Water System Rate Study for Big Lagoon Community Service District

Developed under the Small Suppliers Water Conservation Assistance Program

Big Lagoon Community Service District

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→ **The Power of Commitment**

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Executive summary

The purpose of the Big Lagoon Community Service District Rate Study (Study) for the Big Lagoon Community Service District (BLCSD) is to provide an overview of its long-term financial sustainability and support water conservation initiatives. GHD completed this Study to assess the existing rate structure and propose future options tailored to BLCSD's unique needs and challenges.

BLCSD serves 43 water connections, including the water connection to the school in the community, using the three wells it operates. The operations are severely impacted by aging infrastructure and limited manpower. Recent incidents of water leakage at the school have highlighted these limitations, which will be further augmented by the retirement of the current water system operator and the expiration of the water operations license scheduled for 2028.

BLCSD exhibits healthy parameters that suggest the organization has the necessary financial stability to meet these challenges with effective management. However, the existing rate structure, with flat rates for fixed and consumption charges, fails to incentivize conservation as consumers are billed at a flat rate for their entire usage irrespective of necessity. Furthermore, BLCSD has only one completely operational groundwater well, which can create issues if conservation is not encouraged. The existing water meter system available with BLCSD can support a transition to a tiered-rate structure, which aligns with actual water use while promoting conservation.

Key findings

As part of this Study, BLCSD's water charges were assessed on parameters focusing on the sustainability of the organization to meet its operational requirements and affordability for the end users. From this, the following was discovered:

- **Affordability**: Affordability was assessed using water rates as a percentage of the median household income (MHI), which is $41,806 annually for the local area. Consumers were charged a fixed rate of $51.88 in 2021-22, and $54.61 in 2023. These charges accounted for 1.49% and 1.56% of MHI, respectively. These charges are well under the affordability threshold defined by the EPA and UN and also align with rural water affordability benchmarks (1.92%). This assessment considers the cost of water supply based on the current operational expenses only.
- **Organization:** The BLCSD is managed and operated by both part-time and volunteer staff. The current volunteer water system operator plans to retire in 2027, prompting BLCSD to hire a part-time water operator to ensure a seamless transition and uninterrupted operations. In addition, the water license held by BLCSD will expire at approximately the same time, which may present further operational challenges. To provide long-term stability, BLCSD appointed a part-time General Manager in October 2025 to oversee the management of the system.
- **Cost Recovery**: The cost recovery ratio, measuring the alignment of revenues with expenses, was positive (>1) between 2021 and 2023, averaging 1.16. This indicates good financial health for BLCSD.
- **Cash Reserves**: The BLCSD also carries sufficient cash-on-hand reserves of more than 200 days, which is reasonably higher than the industry standard of 150–190 days. This might not continue to be the case with the additional expenses associated with the part-time General Manager and Water Operator.

Customer impact

The recommended transition from a flat-rate metered system to a tiered water system is unlikely to pose significant challenges for BLCSD. The proposed system aims to maintain the existing water charges for most average consumers while encouraging those with excessive usage to adopt water conservation methods.

BLCSD has a history of actively engaging and consulting with its consumers during past rate changes, so this change is not making it unlikely that this rate change would deviate from this approach or attract reservations raise concerns

from the consumers. BLCSD should be able to bring consumers on board with a series of engaging interactions in the form of workshops to explain the new structure and surveys to obtain and address their concerns.

Conservation incentives

The community is challenged to meet water demands during the tourist seasons and fire-fighting reserves. The tiered rate structure is anticipated to help BLCSD regulate consumer behavior regarding increased consumption during tourist seasons. The proposed metered rate structure, coupled with potential seasonal rate adjustments, can incentivize reducing water consumption.

Recommendations

From the analysis of BLCSD's financials, future projects, and regulatory requirements, GHD recommends the following:

Implement a tiered-rate system: It is recommended to transition to a tiered-rate structure to align charges with water consumption, promote fairness, and encourage responsible use. Prior to implementing any new rates, it is recommended to reconcile the water usage data of the consumers and collect more data, if necessary, over a period of 6–12 months. It is also important to maintain engagement with the consumers and transparency in the decision-making process. The engagement should also focus on gathering feedback from residents to address concerns and build community support for the rate system changes.

