

Grizzly Lake Community Services District

Water System #CA3200104, Assistance Referral Number 5948

Requested by: California State Water Resources Control Board

Prepared by:
Mary Fleming
Rural Community
Assistance Corporation
3120 Freeboard Drive, Suite 201
West Sacramento, CA 95691

November 2021

*Funded by: State of California
State Water Resources Control Board*



February 10, 2022

Emma Blankenship
Small Community Technical Assistance
Division of Financial Assistance
State Water Resources Control Engineer
1001 I St. 16th Floor
PO Box 944212
Sacramento, CA 95814

Subject: Grizzly Lake Community Services District Rate Study

Dear Emma:

Enclosed please find the printed final report for Grizzly Lake Community Services District Rate Study.

The rate adjustment options were to be presented to the Grizzly Lake County Water District board on Jan. 12, 2022, and again, with adjustments on Feb. 9, 2022. From several options, the board selected one it feels will best fit the community. The Prop 218 process will begin immediately.

If you have any additional questions, feel free to contact Mary Fleming at (916) 549-6338 or Michael Boyd at (308) 641-2807.

Michael Boyd

Michael Boyd
Regional Environmental Manager
Community & Environmental Services

Enclosure: Grizzly Lake Community Services District Rate Study

Table of Contents

Executive Summary.....	5
1. Introduction.....	6
Rural Community Assistance Corporation (RCAC).....	6
Purpose of this study.....	6
Board responsibilities.....	6
Guiding principles in a rate study.....	6
2. Grizzly Lake Community Services District.....	8
Community.....	8
System description.....	8
Customer water use.....	8
Future population and usage projections.....	9
3. Current financial condition and analysis.....	10
Rate structures.....	10
GLCSD current rate structure.....	10
Affordability index.....	11
Budget.....	11
Fixed versus variable expenses.....	13
4. Water system reserves.....	15
Debt service reserve.....	15
Operating reserve.....	15
Emergency reserve.....	16
Capital improvement reserve.....	16
5. Proposed rate adjustment.....	18
Rate adjustment option #1.....	19
Rate adjustment option #2.....	21
Rate adjustment options affordability.....	22
6. Conclusions and recommendations.....	23
Proposition 218.....	24
TABLE 1: AWWA Meter Equivalency.....	11
TABLE 2: Affordability Index – Current Rates.....	12
TABLE 3: Budget Projections.....	14

TABLE 4: GLCSD Estimated Fixed/Variable Costs.....	17
TABLE 5: Recommended Reserve Funding.....	18
TABLE 6: GLCSD Current Rates against Projected Costs	18
TABLE 7: Costs to Recover in Base Rate Option #1	19
TABLE 8: Option #1 Base Rates.....	19
TABLE 9: Rate Adjustment Option #1	22
TABLE 10: Rate Adjustment Option #2.....	22
TABLE 11: Affordability Index Comparison of Rate Adjustment Options	22
TABLE 12: Five-Year Rate Schedule for Each Rate Adjustment Option.....	22

Executive Summary

Pursuant to a request by Grizzly Lake Community Services District (GLCSD), the California State Water Resources Control Board requested RCAC conduct a rate study for the water enterprise to evaluate three primary areas.

These are:

- Determine an adequate rate structure
- Analyze affordability of current water rate and recommended alternative rate structure(s) if a rate adjustment is necessary
- Calculate reserve requirements for system sustainability

The current rates, as established by GLCSD several years ago, were determined to be inadequate to recover the GLCSD's projected cost of service for the present and plan for the future.

The completed rate study offers two rate adjustment options, both of which include charging a base rate based on connection pipe size. The ¾" connections are charged based on the assumption of a maximum flow capacity of 30 gallons per minute while the 1" connections are charged based on the assumption of a maximum flow capacity of 50 gallons per minute. Each option has an affordability index that is well within the recommended affordability range of 1.5 percent to 2.5 percent of the median household income.

Rate Adjustment Option #1 (recommended) recovers all operating costs through rates. In this option, the monthly base rate is increased from \$35.75 for ¾" connections to \$59.55 per month and the 1" connections are increased from \$42.50 to \$99.25 per month in the first year. Subsequent years would require an annual increase of 2.5 percent to all connections. All other fees and charges remain as they currently are. In the first year of this option, GLCSD will rely slightly on non-operating income (property taxes) to fully recover costs. In years two through five, the initial losses will be recovered and GLCSD water enterprise will net \$3,348 operating revenue over expenses for the five-year period. Non-operating revenue will be utilized to increase equipment replacement reserves.

Rate Adjustment Option #2 relies on non-operating revenue, estimated at \$22,264 annually, to recover operating costs. In this option, the monthly base rate is increased from \$35.75 for ¾" connections to \$54.12 per month and the 1" connections are increased from \$42.50 to \$90.20 per month in the first year. Subsequent years would require an annual increase of 2.5 percent to all connections. All other fees and charges remain as they currently are. In this option, operating revenues will fall short of recovering operating costs by \$110,252. That shortfall will be recovered through non-operating revenue.

1. Introduction

Rural Community Assistance Corporation (RCAC)

Founded in 1978, RCAC provides training, technical and financial resources and advocacy so rural communities can achieve their goals and visions. For more than 40 years, our dedicated staff and active board, coupled with our key values: leadership, collaboration, commitment, quality and integrity, have helped effect positive change in rural communities across the West.

RCAC's work includes environmental infrastructure (water, wastewater and solid waste facilities); affordable housing development; economic and leadership development; and community development finance. These services are available to communities with populations of fewer than 50,000, other nonprofit groups, Tribal organizations, farmworkers, colonias and other specific populations. Headquartered in West Sacramento, California, RCAC's employees serve rural communities in 13 western states and the Pacific islands.

Purpose of this study

An accurate and useful rate analysis not only identifies the total annual revenue required by a utility to conduct its normal day-to-day operations, but it also anticipates and plans for future operating and capital needs. Furthermore, the analysis attempts to determine whether the projected revenue under existing rates will satisfy those needs. The primary objective of this process is to ensure that the utility has the ability to obtain sufficient funds to develop, construct, operate, maintain, and manage its water system on a continuing basis, in full compliance with federal, state and local requirements.

