, the reserve funding was selected to reduce variables. At the meeting with the board on April 27<sup>th</sup>, the mayor asked how far into the future should CIP items be considered? For example, PVC pipe is expected to last up to 100 years, and the board requested to see what the effects are for considering replacement items 90, 60, and 30 years out. The version of the CIP above is considering all known and expected costs 30 years into the future.

### CIP Items 30 Years Out

To limit the burden on current rate payers, replacement costs are limited to 30 years into the future, this eliminates the replacement of 111K feet of PVC pipe that is expected to last into the year 2100 in addition to 163 fire hydrants, the Spruce Mountain Pump Station Structure, SWTP – Structure, and the (2) Standby Generators, a filter bed, the newer high zone storage tank, and Town Hall Maintenance.

2024	2025	2026	2027	2028
\$313,616	\$247,253	\$143,317	\$135,289	\$126,747

Note that the reserve contributions decrease, however this is due to items on the CIP, being purchased with a large percentage loan and so debt service will be going up.

The current customers are categorized by meter size. This is related to the potential volume of water the connection can consume and base rates are based on this meter or connection size.

Current Rate Structure						
Current Customer Classes	Name of Class	Rate Structure			Schedule	
1	Residential/Com- 3/4"	Tiered Block			A	Go to row 13
2	Commercial/Res 1"	Tiered Block			B	Go to row 13
3	Commercial 1.5"	Tiered Block			C	Go to row 13
4	Commercial 2"	Tiered Block			D	Go to row 13
5	Out of Town - 3/4"	Tiered Block			E	Go to row 13
		Rate Schedules				
Tiered Block	Meter Size	A	B	C	D	E
Base	0.625					
	0.750	\$68.23				\$68.23
	1.000		\$89.78			
	1.500			\$126.03		
	2.000				\$169.56	
Tier Break	1	4,999	4,999	4,999	4,999	4,999
(All yellow cells in this Tier Break table must	2	9,999	9,999	9,999	9,999	9,999
	3	9,999,999	9,999,999	9,999,999	9,999,999	9,999,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40
	2	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08
	3	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	8	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
Total Revenue under Existing Rates		\$1,277,974.73	This number should closely approximate the sales nu			

The rate structure does not state that the “Out of Town” customer are billed any differently from customers within town limits, for this reason the \$68.23 is highlighted in red font. Usually a 25-50% surcharge is applied to customer outside of the town’s limits. It is recommended to create a new customer class that is charged a minimum of 1.25x but recommended 1.5x their meter size base rate. Usage is left at the same rate as the rest of the customers. For all scenarios considered the handful of out of town customers are being charged 1.5x the base rate.

Total Revenue with existing rates is calculated at \$1,277,974. The monthly revenue from the base charges is \$69,434.51 which is \$833,214 annually. The usage revenue ranges from \$24,500 to \$52,000 monthly, the total usage revenue over the year is \$444,760.

The model, at current rates and tiers, calculated \$67,000 over the revenue reported in 2022 and from what the model is predicting with the same monthly and usage fees. This 5% discrepancy is due to the staff setting the budget for revenue conservatively.

### Budget – Without CIP

The board expressed interest to see what the raise in rates would need to be to cover year to year operational costs. The table below takes out all contribution to CIP reserves with 0% grants but still shows deficits year over year.

	2024	2025	2026	2027	2028
Total Annual Expenses (without CIP)	\$1,476,407	\$1,585,678	\$1,927,909	\$1,987,053	\$2,055,666
Revenue at \$68.23 Base & 5% increases	\$1,494,634	\$1,582,244	\$1,673,742	\$1,779,925	\$1,892,718
<b>Deficit</b>	\$18,227	<b>(\$3,434)</b>	<b>(\$254,167)</b>	<b>(\$207,128)</b>	<b>(\$162,948)</b>

Looking only at this difference in operating expenses vs revenue from user fees, the monthly base rate for residential 3/4” connections would have to go up to **\$88.25**. This increase is \$20.02 per month for residential customers.