Align with regulatory compliance: During past rate increases, BLCSD has engaged with consumers to seek their feedback and consent to such increases; however, these rate increases have not followed the regulatory steps outlined in Proposition 218 (California Constitution Articles XIII C and XIII D). Any rate adjustments should follow Proposition 218 guidelines to promote transparency and align with legal compliance.

Develop succession plan: It is of critical importance to develop a succession plan for all operational tasks and staff as a priority. Additionally, BLCSD should consider developing a system to track resources for critical operational requirements.

Explore seasonal rates: Consider seasonal rate adjustments to further incentivize conservation during peak usage periods and regulate the water usage behavior of seasonal renters.

Explore options to create fire reserves: BLCSD needs to identify and implement options to create a fire reserve in the community, given the past trends of incidents noted during the tourist season, such as an increase in fire risk and excessive water usage.

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1. Introduction

1.1 Background

Throughout the state of California, water conservation is critical for water supply reliability during droughts and over the long-term. To plan and prepare for future water shortage events or dry years, California Governor Gavin Newsom signed Senate Bill (SB) 552 in 2021 which established new planning, reporting, and infrastructure requirements for small water suppliers to improve their drought preparedness and resilience.

A small water supplier is defined as serving between 15 to 2,999 connections. These suppliers are often referred to as "community water systems". Recognizing the need for assistance in complying with SB 552, funding and technical assistance are provided to qualifying small water suppliers. Funding opportunities are available through two key programs. The first is the Budget Act of 2021, as amended by Assembly Bill 180, which provides funding to small water suppliers for water conservation efforts[2]. The second is the California Department of Water Resources Small Supplier Water Conservation Assistance Program[3], which was announced by Governor Newsom in August 2022. This program works with small water supplier across California to aid with water conservation efforts.

Through these support programs, the Big Lagoon Community Services District (BLCSD) commissioned this water rate study to determine an optimal future rate structure that will suit BLCSD's unique requirements and challenges.

1.2 Purpose of this report

The Big Lagoon Community Services District Water Rate Study (Study) is part of the technical assistance provided to small water suppliers. GHD has been engaged to conduct the Study to support BLCSD's long-term financial sustainability and water conservation efforts. This Study will evaluate the BLCSD's current rate structure and their community profile to provide recommendations that address BLCSD's specific challenges and goals.

As part of the Study, GHD evaluated the current revenue streams and expenses to understand BLCSD's overall financial health. Throughout this process, GHD worked closely with the BLCSD volunteer members to analyze existing cashflow models, review operating and capital costs, and assess the feasibility of proposed rate structures and connections fees. For each alternative rate structure considered, benefits and drawbacks were examined within the context of the Big Lagoon community. Particularly, GHD assessed a rate structures suitability by analyzing how a potential structure aligns with BLCSD's long-term financial goals, water conservation efforts, and affordability for the community.

This Study aims to provide an overarching view of the connection between current water rates, community operations, and sustainability, with the objective of supporting BLCSD's efforts for being better prepared for future adversities.

1.3 Limitations

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 2 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

1.4 Overview of the study

This Study focuses on evaluating the water rates for BLCSD and outlining potential rate structures that could be adopted by the BLCSD. GHD undertook the following steps while assessing opportunities:

1. Community overview: GHD worked with BLCSD board members to understand the community it operates in and the locations of the water sources. This included understanding the risks and challenges the BLCSD faces to better inform the rate study
2. Regulatory review and compliance requirements: GHD assessed the regulations related to water rate increase impacting the BLCSD, compliance with such regulatory requirements and provided recommendations.
3. Current rate structure assessment: A comprehensive analysis was carried out of the existing rate structure, which currently charges a fixed fee of $54.61 per month per connection and additional charges/fee based on water consumption.
4. Financial analysis: An evaluation of current rate fees, operating expenses, gross profits, net income, and cash flow to assess the financial health and sustainability of the proposed rate structure. This includes analyzing the utilities capacity to adequately cover operational expenses, maintenance needs, and capital improvement costs. Documents used for review were provided by BLCSD representatives.
5. Rate structure alternatives analysis: A water rate structure analysis was conducted and assessed by reviewing the existing pricing system for water services. GHD's assessment was guided by principles of fairness, financial and operational sustainability, regulatory compliance, and environmental stewardship. The rate structure analysis began with a review of existing rates, and then alternative rate structures were reviewed, including tiered, uniform, or metered systems, to understand if these alternatives were a fit for adoption by BLCSD.
6. Recommendations: A number of options were reviewed to provide the BLCSD information to so they can make informed decisions on rate structures, water rates, regulatory compliance alignment, and financial and resource management.