Board responsibilities

Board responsibilities for system operation include maintaining sufficient revenue and reserves to provide for ongoing maintenance for the foreseeable future. The board's ultimate responsibility is to ensure public health is preserved and compliance with environmental regulations.

Guiding principles in a rate study

Sustainability

Water rates should cover the costs to the water utility to allow it to provide water services for the foreseeable future and prepare for system repair and replacement. This will allow the system to continue to provide safe drinking water to future generations.

Fair

Water rates should be fair to all rate payers.

Costs

The utility should not charge more for water than *the cost* to provide the water. However, the costs should include operations, maintenance, reserves, all other costs related to the production, treatment and distribution of potable water now and in the foreseeable future. Therefore, the proposed rates are based on the water utility budget, needed capital repair and replacement, and historic water consumption.

Water conservation

Water conservation is a key element of rate studies. Clean and safe water is limited, and inappropriate use of this resource negatively impacts community members.

Justifiability

Rates should be easily justifiable. When determining rate recommendations, RCAC considers if the proposed rates are needed and justifiable given the true costs of operating the system safely.

State or funder specific requirements

Grizzly Lake Community Services District water system is not under funder requirements for reserves and rates. However, the board is obligated by its responsibilities to provide for sufficient reserves and long-term sustainability.

Disclaimer

The findings, recommendations, and conclusions contained in this rate analysis are based on financial information provided to RCAC by GLCSD. Although reasonable care was made to ensure the reliability of this information, no warranty is expressed or implied as to the correctness, accuracy or completeness of the information contained herein. Any action taken based on such findings, recommendations, or conclusions is undertaken at the discretion of GLCSD. In no event will RCAC or its partners, employees, or agents, be liable for any decision made or action taken in reliance on the information contained in this analysis.

2. Grizzly Lake Community Services District

Community

Grizzly Lake Community Services District (GLCSD) was formed in 1959 to provide water and sewer services to the residents of Delleker and of Crocker Mountain/Grizzly Retreat. GLCSD is governed by a five-member board of directors elected by the voting population within the district. GLCSD's mission is to provide safe, affordable and reliable drinking water and wastewater services. The water system provides service to 312 residential connections and 18 commercial connections. Delleker is a census designated place (CDP) located approximately three miles west of Portola, California. The population was 705 at the time of the 2010 census. Crocker Mountain/Grizzly Retreat is approximately 15 miles north of Portola.

Revenues from rates do not fully recover operating costs. GLCSD is reliant on property tax revenue, estimated at \$22,264 annually, to recover all operating costs, provide debt service and fund necessary reserve accounts.

System description

The Delleker water system consists of two municipal wells, one 300,000 gallon bolted steel storage tank and approximately five miles of asbestos concrete, soft roll copper, steel and PVC water mains/laterals ranging from ¾" – 10" in size, 22 fire hydrants and 25 valves.

Crocker Mountain/Grizzly Retreat consists of one municipal well, one 250,000 gallon bolted steel storage tank, 16 fire hydrants, 12 valves, three pressure reducing valves and nearly five miles of distribution system, of which 95 percent is asbestos concrete pipe with the remainder being Schedule 40 and DB 120 PVC. The combined water systems have 330 active connections. Of those, 312 are unmetered residential connections and 18 are metered commercial connections. The system also has 106 vacant lots that are charged monthly stand-by fees.

Customer water use

When analyzing water rates, it is important to understand existing consumption patterns among the system's customers. A large portion of customers may use a small percentage of water, and a small portion of customers may use a large percentage. Understanding how customers use water is important when you are considering seasonal operational needs, infrastructure replacement and water use efficiency, to name a few considerations.

Because most of GLCSD's connections are not metered, it is not possible to determine usage patterns. To create a more equitable rate structure, it is recommended the water system install meters to all connections and track individual usage.

Future population and usage projections

The district serves 312 residential units and 18 commercial units. There are 106 vacant lots available for expansion but, in speaking with the general manager, this analysis assumes that additional active connections to an extent that would materially impact rates are not expected.

3. Current financial condition and analysis

Rate structures

The following are types of rates structures common to drinking water systems:

- **Uniform Flat Rate:** Customers pay the same amount regardless of the quantity of water used. This type of rate is easiest to administer; however, it is not fair to the lowest water users and can promote high consumption which then may cost the utility more to provide that water.
- **Single or Uniform Block Rate:** Customers are charged a constant price per volume regardless of the amount of water used. The cost per block of water is often added to a minimum charge for having service available. This rate tends to be more equitable to customers as the cost to a customer is in direct proportion to the amount use.
- **Inclining or Increasing Block Rate:** This rate is designed to promote water use efficiency, as the price of water increases as the amount used increases.
- **Declining or Decreasing Block Rate:** This rate is designed to promote economic development, as the price of water decreases as the amount increases.

GLCSD current rate structure

The system currently charges a base rate of \$35.75 per month for ¾” connections and \$42.50 for 1” connections or 115 percent more for the 1” connections. According to the American Water Works Association (AWWA) guide for meter equivalencies, a ¾” connection has a maximum flow limit of 30 gallons per minute, while a 1” connection has a maximum flow limit of 50 gallons per minute, equaling 167 percent more per minute for the 1” connections. These were the connection equivalencies used in the rate analysis.

TABLE 1: AWWA Meter Equivalency

EDU's Based on Size of Water Meter Per AWWA		
Meter Size	Max Flow Limit	# EDUs
5/8"	20 GPM	1.0 EDU
3/4"	30 GPM	1.5 EDU
1"	50 GPM	2.5 EDU
1-1/2"	100 GPM	5.0 EDU
2"	160 GPM	8.0 EDU
3"	320 GPM	16 EDU
4"	500 GPM	25 EDU
6"	1000 GPM	50 EDU

Meter information based upon AWWA Max. Flow Limit using data from badgermete.com (Kent/ABB/AMCO) and sensus.com

The ¾” connections are not metered. The 1” connections are metered and are charged a usage rate of \$0.75 per one thousand gallons of usage. The 1” connections are also charged an administrative fee of \$8.00 per month for meter reading and bill preparation.

Additionally, GLCSD customers pay \$4.00 per month for repayment of a USDA loan for the Crocker Tank Project. One hundred and six vacant lots are charged \$7.06 per month for stand-by fees plus \$4.00 per month for USDA loan repayment.