To save 2% for the Engineering Projects Priorities 1 & 2 together in 2025, a new generator in 2030 and extension of the distribution system in 2035 the budget will need to include \$83,247 in 2024 and 2025. This amounts to \$65,464 for the Priority 1 & 2 and then in 2026, this drops to \$17,783. Additionally, to save for capital replacement of existing items within 30 years the reserve requirements is \$230,369 in 2024. This will require the monthly base rate to be **\$102.55**, or an additional \$14.30 per month for a total increase of \$34.32.

## Scenario 0 – Existing Rates

In this scenario, the existing base rate is shown to be increasing at 5%, annually, starting with \$71.64 in 2024 (68.23x1.05) tiers will remain the same. Grants are assumed to be 0%.

Tiered Block	Meter Size	A	B	C	D	E	F	G
	0.750	\$71.64				\$107.46		\$71.64
	1.000		\$94.27				\$94.27	\$94.27
	1.500			\$132.33				
	2.000				\$178.03			
Tier Break	1	4,999	4,999	4,999	4,999	4,999	4,999	4,999
(All yellow cells in this Tier Break table must contain data.)	2	9,999	9,999	9,999	9,999	9,999	9,999	9,999
	3	6,000	6,000	6,000	6,000	6,000	6,000	6,000
	4	9,000	9,000	9,000	9,000	9,000	9,000	9,000
	5	12,000	12,000	12,000	12,000	12,000	12,000	12,000
	6	15,000	15,000	15,000	15,000	15,000	15,000	15,000
	7	20,000	20,000	20,000	20,000	20,000	20,000	20,000
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40	\$8.40
	2	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08	\$10.08
	3	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	4	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	5	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	6	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	7	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
	8	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10	\$12.10
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5		
	Base		5.00%	5.00%	5.00%	5.00%		
	Usage		5.00%	5.00%	5.00%	5.00%		
Results of the new rates		2024	2025	2026	2027	2028	5 Years	
TOTAL EXPENSES		\$1,790,023	\$1,832,931	\$2,118,278	\$2,169,394	\$2,229,465	\$10,140,091	
TOTAL REVENUE		\$1,441,364	\$1,518,230	\$1,601,485	\$1,694,926	\$1,793,735	\$8,049,740	
NET LOSS OR GAIN: (Short/Over to Reserves)		-\$348,658	-\$314,702	-\$516,793	-\$474,468	-\$435,730	-\$2,090,351	
NET CASH FLOW (Contribution to Reserves)		-\$28,840	-\$61,246	-\$367,274	-\$339,179	-\$308,983	-\$1,105,522	
Affordability assuming MHI of \$92333 for residential meters.		1.35%	1.43%	1.50%	1.59%	1.69%		
Are you putting enough money in reserves?	No	No	No	No	No	No		
Positive Annual Cash Flow?	No	No	No	No	No	No		

At 5% percentage annual increase, the ¾” residential base rates will increase according to the following table.

Annual Increase	2023	2024	2025	2026	2027	2028
5% Base	\$68.23	\$71.64	\$75.22	\$78.98	\$82.93	\$87.08
5% Average Res Bill w Usage	\$102.41	\$104.48	\$110.63	\$116.73	\$123.60	\$130.86

## Scenario 2

A typical avenue to explore in a rate study is increasing the number of tiers and tier prices. Currently the rate structure has the first tier 0-5,000 gallons at \$8.40/1000 gallons, the second 5,001-10,000 gallons at \$10.08 and \$12.10/1000 gallons after that. There are only 3 tiers, here in this scenario more tiers will be added to investigate the results. The average residential usage from actual historical data from Palmer Lake customers shows that the overall average throughout the year is **3,714 gallons** per month. This varies month to month. Monthly residential averages are shown below. According to the EPA National average for residential use is 300 gallons per day which is 9,125 gallons per month. According to the town of Castle Rock, 4,000 gallons is the average monthly residential consumption.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3205	2943	2653	4015	3443	4398	4904	4466	4572	3854	3225	2891

The new rates should encourage conservation of water. There are many benefits to encouraging conservation from chemical use on a daily operational cost to the reduced need for infrastructure like a new tank, a new well or more treatment capacity. In this scenario the first tier selected is below the average which at 3,000 gallons. The first tier goes up to 3,000 gallons and then increases every 1,000 gallons and the price per tier raises 15% each tier, annual increases are set at 3%.