While the Study aims to provide a comprehensive evaluation of BLCSD's rate structure, GHD acknowledges the following limitations and exclusions which may affect the analysis:

– **Financial constraints:** The volunteer nature of the water management team and the community's financial constraints may affect the implementation and ongoing management of the proposed rate structure, particularly if additional resources are required for administration or communication efforts.
– **Community acceptance:** The success of the new rate structure will largely depend on community acceptance and understanding. Resistance to change, especially from customers facing higher bills, could pose significant challenges. Under Proposition 218, community approval through a protest process is required for the new rate structure to be adopted. There is a risk that members of the community may reject the proposed rate structure changes.
– **Environmental and regulatory changes:** The study's recommendations are based on our current understanding of environmental conditions and regulatory requirements. Future changes in water availability, state regulations such as Proposition 218, or environmental policies could necessitate adjustments to the rate structure or additional measures to enhance compliance and sustainability.
– **Estimation accuracy:** The proposed rates are based on estimated water usage patterns. If actual conditions vary significantly from these estimates, the financial sustainability and fairness of the rate structure could be impacted. These limitations should be considered when interpreting the results of this study and implementing the

recommended rate structure. Further data collection, community engagement, and ongoing monitoring will be essential to sustain the long-term success and adaptability of the proposed changes.

2. Community overview

2.1 History and challenges

The BLCSD has a long history of managing water resources for the Big Lagoon area, evolving through various ownerships, system upgrades, and critical events. Established under early connections to the Georgia-Pacific well, over the years the BLCSD has transitioned from basic systems to a more modernized infrastructure[1].

A key milestone in BLCSD's history includes the transfer of the water system from Big Lagoon Water Company to the BLCSD in 2000. Following the transfer, critical repairs and upgrades were made such as addressing pipeline leaks and constructing an 8' x 14' building to house system components.

Over the years, BLCSD has continued to experience issues such as low water pressure, outdated tanks, and system malfunctions. This has prompted further action such as adding poly tanks, upgrading pumps, and installing automatic chlorinators to sustain a more reliable water system[2].

Significant challenges faced by BLCSD include infrastructure damage from earthquakes, water loss from leaks, and inadequate storage for fire suppression. Notably, in 2010, a new well was drilled to replace the aging Georgia-Pacific well, which further modernized the system. These developments underscore the BLCSD's efforts to adapt and manage resources effectively amidst environmental and operational challenges[3].

2.2 Connections and source of water

BLCSD manages water supply to 43 water connections in the Roundhouse Creek Road and Oceanview Drive areas of Big Lagoon, California. This includes one commercial connection to Big Lagoon Elementary School[4].

BLCSD owns and operates three wells with varying levels of functionality:

1. Well #3: this well is in good condition and produces 22-25 gallons per minute. Drilled in 2011, this well has been well-maintained, passing the 2024 audit.
2. Well #2: this well is minimally functional, yielding only 5 gallons per hour.
3. Well #1: an inactive well.

The potential costs for replacing these wells are prohibitively high and are not accounted for in the district's near-term budget cycle. Additionally, while BLCSD has the right to use and maintain the wells, the district does not own the property where they are located, adding another layer of complexity to long-term water resource planning[5].

2.3 Risks

The BLCSD faces a variety of operational and infrastructure risks that threaten its ability to provide reliable water services to the community. While the BLCSD has no debt or known water contamination issues, they are significantly constrained in their capacity to address critical challenges.