Affordability index

The affordability index measures the burden of costs passed from the water utility to the users against the median household income (MHI) for the area and is used by funding agencies to determine grant and low interest loan eligibility. Many funding organizations look for an affordability ratio of 1.5 percent before approving grant money to low-income communities. The 2019 American Community Survey (ACS) estimated an MHI for Delleker with a very high margin of error. For the purposes of this rate analysis, RCAC used the ACS Lower Bound MHI of \$54,028 to calculate the affordability index.

Affordability Index = average annual residential bill for water / annual MHI

TABLE 2: Affordability index – Current Rate

Connection Size	Base Rate	Water Tank Surcharge	Administrative Fee	Total Monthly Rate	MHI	Affordability Index
¾”	\$35.75	\$4.00	\$0.00	\$39.75	\$54,028	0.88%
1”	\$42.50	\$4.00	\$8.00	\$54.50	\$54,028	1.21%

Budget

GLCSD has not tracked the costs and revenues for the water and sewer enterprises separately. The utility has historically created budgets for the CSD as a whole and not by individual enterprise. RCAC worked with the general manager to separate costs for the year ended June 30, 2020, by enterprise. Due to some prior bookkeeping errors and omissions, this became extremely cumbersome. It was determined that it would be prudent to wait until the completion of the year ended June 30, 2021, to complete the study. RCAC was unable to obtain the financial statements for that period. However, in November 2021, the contract accountant provided budgets by individual enterprise for the fiscal year ending June 30, 2022. From the water enterprise budget, five-year projections were calculated assuming an annual inflation rate of 2.5 percent.

TABLE 3: Budget projections

Grizzly Lake CSD	Budget	Projected	Projected	Projected	Projected
Water Enterprise	2022	2023	2024	2025	2026
Operating Expenses:					
Admin Fees - Plumas County	\$ 95	\$ 97	\$ 100	\$ 102	\$ 105
Advertising/Promotion	\$ 295	\$ 302	\$ 310	\$ 318	\$ 326
Dues, Licenses & permits	\$ 15,422	\$ 15,808	\$ 16,203	\$ 16,608	\$ 17,023
Automobile Expense	\$ 1,661	\$ 1,703	\$ 1,745	\$ 1,789	\$ 1,833
Auto Fuel	\$ 2,460	\$ 2,522	\$ 2,585	\$ 2,649	\$ 2,715
Bank Service Charges	\$ 452	\$ 463	\$ 475	\$ 487	\$ 499
Director Fees	\$ 675	\$ 692	\$ 709	\$ 727	\$ 745
Equipment Rental	\$ 4,000	\$ 4,100	\$ 4,203	\$ 4,308	\$ 4,415
Liability Insurance	\$ 9,765	\$ 10,009	\$ 10,259	\$ 10,516	\$ 10,779
Workers' Compensation Insurance	\$ 6,066	\$ 6,218	\$ 6,373	\$ 6,532	\$ 6,696
Medical Benefits	\$ 14,448	\$ 14,809	\$ 15,179	\$ 15,559	\$ 15,948
Office Supplies	\$ 1,236	\$ 1,267	\$ 1,299	\$ 1,331	\$ 1,364
Payroll Expenses	\$ 480	\$ 492	\$ 504	\$ 517	\$ 530
Payroll - Wages & Salaries	\$ 92,613	\$ 94,928	\$ 97,302	\$ 99,734	\$ 102,227
Payroll Taxes	\$ 7,291	\$ 7,473	\$ 7,660	\$ 7,852	\$ 8,048
Postage	\$ 1,500	\$ 1,538	\$ 1,576	\$ 1,615	\$ 1,656
Computer Expense	\$ 250	\$ 256	\$ 263	\$ 269	\$ 276
Professional Fees - Legal	\$ 750	\$ 769	\$ 788	\$ 808	\$ 828
Professional Fees - Accountant	\$ 13,000	\$ 13,325	\$ 13,658	\$ 14,000	\$ 14,350
Audit	\$ 8,000	\$ 8,200	\$ 8,405	\$ 8,615	\$ 8,831
Water System Repairs	\$ 13,808	\$ 14,153	\$ 14,507	\$ 14,870	\$ 15,241
Equipment Repairs	\$ 843	\$ 864	\$ 886	\$ 908	\$ 931
Small Tools & Supplies	\$ 20,590	\$ 21,105	\$ 21,632	\$ 22,173	\$ 22,728
Property Taxes	\$ 143	\$ 147	\$ 150	\$ 154	\$ 158
Testing	\$ 3,290	\$ 3,372	\$ 3,457	\$ 3,543	\$ 3,632
Training/Education	\$ 63	\$ 65	\$ 66	\$ 68	\$ 70
Uniforms	\$ 400	\$ 410	\$ 420	\$ 431	\$ 442
Travel	\$ 120	\$ 123	\$ 126	\$ 129	\$ 132
Meals & Entertainment	\$ 75	\$ 77	\$ 79	\$ 81	\$ 83
Electricity	\$ 9,800	\$ 10,045	\$ 10,296	\$ 10,554	\$ 10,817
Refuse	\$ 700	\$ 718	\$ 735	\$ 754	\$ 773
Telephone	\$ 450	\$ 461	\$ 473	\$ 485	\$ 497
Total Operating Expenses	\$ 230,741	\$ 236,510	\$ 242,422	\$ 248,483	\$ 254,695
Debt Service	\$ 20,920	\$ 20,580	\$ 20,580	\$ 20,580	\$ 20,580
Plus Reserve Funding:					
Debt Reserves (fully Funded)	\$ -	\$ -	\$ -		
Operating Reserves	\$ 5,769	\$ 5,913	\$ 6,061	\$ 6,212	\$ 6,367
Emergency Reserves	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000
CIP Reserves (Depreciation)	\$ 14,442	\$ 14,442	\$ 14,442	\$ 14,442	\$ 14,442
Total Reserve Funding	\$ 25,211	\$ 25,355	\$ 25,503	\$ 25,654	\$ 25,809
Total Debt Service and Reserve Funding	\$ 46,131	\$ 45,935	\$ 46,083	\$ 46,234	\$ 46,389
Net Operating Expenses and Reserve Funding	\$ 276,872	\$ 282,444	\$ 288,505	\$ 294,717	\$ 301,084

Fixed versus variable expenses

Water must be available to customers at all times whether the customer is using the water or not. A large share of water system costs are associated with bringing the first drop of water to the customer's meter, regardless of whether any water is used. Fixed costs are those that must be recovered by GLCSD to ensure that drinking water is available to its customers.