Tiered Block	Meter Size	Rate Schedules						
		A	B	C	D	E	F	G
	0.750	\$75.15					\$112.73	\$75.15
	1.000		\$98.89					\$98.89
	1.500			\$138.81				
	2.000				\$186.76			
Tier Break	1	2,999	2,999	2,999	2,999	2,999	2,999	2,999
(All yellow cells in this Tier Break table must contain data.)	2	3,999	3,999	3,999	3,999	3,999	3,999	3,999
	3	4,999	4,999	4,999	4,999	4,999	4,999	4,999
	4	5,999	5,999	5,999	5,999	5,999	5,999	5,999
	5	6,999	6,999	6,999	6,999	6,999	6,999	6,999
	6	7,999	7,999	7,999	7,999	7,999	7,999	7,999
	7	8,999	8,999	8,999	8,999	8,999	8,999	8,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$11.50	\$11.50	\$11.50	\$11.50	\$11.50	\$11.50	\$11.50
	2	\$12.23	\$12.23	\$12.23	\$12.23	\$12.23	\$12.23	\$12.23
	3	\$15.21	\$15.21	\$15.21	\$15.21	\$15.21	\$15.21	\$15.21
	4	\$17.49	\$17.49	\$17.49	\$17.49	\$17.49	\$17.49	\$17.49
	5	\$20.11	\$20.11	\$20.11	\$20.11	\$20.11	\$20.11	\$20.11
	6	\$23.13	\$23.13	\$23.13	\$23.13	\$23.13	\$23.13	\$23.13
	7	\$26.60	\$26.60	\$26.60	\$26.60	\$26.60	\$26.60	\$26.60
	8	\$30.59	\$30.59	\$30.59	\$30.59	\$30.59	\$30.59	\$30.59
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5		
	Base		5.00%	5.00%	5.00%	5.00%		
	Usage		5.00%	5.00%	5.00%	5.00%		
Results of the new rates		2024	2025	2026	2027	2028	5 Years	
	TOTAL EXPENSES	\$1,790,023	\$1,832,931	\$2,118,278	\$2,169,394	\$2,229,465	\$10,140,091	
	TOTAL REVENUE	\$1,797,584	\$1,904,681	\$2,015,003	\$2,143,143	\$2,279,327	\$10,139,737	
	NET LOSS OR GAIN: (Short/Over to Reserves)	\$7,561	\$71,750	-\$103,274	-\$26,251	\$49,862	-\$353	
	NET CASH FLOW (Contribution to Reserves)	\$327,379	\$325,206	\$46,245	\$109,038	\$176,608	\$984,476	
	Affordability assuming MHI of \$92333 for residential meters:	1.67%	1.77%	1.88%	2.00%	2.12%		
	Are you putting enough money in reserves?	Yes	Yes	No	No	Yes		
	Positive Annual Cash Flow?	Yes	Yes	Yes	Yes	Yes		

	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>
Base Rate	\$75.15	\$78.90	\$82.85	\$86.99	\$91.34
Average Bill with Usage	\$130.45	\$138.82	\$146.90	\$156.31	\$166.32
Base Rate if 10% Grant on CIP	\$74.05	\$77.75	\$81.64	\$85.72	\$90.00
Average Bill with Usage if 10% Grant on CIP	\$129.36	\$137.67	\$145.69	\$155.04	\$164.98

For 2024 this scenario would generate \$906,076 in revenue from the base rates, and another \$740,649 from usage. There is a reduction in usage anticipated at 5% factored into the model for this year, however with such a steep increase according to usage the customers usage behavior may decrease more dramatically which could end up generating less revenue for the system overall.

**Scenario 3.1 – Kevin Dreher Suggested Scenario - 10% increase to Monthly Base Rate**

Can you ask Chris to run the following scenario:

Base rates to be \$50.47 (increase of \$4.59) for a 3/4", \$72.02 (increase of \$6.55) for a 1", \$108.27 (Increase \$9.84) for a 1.5", and \$151.8 (increase \$13.80) for a two-inch line. This represents a 10% increase for each line.