[1] Wenger, 2021
[2] Wenger, 2021
[3] Wenger, 2021
[4] GHD & BLCSD, 2024, October 8
[5] GHD & BLCSD, 2024, October 8

2.3.1 Staffing risks

With only five part-time volunteers, the BLCSD has very limited resources. In 2027, it is expected that their current Water Staff Operator will retire. BLCSD has engaged part-time General Manager and Operator to provide consistency in the operations. However, the long-term staffing and succession plan is yet to be developed. The current deployment has resulted in additional operational expenses adding to the immediate funding requirements.

2.3.2 Operational and infrastructure risk

The BLCSD faces significant operational and infrastructure challenges, primarily stemming from water system vulnerabilities and aging infrastructure.

In absence of a backup well, BLCSD and community are vulnerable to emergencies which may expose the community to service disruptions in event of failure of primary well. This is exacerbated by their inability to use the existing well for fire suppression, increasing fire risk across the community.

Additionally, BLCSD recently experienced two major water leaks at the Big Lagoon Elementary School, with the most recent incident in October 2024 that resulted in a significant loss of 10,000-gallon of water. GHD is currently assisting BLCSD in mitigating these risks by replacing six toilets in the school and conducting a comprehensive review of the water supply system, including shutoff valves, pipes, and sinks, to support compliance measures and prevent future leaks[6]. This incident highlights the BLCSD's aging infrastructure, which highlights the pressing need for proactive maintenance and compliance upgrades.

Seasonality also has an impact on the BLCSD's operations and contributes to their operational challenges. Big Lagoon is a tourist location that draws a higher number of summer vacation rentals. In the past, summer renters have engaged in higher-risk behaviors, such as using firepits and setting off fireworks, that increased water usage by up to 50% compared to permanent residents' usage[7].

2.3.3 Financial risk

BLCSD operates with limited financial resources, which significantly constrains its ability to address critical risks and invest in necessary infrastructure improvements. The multiple recent water loss incident at the Big Lagoon Elementary School underscores the BLCSD's financial vulnerability, as such expenses to repair and replace infrastructure have placed a considerable strain on their budget. The current fee structure offers little to no financial cushion, further limiting BLCSD's capacity to fund essential projects.

Further, high-cost infrastructure needs, such as drilling a secondary well and expanding water storage for fire mitigation, appear beyond the district's current financial capacity, highlighting the urgency for alternative funding solutions and strategic financial planning[8].

3. Regulatory review and compliance requirements

3.1 Proposition 218 Framework

Proposition 218 is an amendment made to the California Constitution in 1996, applicable to any local government, special district, or public agency that imposes taxes, assessments, fees, or charges on property owners for services

[6] GHD & BLCSD, 2024, October 8
[7] GHD & BLCSD, 2024, October 8
[8] GHD & BLCSD, 2024, October 8

such as water, sewer, or garbage collection. The key features of this proposition that guide the operations and management of water providers are as follows:

- Rates charged to customers should directly be related to the cost of delivering the service, and revenue collected from water rates can only be used to fund water services
- Each customer's water rate must reflect the proportional cost of the services they receive. Penalties, late fees, or other fees must reflect the cost of administering those activities
- Any changes to water rates, to come into effect, must go through a transparent process that includes:
  - Conducting a comprehensive rate study or cost-of-service analysis detailing the cost of operations, maintenance, capital improvements, and any other expenses associated with providing water services.
  - Conducting a public hearing to invite consent and objections from property owners on the proposed rate change.
  - Serving a notice for the hearing, at least 45 days in advance, to explain the reason for the rate adjustment, the proposed changes, and the basis for the rates.
  - Not facing opposition from majority of ratepayers during public hearing

3.2 State Water Resources Control Board framework

In addition to Proposition 218, water community service districts water utilities in California are also regulated by the State Water Resources Control Board (Water Board). The Water Board sets standards for water quality their regulations and requirements can influence rate changes indirectly. Indirect implications are summarized as follows:

- **Compliance Costs**: If a CSD must implement costly infrastructure upgrades or programs to meet water quality or environmental standards set by the SWRCB or regional boards, these costs may necessitate rate adjustments.
- **Grant or Loan Conditions**: If a CSD receives funding (e.g., grants or loans) from the SWRCB, the funding agreements may require demonstrating financial sustainability, which could involve justifying rate adjustments.
- **Conservation Mandates**: During droughts or other emergencies, the SWRCB may issue conservation mandates that might indirectly affect rate structures, such as requiring tiered rates to promote water conservation.