Fixed costs are usually recovered from each customer on an equal basis through the use of a minimum fee (a minimum monthly bill). Fixed costs may cover 100 percent of some expenses in a system's budget, but only a portion of other types of expenses. For example, fixed expenses generally include all debt service expenses on construction loans, financial reserves for emergencies or equipment replacement, and overhead costs, like insurance and bonding. Fixed costs should also include a portion of other system operating expenses. For example, a percentage of wages and fringe benefits for time spent in reading each meter and preparing each customer's bill.

The method for identifying all or part of some expenses as fixed costs involves determining to what extent each of the line item expenses in the budget benefits every customer of the system regardless of their level of usage. This is a determination that each utility must make for itself. Fixed costs should generally be recovered in a system's minimum bill, the minimum monthly fee charged equally to each customer within each customer meter size (3/4-inch, 1-inch, etc.).

For small systems with fewer customers, spreading these costs among its customers, the proportion of fixed costs will be higher than larger systems. Many small systems find it impossible to recover all fixed costs in a monthly minimum, so they tend to shift a certain percentage to the variable side. Fixed costs for small systems are usually in the range of one-third to two-thirds of the system's total operating costs and may run even higher for very small systems.

Variable costs are system expenses that are more directly related to how much water is pumped, treated, stored and distributed. Most costs for electricity, chemicals and repairs can be classified as variable costs because they are directly related to the amount of water that customers use. To recover variable expenses, rate structures use a "consumption charge" or "flow charge" per volume, such as per thousand gallons or hundred cubic feet. Because GLCSD is not metering residential connections, a flow rate was not calculated. The commercial usage charge was not changed in the alternate rate calculation.

TABLE 4: GLCSD Estimated Fixed/Variable Costs

Grizzly Lake Community Services District	Budget 2021/2022	Estimated % Fixed Costs	Fixed costs	Variable costs
Admin Fees - Plumas County	\$ 95	100%	\$95	\$0
Advertising/Promotion	\$ 295	100%	\$295	\$0
Dues, Licenses & permits	\$ 15,422	100%	\$15,422	\$0
Automobile Expense	\$ 1,661	85%	\$1,412	\$249
Auto Fuel	\$ 2,460	85%	\$2,091	\$369
Bank Service Charges	\$ 452	100%	\$452	\$0
Director Fees	\$ 675	100%	\$675	\$0
Equipment Rental	\$ 4,000	85%	\$3,400	\$600
Liability Insurance	\$ 9,765	100%	\$9,765	\$0
Workers' Compensation Insurance	\$ 6,066	100%	\$6,066	\$0
Medical Benefits	\$ 14,448	100%	\$14,448	\$0
Office Supplies	\$ 1,236	100%	\$1,236	\$0
Payroll Expenses	\$ 480	100%	\$480	\$0
Payroll - Wages & Salaries	\$ 92,613	100%	\$92,613	\$0
Payroll Taxes	\$ 7,291	100%	\$7,291	\$0
Postage	\$ 1,500	100%	\$1,500	\$0
Computer Expense	\$ 250	100%	\$250	\$0
Professional Fees - Legal	\$ 750	100%	\$750	\$0
Professional Fees - Accountant	\$ 13,000	100%	\$13,000	\$0
Audit	\$ 8,000	100%	\$8,000	\$0
Water System Repairs	\$ 13,808	75%	\$10,356	\$3,452
Equipment Repairs	\$ 843	75%	\$632	\$211
Small Tools & Supplies	\$ 20,590	100%	\$20,590	\$0
Property Taxes	\$ 143	100%	\$143	\$0
Testing	\$ 3,290	100%	\$3,290	\$0
Training/Education	\$ 63	100%	\$63	\$0
Uniforms	\$ 400	100%	\$400	\$0
Travel	\$ 120	100%	\$120	\$0
Meals & Entertainment	\$ 75	100%	\$75	\$0
Electricity	\$ 9,800	0%	\$0	\$9,800
Refuse	\$ 700	100%	\$700	\$0
Telephone	\$ 450	100%	\$450	\$0
Total Operating Costs	\$ 230,741		\$ 216,060	\$ 14,681
Debt Service	\$ 20,920			
Total Operating Costs Plus Debt Service	\$ 251,661			
Debt Reserves	\$ -			
Operating Reserves	\$ 5,769			
Emergency Reserves	\$ 5,000			
Reserves-CIP	\$ 14,442			
Total Reserves	\$ 25,211			
Total Budget	\$ 276,872			
Total Costs	\$230,741			
Total Fixed Costs	\$216,060			
Percentage Fixed Costs	94%			
Total Variable Costs	\$14,681			
Percentage Variable Costs	6%			

4. Water system reserves

Reserves are an accepted way to stabilize and support a utility's financial management. Small systems usually fund the operating expenses but don't often consider putting money aside for a specific upcoming financial need or project, or for an amount that can be used to provide rate stabilization in years when revenues are unusually low or expenditures are unusually high. The rationale for maintaining adequate reserve levels is two-fold. First, it helps to ensure that the utility will have adequate funds available to meet its financial obligations in times of varying needs. Secondly, it provides a framework around which financial decisions can be made to determine when reserve balances are inadequate or excessive and what specific actions need to be taken to remedy the situation.

Utility reserve levels can be thought of as a savings account. Reserve balances are funds that are set aside for a specific cash flow requirement, financial need, project, task or legal covenant. Common reserve balances are established around the following four areas: operating reserve, capital improvement, emergency and debt service reserve. These balances are maintained in order to meet short-term cash flow requirements, and at the same time, minimize the risk associated with meeting financial obligations and continued operational needs under adverse conditions.