For the tiers, increase rates for residential and commercial users to the following:

- 0-1000 gallon \$0 - included in base rate. This will protect our elderly
- 1001-2000 gallons - \$.00900 per gallon
- 2001-5000 gallons - \$.01200 per gallon
- 5001-8000 gallons - \$.01400 per gallon
- 8001-12,000 gallons - \$.0150 per gallon
- 12,001 - 24,000 gallons - \$.016 per gallon
- 24,000 + gallons - \$.017 per gallon

This is based on what TOPL calls the “Base Rate.” In the rate study I call the entire \$68.23 the base fee because we also have a usage fee and as discussed in previous meeting there is no option to pay only part of the “Base Rate” portion of the “Total Minimum Bill” as broken down below. The term “Total Minimum Bill” is not the best descriptor since in addition to this total minimum there is also a usage charge.

Per Resolution 13 of 2023, Water Usage Rates shall be increased 7% to rates shown below:

Tap Size	WATER RATES			
	3/4"	1"	1 1/2"	2"
Monthly Base Rate	\$ 45.88	\$ 65.47	\$ 98.43	\$ 138.00
Capital Improvement Fee	\$ 4.59	\$ 6.55	\$ 9.84	\$ 13.80
Water Loan Payment	\$ 17.76	\$ 17.76	\$ 17.76	\$ 17.76
<b>TOTAL MINIMUM BILL</b>	<b>\$ 68.23</b>	<b>\$ 89.78</b>	<b>\$ 126.03</b>	<b>\$ 169.56</b>
	WATER USAGE RATES			
	min. gallons	max. gallons	\$ per gallon	\$ per 100 gal
	1	4999	\$ 0.00840	\$ 0.840
	5000	9999	\$ 0.01008	\$ 1.008
	10000	99999	\$ 0.01210	\$ 1.210



Tiered Block	Meter Size	Rate Schedules							
		A	B	C	D	E	F	G	
	0.750	\$72.82					\$109.23		\$72.82
	1.000		\$96.33					\$96.33	\$96.33
	1.500			\$135.87					
	2.000				\$183.36				
Tier Break	1	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	2	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
(All yellow cells in this Tier Break table must contain data.)	3	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
	4	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
	5	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
	6	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
	7	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	2	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00
	3	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00
	4	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00
	5	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00
	6	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00
	7	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00
	8	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5			
	Base Usage		5.00%	5.00%	5.00%	5.00%			
			5.00%	5.00%	5.00%	5.00%			
<b>Results of the new rates</b>		<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>5 Years</b>		
TOTAL EXPENSES		\$1,790,023	\$1,832,931	\$2,118,278	\$2,169,394	\$2,229,465	\$10,140,091		
TOTAL REVENUE		\$1,475,465	\$1,558,344	\$1,646,300	\$1,746,806	\$1,853,302	\$8,280,217		
NET LOSS OR GAIN: (Short/Over to Reserves)		-\$314,558	-\$274,588	-\$471,977	-\$422,587	-\$376,163	-\$1,859,874		
NET CASH FLOW (Contribution to Reserves)		\$5,260	-\$21,132	-\$322,458	-\$287,298	-\$249,416	-\$875,045		
Affordability assuming MHI of \$92333 for residential meters.		1.37%	1.45%	1.53%	1.63%	1.73%			
Are you putting enough money in reserves?	No	No	No	No	No	No			
Positive Annual Cash Flow?	Yes	No	No	No	No	No			

This suggested scenarios increases the Monthly minimum bill (minus Cap Imp Fee, minus the Loan Payment) by 10% and this does not cover all the costs to operate the system, contribute to reserves and pay current and anticipated future debt.

	2024	2025	2026	2027	2028
Base Rate	\$72.82	\$76.46	\$80.28	\$84.30	\$88.51
Average Bill with Usage	\$106.39	\$112.96	\$119.38	\$126.74	\$134.55

### Scenario 3.2

Since the scenario suggested by Kevin Dreher leaves deficit above \$1.8M after five years, this scenario looks to find the ¾” base rate that balances the budget. The tier volumes and tier prices are the same as Scenario 3.1.