3.3 Community Service District Laws

The Community Services District Law (California Government Code § 61000 et seq.[9]) provides the legal framework for the formation, governance, and operation of Community Services Districts (CSDs) in California. The law establishes the governance structure and authority of CSDs, including their ability to levy rates and charges for utility services. Aspects include:

- The CSDs are governed by a board of directors, either elected or appointed members (§ 61040–61046).
- The board holds regular public meetings, ensuring transparency and accountability.
- Under § 61115(a), CSDs have the authority to "adopt ordinances establishing rates, fees, and other charges" for the services they provide.
- The Community Service District Laws reference back to Proposition 218 and must comply with that process.
- Rates must be set to recover the full cost of providing services, including infrastructure maintenance and improvements, debt services, and necessary rates.
- The use of the funds receives must only be used for the purposes for which they are collected (§ 61115(c)).

[9] 2023, California Code

– Rates cannot exceed the proportional cost of the service to each customer (§ 61125).
– If a CSD requires funding beyond rates and fees, it can impose special taxes or benefit assessments, subject to voter approval (§ 61121–61123).

3.4 BLCSD current compliance

BLCSD doesn't appear to be in full compliance with California's Proposition 218 regulations regarding the water rate fee increase approved in 2015. The increase in 2015 raised the water rate to $51.88 per billing period and further to $54.61 in 2023. The approved increase was placed on the policy agenda and voted on in 2015 and 2023 but did not follow the procedural requirements outlined under Proposition 218. Specifically, there was no comprehensive cost-of-service analysis conducted, no formal written notice provided to property owners at least 45 days prior to the public hearing, and no opportunity for property owners to submit written protests as mandated by Proposition 218. This lack of adherence to regulatory requirements raises concerns about transparency, legal compliance, and community trust in the rate-setting process[10].

BLCSD could face legal consequences by not fully adhering to Proposition 218 requirements and the CSD Government Code for notification and public hearings when implementing or increasing fees, rates, or assessments. While Proposition 218 itself does not include direct penalties for noncompliance, regulatory bodies or state oversight agencies (e.g., the State Controller's Office) could impose additional scrutiny on the CSD's financial practices if the issue escalates.

Affected disgruntled property owners or ratepayers can challenge the rates in court. Members affected by the rate increase have the ability to follow the legal pathways to complain and ultimately sue the CSD for not adhering to Proposition 218 requirements. Once in court, the courts have the authority to invalidate improperly implemented fees for failing to comply with the notice, protest, or hearing requirements of Proposition 218. A court may issue an injunction to stop the collection of improperly adopted rates or require the district to refund the money collected under those rates. Legal challenges could lead to significant costs for the CSD, including attorney fees, court costs, and potential damages.

These opinions, assessment, and recommendations are based on general knowledge of the Proposition 218 process and knowledge available at the time. GHD and this report do not provide any legal advice in relation to Proposition 218 or other legal requirements. GHD disclaims liability arising from any of the knowledge being incorrect. GHD would further request that legal consultation is sought for any additional information on potential repercussions from not fulling adhering to regulatory requirements.

4. Current water rate structure

The current rate structure in BLCSD relies on a hybrid rate system, meaning that all customers pay a fixed amount for water service and additional charges based on their actual consumption.

4.1 Existing rates

In 2023, the BLCSD approved its most recent water rate increase, raising the flat fee to $54.61 per month. This adjustment marked a 5% increase from the previous rate of $51.88 applicable since 2015 and reflected the district's efforts to address operational costs and maintain financial sustainability. BLCSD managed this rate adjustment internally[11].

The BLCSD Water Team started by carefully assessing the financial needs of BLCSD, taking into account rising expenses related to maintaining infrastructure, managing water delivery systems, and complying with regulations. After developing a proposal to increase rates, the utility aimed for transparency by alerting the public and inviting

[10] California Water Service. (n.d.); California Public Utilities Commission. (n.d.).
[11] GHD & BLCSD, 2024, November 11

community feedback. However, it is not clear if Residents and stakeholders were provided with 45 days' notice to participate in a public vote on the proposed rate change and the community was fully informed about their right to protest under Proposition 218, or any objections were raised. With approval secured, the new rate structure was put into effect.