Debt service reserve

Water utilities that have issued debt to pay for capital assets will often have required reserves that are specifically defined to meet the legal covenants of the debt. Normally, debt service reserve represents an amount equal to one full annual loan payment and can be accumulated to this level over a period of five to 10 years. According to the audited financial statements for the year ended June 30, 2019, the GLCSD water enterprise had one debt in the form of Certificate of Participation, payable to United States Department of Agriculture Rural Development at 4.25 percent interest maturing in 2045. The outstanding balance was \$326,000. The annual payment on the loan, including principal and interest, is approximately \$21,000. Debt reserves have been fully funded.

Operating reserve

Operating reserves are established to provide the utility with the ability to withstand short-term cash flow fluctuations. There can be a significant length of time between when a system provides a service and when a customer pays for that service. In addition, a system's cash flow can be affected by weather and seasonal demand patterns. A 45-day operating reserve is a frequently used industry norm. Because of potential delays in collecting payment, many utilities attempt to keep an amount of cash equal to at least 45 days or one-eighth of their annual cash O&M expenses in an operating reserve to mitigate potential cash flow problems. A five-year budget projection was completed assuming a 2.5 percent annual inflation rate. The budget projections assume no operating reserves have been funded. The recommended operating reserves are funded over a five-year period.

Emergency reserve

In addition to operating reserves, emergency reserves are an important tool for financial sustainability. Emergency reserves are intended to help utilities deal with short-term emergencies which arise from time-to-time, such as main breaks or pump failures. The appropriate amount of emergency reserves will vary greatly with the size of the utilities and should depend on major infrastructure assets. An emergency reserve is intended to fund the immediate replacement or reconstruction of the system's single most critical asset: an asset whose failure will result in an immediate water outage or threat to public safety. The budget includes \$5,000 per year for five years to fund the emergency reserve and/or short-lived assets.

Capital improvement reserve

A capital improvement reserve (also called a repair and replacement reserve) is intended to be used for replacing system assets that have become worn out or obsolete. Annual depreciation is frequently used to estimate the minimum level of funding for this capital reserve. But it is important to understand that depreciation expense is an accounting concept for estimating the decline of an asset's useful life and does not represent the current replacement cost of that asset. As an example, a brand-new system with a construction cost of \$1 million and a service life of 100 years should, in theory, be setting aside \$10,000 per year to fully capitalize the replacement cost of the infrastructure as it wears out. Many smaller systems find this to be impossible because of the effect on rates, which explains the large number of small systems that are falling into disrepair.

To initiate a capital improvement plan (CIP), a small water or sewer system will start with a list of assets that includes the remaining service life, theoretical replacement costs in today's dollars and the remaining service life. It then calculates the monthly and annual reserve that must be collected from each customer to fully capitalize the replacement cost of each asset. In reality, the assets will fail and be replaced gradually, but the replacement cost of water system assets is often a shock to small systems that are struggling to keep rates reasonable.

One alternative method is to set aside an annual amount equal to one-to-two percent of the total original cost asset value of the utility's property. Larger systems often have sufficient non-operating revenue to fund these reserve levels without affecting rates, but smaller systems often do not, leaving them to fund their CIP reserves from rates alone. Another alternative method is to set aside sufficient reserve funds to cover 100 percent of the cost of replacing short-lived assets, such as well pumps, electronic controls, vehicles, etc.

GLCSD was unable to provide an asset schedule. The audited financial statement indicated the water system's assets totalled \$1,576,507 with an annual depreciation of \$22,499. In reviewing the GLCSD accounting structure, the contract accountant found prior years' recording of assets had been erroneously distributed between the water and sewer enterprises and the water enterprise had been excessively charged for depreciation. The contract accountant's budgeted amount for depreciation for the year ended June 30, 2022, was reduced to \$14,442. That amount was used for the annual CIP reserve funding. It is recommended GLCSD conduct an asset audit to verify which

fixed assets belong to each of the enterprises and create an asset management plan for each enterprise.

TABLE 5: Recommended Reserve Funding

Reserve Type	Annual Amount	Annual Cost Per Connection	Monthly Cost Per Connection
Operating Reserves	\$ 5,769	\$17.48	\$1.46
Emergency/Short-Lived Asset Reserve	\$ 5,000	\$ 15.15	\$1.26
Capital Improvement Reserves	\$14,442	\$43.76	\$3.65
Total	\$22,711	\$68.82	\$6.37

5. Proposed rate adjustment

Under the current rate structure, revenues are not projected to cover costs. Alternative rate options will be examined in the following pages.