Tiered Block	Meter Size	Rate Schedules							
		A	B	C	D	E	F	G	
	0.750	\$100.35					\$150.53		\$100.35
	1.000		\$132.04					\$132.04	\$132.04
	1.500			\$185.36					
	2.000				\$249.38				
Tier Break	1	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
(All yellow cells in this Tier Break table must contain data.)	2	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	3	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
	4	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
	5	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
	6	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
	7	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	2	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00
	3	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00
	4	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00
	5	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00
	6	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00	\$16.00
	7	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00
	8	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00	\$17.00
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5			
	Base		5.00%	5.00%	5.00%	5.00%			
	Usage		5.00%	5.00%	5.00%	5.00%			
Results of the new rates		2024	2025	2026	2027	2028	5 Years		
TOTAL EXPENSES		\$1,790,023	\$1,832,931	\$2,118,278	\$2,169,394	\$2,229,465	\$10,140,091		
TOTAL REVENUE		\$1,812,189	\$1,911,904	\$2,017,539	\$2,136,606	\$2,262,592	\$10,140,830		
NET LOSS OR GAIN: (Short/Over to Reserves)		\$22,166	\$78,972	-\$100,739	-\$32,787	\$33,127	\$739		
NET CASH FLOW (Contribution to Reserves)		\$341,984	\$332,428	\$48,780	\$102,502	\$159,874	\$985,568		
Affordability assuming MHI of \$92333 for residential meters.		1.72%	1.83%	1.93%	2.04%	2.16%			
Are you putting enough money in reserves?	Yes	Yes	No	No	Yes				
Positive Annual Cash Flow?	Yes	Yes	Yes	Yes	Yes				

This results in a ¾” base rate or what TOPL calls Total Minimum Bill of \$100.35/month. That is a 47% increase in the base rate. The table below shows the base rate increasing at 5% beyond this proposed adjustment and the average monthly bill when usage is included.

	2024	2025	2026	2027	2028
Base Rate	\$100.35	\$105.37	\$110.64	\$116.17	\$121.98
Average Bill with Usage	\$133.92	\$141.87	\$149.73	\$158.61	\$168.02

### Scenario 3.3

Since scenario 3.1 suggested by Kevin Dreher leaves deficit above \$1.8M after five years, and scenario 3.2 results in a 47% increase in the base rate or Total Minimum Fee, we look here at this variation (scenario 3.2) to keep the suggested tier volumes but adjust the tier prices.

Tiered Block	Meter Size	Rate Schedules						
		A	B	C	D	E	F	G
	0.750	\$90.00					\$135.00	\$90.00
	1.000		\$118.43					\$118.43
	1.500			\$166.24				
	2.000				\$223.66			
Tier Break	1	1,000	1,000	1,000	1,000	1,000	1,000	1,000
(All yellow cells in this Tier Break table must contain data.)	2	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	3	5,000	5,000	5,000	5,000	5,000	5,000	5,000
	4	8,000	8,000	8,000	8,000	8,000	8,000	8,000
	5	12,000	12,000	12,000	12,000	12,000	12,000	12,000
	6	24,000	24,000	24,000	24,000	24,000	24,000	24,000
	7	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
Usage Rate per 1000 Gallons	1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	2	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50
	3	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50
	4	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50
	5	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00
	6	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00
	7	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00
	8	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00
Growth Factor of Rates			Year 2	Year 3	Year 4	Year 5		
	Base		5.00%	5.00%	5.00%	5.00%		
	Usage		5.00%	5.00%	5.00%	5.00%		
Results of the new rates		2024	2025	2026	2027	2028	5 Years	
	TOTAL EXPENSES	\$1,790,023	\$1,832,931	\$2,118,278	\$2,169,394	\$2,229,465	\$10,140,091	
	TOTAL REVENUE	\$1,805,356	\$1,908,869	\$2,016,899	\$2,140,544	\$2,271,595	\$10,143,262	
	NET LOSS OR GAIN: (Short/Over to Reserves)	\$15,333	\$75,937	-\$101,379	-\$28,850	\$42,130	\$3,172	
	NET CASH FLOW (Contribution to Reserves)	\$335,152	\$329,393	\$48,140	\$106,439	\$168,877	\$988,001	
	Affordability assuming MHI of \$92333 for residential meters.	1.70%	1.80%	1.91%	2.02%	2.15%		
Are you putting enough money in reserves?	Yes	Yes	No	No	Yes			
Positive Annual Cash Flow?	Yes	Yes	Yes	Yes	Yes			