4.2 Connection details

The BLCSD water system consists entirely of metered connections, with a total of 43 meters in use. These include 42 residential meters, accounting for 100% residential water usage, and one school meter that monitors water consumption usage for the Big Lagoon Elementary School, which currently accounts for 100% commercial water usage. From August 2023 to August 2024, the Big Lagoon Elementary School accounted for approximately 4.50% of the total water usage, while residential connections accounted for 95.50%[12,13].

5. Cost and revenue analysis

The cost and revenue section of the Study provides analysis on the financial health of the BLCSD. GHD examined financial documents including cash flow statements, profit and loss statement, operating expenses, assets, water fees, and income and expense reports. The financial performance of the BLCSD water system has exhibited notable fluctuations between 2021 and 2024, driven by various factors. Key contributors include generator expenses, installation of the new meters, increased expenses in maintenance and legal fees. The financial information for 2024 is estimated based on budget performance for the period between Jan 2024 and Oct 2024, hence 2024 performance is not included in selected sections of the expense analysis.

5.1 Gross profit, total expenses, and water fees

Gross profit is a critical financial metric that represents the revenue a business earns after subtracting the cost of goods sold. It provides insight into the profitability of core operations, excluding other expenses such as administrative costs, taxes, and interest.

In the context of water fees, gross profit analysis is particularly relevant for water suppliers and utilities as they balance operational costs, including infrastructure maintenance, treatment processes, and distribution, with revenue generated from customer water usage fees. Understanding gross profit in relation to water fees enables organizations to assess the efficiency and sustainability of their rate structures, ensuring they meet financial goals while maintaining affordability and accessibility for consumers.

Figure 1 presents the gross profit and total expenses from 2021 to 2024. The data indicate stable income and projected expenses; however, BLCSD's expenses exceeded its income in 2022 and 2023.

[12] BLCSD Water Consumption Data, 2024, November 12
[13] From September of 2023 to July of 2024, the elementary school used 65,509 gallons of water. From August 2023 to August 2024, the residential connections used 1,388,695 gallons on water.

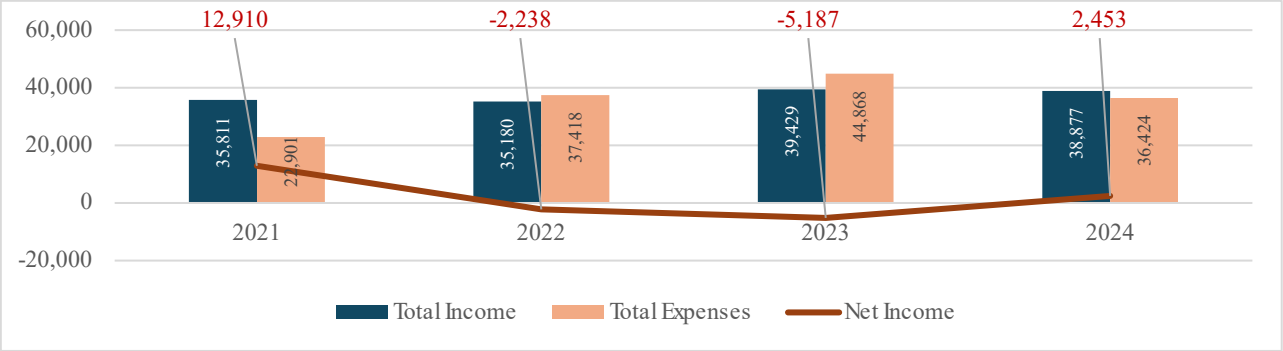

Figure 1 Gross profit and total expenses for 2021-2024.

The BLSCD's profit and loss statements for 2021-2024[14] show an increase in total income by 9%, indicating revenue and collection stability. From 2021-2024, total utility expenses increased by 59%. The utility purchased a new water meter system in 2022 for the amount of $29,442.33 and a new generator in 2023 for the amount of $29,034,00. These two purchases accounted for 79% of expenses in 2022 and 65% of expenses in 2023. Net income at the end of the calendar years of 2021, 2022, 2023, and 2024 were $12,910.38, $(2,237.64), $(5,187.06), and $2,453 respectively. This data suggests that the two primary expenditures are outlier investments in infrastructure and not a result of a systemic increase in overall expenses.