TABLE 6: GLCSD Current Rates Against Projected Costs

GLCSD Current Water Rate	# Connections	Monthly Rate	Average Monthly Revenue	Average Annual Base Revenue		
Water Service Fees:						
	312	\$ 35.75	\$ 11,154.00	\$ 133,848.00		
	18	\$ 42.50	\$ 765.00	\$ 9,180.00		
Total Water Service Fees	330		\$ 11,919.00	\$ 143,028.00		
Other Water Connection Monthly Fees:						
Standby Fees	106	\$ 7.06	\$ 748.36	\$ 8,980.32		
Other Water Connection Monthly Fees:						
Water Tank Surcharge						
3/4" Connections	312	\$ 4.00	\$ 1,248.00	\$ 14,976.00		
1" Connections	18	\$ 4.00	\$ 72.00	\$ 864.00		
Standby Tank Surcharge	106	\$ 4.00	\$ 424.00	\$ 5,088.00		
Total Water Tank Surcharges			\$ 1,744.00	\$ 20,928.00		
Administrative Fees	18	\$ 8.00	\$ 144.00	\$ 1,728.00		
Total Other Water Connection Monthly Fees				\$ 22,656		
Usage Fees				\$ 836		
Total Fess			\$ 11,919	\$ 166,520		
Budget Assuming 2.5% Inflation per year	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	Five Year Total
Total Monthly Required Reserves Fund	\$ 2,101	\$ 2,113	\$ 2,125	\$ 2,138	\$ 2,151	
Total yearly required reserve fund	\$ 25,211	\$ 25,355	\$ 25,503	\$ 25,654	\$ 25,809	\$ 127,531
Debt Service	\$ 20,920	\$ 20,580	\$ 20,580	\$ 20,580	\$ 20,580	\$ 103,240
Fixed Budget	\$ 216,060	\$ 221,462	\$ 226,998	\$ 232,673	\$ 238,490	\$ 1,135,683
Variable Budget	\$ 14,681	\$ 15,048	\$ 15,424	\$ 15,810	\$ 16,205	\$ 77,168
Total Operating Budget	\$ 276,872	\$ 282,444	\$ 288,505	\$ 294,717	\$ 301,084	\$ 1,443,622
Operating Revenue:	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	Five Year Total
Estimated Annual Revenue From Base Rate	\$ 143,028	\$ 143,028	\$ 143,028	\$ 143,028	\$ 143,028	\$ 715,140
Estimated Annual Revenue From Water Tank Surcharge	\$ 20,928	\$ 20,928	\$ 20,928	\$ 20,928	\$ 20,928	\$ 104,640
Estimated Annual Revenue From Standby Fees	\$ 8,980	\$ 8,980	\$ 8,980	\$ 8,980	\$ 8,980	\$ 44,902
Estimated Revenue From Administrative Fees	\$ 1,728	\$ 1,728	\$ 1,728	\$ 1,728	\$ 1,728	\$ 8,640
Usage Charges	\$ 836	\$ 836	\$ 836	\$ 836	\$ 836	\$ 4,178
Total Operating Revenue	\$ 175,500	\$ 175,500	\$ 175,500	\$ 175,500	\$ 175,500	\$ 877,499
Net Operating Revenue Over/(under) Operating Costs	\$ (101,372)	\$ (106,944)	\$ (113,005)	\$ (119,217)	\$ (125,584)	\$ (566,123)
Non-Operating Revenue:						
Property Taxes	\$ 22,264	\$ 22,264	\$ 22,264	\$ 22,264	\$ 22,264	\$ 111,320
Total Non-Operating Revenue	\$ 22,264	\$ 22,264	\$ 22,264	\$ 22,264	\$ 22,264	\$ 111,320
Net Income/(Loss)	\$ (79,108)	\$ (84,680)	\$ (90,741)	\$ (96,953)	\$ (103,320)	\$ (454,803)

Rate adjustment option #1

Rate adjustment option #1 recovers all operating costs through operating revenue. The base rate is established, using the meter equivalency model to recover all costs less stand-by fees revenue, usage fees revenue and other water connection monthly fees revenue.

TABLE 7: Costs to Recover in Base Rate Option #1

Total Costs	\$276,872
Less:	
Stand-by Fees Revenue	(\$ 8,980)
Other Water Connection Monthly Revenue	(\$22,656)
Usage Fees Revenue	(\$,836)
Total Costs to Recover in Base Rates	\$244,400

TABLE 8: Option #1 Base Rates

Connection Size	Number of Connections	AWWA Safe Maximum Operating Limit(GPM)	Maximum Demand	% OF Maximum Demand by Connection Size	Total Costs less Other Water Service Fees	Theoretical Monthly Base Rate By Connection Size
5/8"	0	20	0	0%	\$ -	\$ 39.70
3/4"	312	30	9360	91%	\$ 222,961	\$ 59.55
1"	18	50	900	9%	\$ 21,439	\$ 99.25
1-1/2"	0	100	0	0%	\$ -	\$ 198.51
2"	0	160	0	0%	\$ -	\$ 317.61
3"	0	320	0	0%	\$ -	\$ 635.22
4"	0	500	0	0%	\$ -	\$ 992.53
6"	0	1000	0	0%	\$ -	\$ 1,985.06
Total	330	2180	10260	100%	\$ 244,400	

In rate adjustment option #1, the 3/4" connections base rate is increased from \$35.75 to \$59.55 per month in the first year. The 1" connections base rate is increased from \$42.50 per month to \$99.25 per month. The stand-by fees, water tank charges, commercial administrative fees and commercial usage rates are unchanged. Subsequent annual increases of 2.5 percent will be necessary. In this option, all operating costs will be recovered by operating revenue. Property tax revenue should be utilized to increase CIP reserves.

TABLE 9: Rate Adjustment Option #1

Rate Adjustment Option #1	# Connections	# EDUs	Fee per EDU	Total Month Service Fee	Average Monthly Revenue	Average Annual Revenue
Pipe Sixe						
5/8"	0	\$ 1.00	\$ 39.70	\$ 39.70	\$ -	\$ -
3/4"	312	\$ 1.50	\$ 39.70	\$ 59.55	\$ 18,579.60	\$ 222,955.20
1"	18	\$ 2.50	\$ 39.70	\$ 99.25	\$ 1,786.50	\$ 21,438.00
1-1/2"	0	\$ 5.00	\$ 39.70	\$ 198.50	\$ -	\$ -
2"	0	\$ 8.00	\$ 39.70	\$ 317.60	\$ -	\$ -
3"	0	\$ 16.00	\$ 39.70	\$ 635.20	\$ -	\$ -
4"	0	\$ 25.00	\$ 39.70	\$ 992.50	\$ -	\$ -
6"	0	\$ 50.00	\$ 39.70	\$ 1,985.00	\$ -	\$ -
Total Water Service Fees	330				\$ 20,366.10	\$ 244,393.20
Other Water Connection Monthly Fees:						
Standby Fees	106	\$ 7.06	\$ 748.36	\$ 8,980.32		
Water Tank Surcharges:						
Residential	312	\$ 4.00	\$ 1,248.00	\$ 14,976.00		
Commercial	18	\$ 4.00	\$ 72.00	\$ 864.00		
Standby Tank Surcharge	106	\$ 4.00	\$ 424.00	\$ 5,088.00		
Total Water Tank Surcharges			\$ -	\$ 20,928.00		
Administrative Fees	18	\$ 8.00	\$ 144.00	\$ 1,728.00		
Total Other Water Connection Monthly Fees Fees				\$ 31,636		
Usage Fees				\$ 836		
Total Fess				\$ 276,865		
Budget Assuming 2.5% Inflation per year	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	Five Year Total
Total Monthly Required Reserves Fund	\$ 2,101	\$ 2,113	\$ 2,125	\$ 2,138	\$ 2,151	
Total yearly required reserve fund	\$ 25,211	\$ 25,355	\$ 25,503	\$ 25,654	\$ 25,809	\$ 127,531
Debt Service	\$ 20,920	\$ 20,580	\$ 20,580	\$ 20,580	\$ 20,580	\$ 103,240
Fixed Budget	\$ 216,060	\$ 221,462	\$ 226,998	\$ 232,673	\$ 238,490	\$ 1,135,683
Variable Budget	\$ 14,681	\$ 15,048	\$ 15,424	\$ 15,810	\$ 16,205	\$ 77,168
Total Operating Budget	\$ 276,872	\$ 282,444	\$ 288,505	\$ 294,717	\$ 301,084	\$ 1,443,622
Operating Revenue:	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	Five Year Total
Estimated Annual Revenue From Base Rate	\$ 244,393	\$ 250,503	\$ 256,766	\$ 263,185	\$ 269,764	\$ 1,284,611
Estimated Annual Revenue From Standby Fees	\$ 8,980	\$ 8,980	\$ 8,980	\$ 8,980	\$ 8,980	\$ 44,902
Estimated Annual Revenue From Water Tank Surcharge	\$ 20,928	\$ 20,928	\$ 20,928	\$ 20,928	\$ 20,928	\$ 104,640
Estimated Revenue From Administrative Fees	\$ 1,728	\$ 1,728	\$ 1,728	\$ 1,728	\$ 1,728	\$ 8,640
Usage Charges	\$ 836	\$ 836	\$ 836	\$ 836	\$ 836	\$ 4,178
Total Operating Revenue	\$ 276,865	\$ 282,975	\$ 289,237	\$ 295,657	\$ 302,236	\$ 1,446,970
Net Operating Revenue Over/(under) Operating Costs	\$ (7)	\$ 531	\$ 733	\$ 940	\$ 1,152	\$ 3,348
Non-Operating Revenue:						
Property Taxes	\$ 22,264	\$ 22,264	\$ 22,264	\$ 22,264	\$ 22,264	\$ 111,320
Total Non-Operating Revenue	\$ 22,264	\$ 22,264	\$ 22,264	\$ 22,264	\$ 22,264	\$ 111,320
Net Income/(Loss)	\$ 22,257	\$ 22,795	\$ 22,997	\$ 23,204	\$ 23,416	\$ 114,668