	2024	2025	2026	2027	2028
Base Rate	\$90.00	\$94.50	\$99.23	\$104.18	\$109.40
Average Bill with Usage	\$132.43	\$140.62	\$148.61	\$157.79	\$167.51

### Scenario 4

At the board meeting on 5-11-2023 the board did not come to a consensus about giving the restaurants a discount, but expressed interest in seeing what happens if the commercial customers are given a discount in the form of any rate increase only being 50% of ¾” residential increases. This is a starting point and for comparison with Scenario 3.3 the tiers and tier prices are the same as developed just above.

Proposed Customer Classes	Name of Class	Rate Structure	Schedule	
1	Residential- 3/4"	Tiered Block	A	Go to row 69 and enter the Tiered Block Rates.
2	Commercial/Res-1"	Tiered Block	B	Go to row 69 and enter the Tiered Block Rates.
3	Commercial-1.5"	Tiered Block	C	Go to row 69 and enter the Tiered Block Rates.
4	Commercial-2"	Tiered Block	D	Go to row 69 and enter the Tiered Block Rates.
5	Out of Town - 3/4" 1.5x Res	Tiered Block	E	Go to row 69 and enter the Tiered Block Rates.
6	Irrigation Acct 1"	Tiered Block	F	Go to row 123 and enter the Tiered Block Rates.
7	Restraunts	Tiered Block	G	Go to row 123 and enter the Tiered Block Rates.
8	Commercial	Tiered Block	H	Go to row 123 and enter the Tiered Block Rates.

		Rate Schedules							
Tiered Block	Meter Size	A	B	C	D	E	F	G	H
	0.750	\$90.00				\$135.00		\$90.00	\$79.12
	1.000		\$118.43				\$118.43	\$118.43	\$93.33
	1.500			\$166.24					\$117.24
	2.000				\$223.66				\$145.95

Tier Break		1	2	3	4	5	6	7	8
(All yellow cells in this Tier Break table must contain data.)	1	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	2	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	3	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
	4	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
	5	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
	6	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
	7	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999
	8	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999	99,999,999

Usage Rate per 1000 Gallons	1	2	3	4	5	6	7	8
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50
	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50	\$14.50
	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50
	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00	\$19.00
	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00
	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00
	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00

Growth Factor of Rates		Year 2	Year 3	Year 4	Year 5
Base		5.00%	5.00%	5.00%	5.00%
Usage		5.00%	5.00%	5.00%	5.00%

Results of the new rates	2024	2025	2026	2027	2028	5 Years
TOTAL EXPENSES	\$1,790,023	\$1,832,931	\$2,118,278	\$2,169,394	\$2,229,465	\$10,140,091
TOTAL REVENUE	\$1,796,749	\$1,899,831	\$2,007,409	\$2,130,580	\$2,261,133	\$10,095,702
NET LOSS OR GAIN: (Short/Over to Reserves)	\$6,726	\$66,900	-\$110,869	-\$38,814	\$31,668	-\$44,389
NET CASH FLOW (Contribution to Reserves)	\$326,544	\$320,356	\$38,651	\$96,475	\$158,414	\$940,440
Affordability assuming MHI of \$92333 for residential meters.	1.70%	1.80%	1.91%	2.02%	2.15%	

Are you putting enough money in reserves?	Yes	Yes	No	No	Yes
Positive Annual Cash Flow?	Yes	Yes	Yes	Yes	Yes

This scenario results in over \$40,000 less revenue compared with Scenario 3.3.