5.2 Net operating income and total expenses

Operating income and total expenses are key financial metrics often used to assess the profitability and efficiency of operations. Operating income is the revenue generated from the utilities operations after deducting operating expenses but before subtracting taxes, interest, or capital expenditures. Total expenses, on the other hand, represent the sum of all costs incurred to generate revenue, including both operating and non-operating expenses. This includes costs like salaries, utilities, maintenance, marketing, administrative costs, and depreciation or financing costs. Together, these metrics provide insight into BLCSD's financial performance and operational efficiency.

Figure 2 provides a visual look into the BLCSD's income streams from 2021 to 2023.

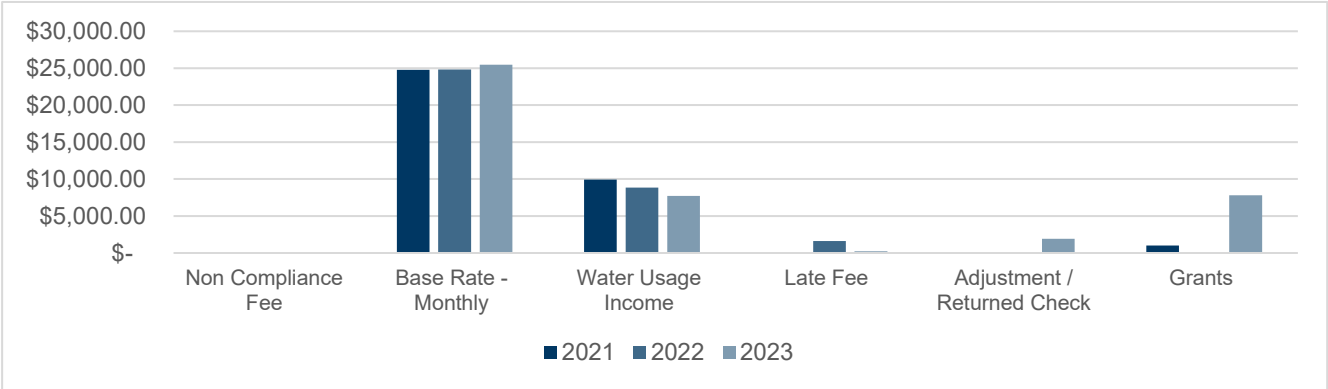

Figure 2 Operating income streams for 2021-2023.

The financial data indicates that the monthly base rate water fee is the most stable and significant revenue source, contributing $75,114.91 over three years, with a steady year-over-year increase. However, water usage income has been declining, dropping from $9,950.69 in 2021 to $7,716.07 in 2023, suggesting reduced consumption or efficiency improvements.

[14] Financial performance for 2024 is estimated based on Budget performance from Jan 2024 to Oct 2024

The non-compliance fee is minimal and has disappeared entirely by 2023, possibly due to improved compliance or reduced enforcement. Late fees were significant in 2022 ($1,621.92) but dropped sharply to $239.19 in 2023, indicating improved payment timeliness. Meanwhile, adjustment/returned check expenses have risen considerably, from $145.25 in 2022 to $1,913.22 in 2023, highlighting potential operational inefficiencies or user issues. Grants, while a valuable income source, are inconsistent, with a significant contribution of $7,800 in 2023 following no grants in 2022. Overall, the data reflects a reliance on the base rate for steady income, declining water usage revenue, and fluctuations in supplemental income and expenses, emphasizing the need for financial and operational adjustments.

5.3 Expense analysis

The data provided by BLCSD includes a detailed breakdown of expenses over three years, highlighting key areas of operational and non-cash costs. Depreciation expenses, categorized under non-cash expenses, totaled $9,460.00, with the bulk incurred in 2021 ($7,568.00) and a smaller amount in 2023 ($1,892.00).