Rate adjustment option #2

Due to concerns regarding the impact of the increase on the community, in rate adjustment option #2, property tax revenue is used to supplement operating revenue in recovering operating costs. The ¾" connection base rate is increased from \$35.75 to \$54.12 per month in the first year. The 1" connection base rate is increased from \$42.50 per month to \$90.20 per month. The stand-by fees, water tank charges, commercial administrative fees and commercial usage rates are unchanged. Subsequent annual increases of 2.5 percent to the base rates will be necessary. Property tax revenue is necessary to fully recover all operating costs.

TABLE 10: Rate Adjustment Option #2

Rate Adjustment Option #2	# Connections	# EDUs	Fee per EDU	Total Month Service Fee	Average Monthly Revenue	Average Annual Revenue
Pipe Sixe						
5/8"	0	\$ 1.00	\$ 36.08	\$ 36.08	\$ -	\$ -
3/4"	312	\$ 1.50	\$ 36.08	\$ 54.12	\$ 16,885.44	\$ 202,625.28
1"	18	\$ 2.50	\$ 36.08	\$ 90.20	\$ 1,623.60	\$ 19,483.20
1-1/2"	0	\$ 5.00	\$ 36.08	\$ 180.40	\$ -	\$ -
2"	0	\$ 8.00	\$ 36.08	\$ 288.64	\$ -	\$ -
3"	0	\$ 16.00	\$ 36.08	\$ 577.28	\$ -	\$ -
4"	0	\$ 25.00	\$ 36.08	\$ 902.00	\$ -	\$ -
6"	0	\$ 50.00	\$ 36.08	\$ 1,804.00	\$ -	\$ -
Total Water Service Fees	330				\$ 18,509.04	\$ 222,108.48
Other Water Connection Monthly Fees:	# Customers	Fee Per Month	Average Monthly Revenue	Average Annual Revenue		
Standby Fees	106	\$ 7.06	\$ 748.36	\$ 8,980.32		
Water Tank Surcharges:						
Residential	312	\$ 4.00	\$ 1,248.00	\$ 14,976.00		
Commercial	18	\$ 4.00	\$ 72.00	\$ 864.00		
Standby Tank Surcharge	106	\$ 4.00	\$ 424.00	\$ 5,088.00		
Total Water Tank Surcharges			\$ -	\$ 20,928.00		
Administrative Fees	18	\$ 8.00	\$ 144.00	\$ 1,728.00		
Total Other Water Connection Monthly Fees			\$ 144	\$ 31,636		
Usage Fees				\$ 836		
Total Fess				\$ 254,580		
Budget Assuming 2.5% Inflation per year	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	Five Year Total
Total Monthly Required Reserves Fund	\$ 2,101	\$ 2,113	\$ 2,125	\$ 2,138	\$ 2,151	
Total yearly required reserve fund	\$ 25,211	\$ 25,355	\$ 25,503	\$ 25,654	\$ 25,809	\$ 127,531
Debt Service	\$ 20,920	\$ 20,580	\$ 20,580	\$ 20,580	\$ 20,580	\$ 103,240
Fixed Budget	\$ 216,060	\$ 221,462	\$ 226,998	\$ 232,673	\$ 238,490	\$ 1,135,683
Variable Budget	\$ 14,681	\$ 15,048	\$ 15,424	\$ 15,810	\$ 16,205	\$ 77,168
Total Operating Budget	\$ 276,872	\$ 282,444	\$ 288,505	\$ 294,717	\$ 301,084	\$ 1,443,622
Operating Revenue:	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	Five Year Total
Estimated Annual Revenue From Base Rate	\$ 222,108	\$ 227,661	\$ 233,922	\$ 240,355	\$ 246,964	\$ 1,171,011
Estimated Annual Revenue From Standby Fees	\$ 8,980	\$ 8,980	\$ 8,980	\$ 8,980	\$ 8,980	\$ 44,902
Estimated Annual Revenue From Water Tank Surcha	\$ 20,928	\$ 20,928	\$ 20,928	\$ 20,928	\$ 20,928	\$ 104,640
Estimated Revenue From Administrative Fees	\$ 1,728	\$ 1,728	\$ 1,728	\$ 1,728	\$ 1,728	\$ 8,640
Usage Charges	\$ 836	\$ 836	\$ 836	\$ 836	\$ 836	\$ 4,178
Total Operating Revenue	\$ 254,580	\$ 260,133	\$ 266,394	\$ 272,827	\$ 279,436	\$ 1,333,370
Net Operating Revenue Over/(under) Operating Costs	\$ (22,291)	\$ (22,311)	\$ (22,111)	\$ (21,890)	\$ (21,648)	\$ (110,252)
Non-Operating Revenue:						
Property Taxes	\$ 22,264	\$ 22,264	\$ 22,264	\$ 22,264	\$ 22,264	\$ 111,320
Total Non-Operating Revenue	\$ 22,264	\$ 22,264	\$ 22,264	\$ 22,264	\$ 22,264	\$ 111,320
Net Income/(Loss)	\$ (27)	\$ (47)	\$ 153	\$ 374	\$ 616	\$ 1,068

Rate adjustment options affordability

The affordability index varies only slightly between the two options. However, it should be noted that potential funding sources will be looking for an affordability index of at least 1.5 percent.

TABLE 11: Affordability Index Comparison of Rate Adjustment Options

Affordability Index 3/4" Connections						
	Base Rate	Water Tank Surcharge	Total Monthly Bill	MHI	Affordability Index	
Current Rate	\$ 35.75	\$ 4.00	\$ 39.75	\$ 54,028	0.88%	
Rate Adjustment Option #1	\$ 59.55	\$ 4.00	\$ 63.55	\$ 54,028	1.41%	
Rate Adjustment Option #2	\$ 54.12	\$ 4.00	\$ 58.12	\$ 54,028	1.29%	

Affordability Index - 1" Connections						
	Base Rate	Water Tank Surcharge	Administrative Fee	Total Monthly Bill	MHI	Affordability Index
Current Rate	\$ 42.50	\$ 4.00	\$ 8.00	\$ 54.50	\$ 54,028	1.21%
Rate Adjustment Option #1	\$ 99.25	\$ 4.00	\$ 8.00	\$ 111.25	\$ 54,028	2.47%
Rate Adjustment Option #2	\$ 90.20	\$ 4.00	\$ 8.00	\$ 102.20	\$ 54,028	2.27%

TABLE 12: Five-Year Rate Schedule for Each Rate Adjustment Option

5 Year Rate Schedule						
Option #1	Connection Size	Year 1	Year 2	Year 3	Year 4	Year 5
Base Rate	3/4"	\$ 59.55	\$ 61.04	\$ 62.56	\$ 64.13	\$ 65.73
Base Rate	1"	\$ 99.25	\$ 101.73	\$ 104.27	\$ 106.88	\$ 109.55
Tank Surcharge		\$ 4.00	\$ 4.00	\$ 4.00	\$ 4.00	\$ 4.00
Option #2	Meter Size	Year 1	Year 2	Year 3	Year 4	Year 5
Base Rate	3/4"	\$ 54.12	\$ 55.47	\$ 56.86	\$ 58.28	\$ 59.74
Base Rate	1"	\$ 90.20	\$ 92.46	\$ 94.77	\$ 97.14	\$ 99.56
Tank Surcharge		\$ 4.00	\$ 4.00	\$ 4.00	\$ 4.00	\$ 4.00

6. Conclusions and recommendations

Key points to remember with any rate adjustment:

- Successful utilities are those that strive to be transparent. In day-to-day operations, GLCSD should strive to promote its services (highlights and the low points), and continuously educate residents on why it is necessary to raise and adjust rates.
- The ability of the recommended rate structure to generate adequate revenue will depend on maintaining a vigorous collection and shut-off policy to keep delinquent accounts at a minimum.
- In order to achieve and maintain long-term viability, GLCSD should review its rates annually, or no less than a minimum of every two years. Keeping track of customer seasonal and annual water demands will help determine operations needs, budget forecasts and rate adjustments.
- GLCSD should consider raising rates as soon as possible to provide sufficient revenues for funding future operations and to adequately fund reserves.
- GLCSD should establish policies for reserve accounts as recommended above.
- GLCSD should designate reserves on its financial statements.
- CIP reserves should be moved to and maintained in the highest interest bearing accounts available to offset inflation.
- GLCSD should develop an asset management plan for each of its enterprises individually. When the complete equipment inventory has been completed and it is determined to which enterprise each piece of equipment belongs, a Capital Improvement Plan should be developed that includes an annual amount to fund for each of the enterprises based on historic costs, past and future inflation rates and remaining life expectancy.

Proposition 218

California approved Proposition 218 in 1996 requiring agencies to adopt property fees and charges in accordance with a defined public process found in article XIII D or by associated court decision. Water and water rates are user fees under the definition and must meet the following requirements:

- Revenues derived from the fee or charge must not exceed the funds required to provide the property-related service.
- Revenue from the fee or charge must not be used for any purpose other than that for which the fee or charge is imposed.
- No fee or charge may be imposed for general governmental services, such as police, fire, ambulance, or libraries, where the service is available to the public in substantially the same manner as it is to property owners.
- The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership must not exceed the proportional cost of the service attributable to the parcel.
- The fee or charge may not be imposed for service, unless the service is actually used by, or immediately available to, the owner of the property in question.
- Written notice should be given to both the record owners and customers within the area subject to the fee or charge. The notice shall include the following:
 - The formula or schedule of charges by which the property owner or customer can easily calculate their own potential charge.
 - The basis upon which the amount of the proposed fee or charge is to be imposed on each parcel. An explanation of the costs which the proposed fee will cover and how the costs are allocated among property owners.
 - Date, time and location of a public hearing on the rate adjustment. The public hearing must occur 45 or more days after the mailing of the notice.

California's Proposition 218 provides that a customer of GLCSD or owner of record of a parcel or parcels subject to the proposed rate increases may submit a protest against any or all of the proposed rate increases by filing a written protest with GLCSD at or before the time the public hearing has concluded. Only one protest per parcel is counted. If written protests are filed by a majority of the affected parcels, the proposed rate increases will not be imposed.