Operational expenses amounted to $87,955.30 over three years, showing a significant increase year-over-year, from $15,332.73 in 2021 to $40,522.63 in 2023. Major contributors include Maintenance, which saw a peak of $18,245.66 in 2022 and accounted for $25,161.76 overall, and Insurance, totaling $13,166.79. Water meter expenses, entirely recorded in 2023, contributed $20,432.47, indicating a significant one-time investment. Other notable expenses include electric costs, totaling $8,570.66, and legal fees, which spiked in 2022 at $5,318.00 and reached $7,771.50 overall. Meanwhile, supplies costs declined steadily, from $1,722.05 in 2021 to $100.53 in 2023, and office supplies peaked in 2022 at $1,297.94. Additionally, training and regulatory expenses appeared sporadically, with the latter increasing to $1,171.00 in 2023. This trend appears to be consistent with the budget performance for the period Jan-Oct 2024.

The data reflects rising operational costs, particularly in maintenance, insurance, and legal areas, as well as significant investments in infrastructure like water meters, suggesting ongoing efforts to improve or expand operations[15].

For FY 2026, budgeted expenses are projected to rise by 100%, reaching approximately $105,000 compared to the prior range of $40,000–$45,000. This significant increase is primarily attributed to the addition of new part-time positions, including a General Manager and Water Operator, as well as the limited availability of volunteer resources. These higher expenses constitute a principal factor in the proposed rate adjustments discussed in subsequent sections of this report.

5.4 Cashflow analysis

The cashflow data reflects fluctuating financial performance over the four-year period, influenced by significant capital investments in 2022 and 2023.

In 2021, there was a positive net cash increase of $14,995.13, as the Cash at End of Period rose from $138,562.98 to $153,558.11. However, this trend reversed in 2022 and 2023, with notable cash outflows. In 2022, the utility purchased a meter system for $29,442.33, contributing to a net cash decrease of -$23,359.38 as cash reserves dropped to $130,198.73. Similarly, in 2023, a generator was acquired for $29,035.00, resulting in net cash decrease of -$30,030.73, reducing the cash balance further to $100,168.00. In 2024, the financial position began to recover with a net cash increase of $12,906.48, ending the year with $113,074.48. These capital investments in infrastructure highlight the utility's focus on operational improvements but also underscore the need to manage cash reserves carefully during high-expenditure periods. Balancing necessary upgrades with maintaining liquidity is critical to ensuring long-term financial stability[16].

Figure 3 below provides the cashflow analysis, showing the cash on hand at the beginning and ending of each year from 2021 to 2023.

[15] 2021-2024 Cash Profit and Loss Data; BLCSD 2021-2023 Balance Sheet Data; BLCSD 2021-2023 Budget and Performance Data
[16] 2021-2024 Cash Profit and Loss Data; BLCSD 2021-2023 Balance Sheet Data

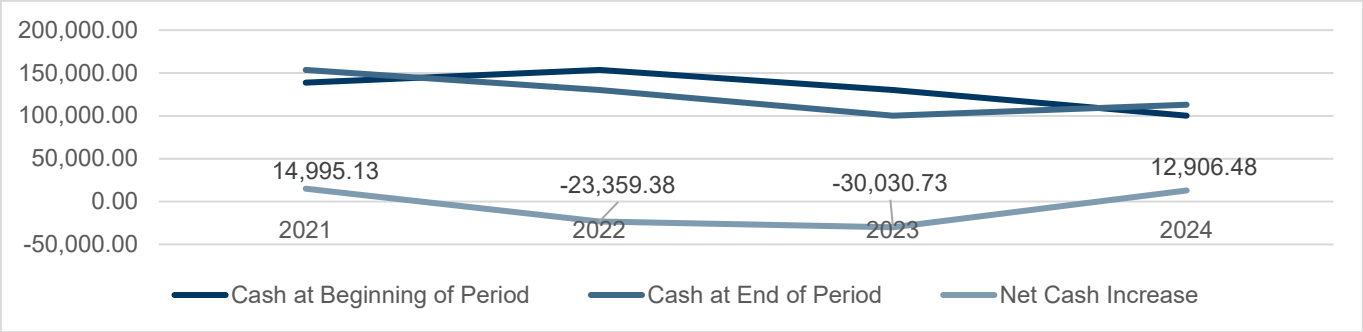

Figure 3 Cashflow analysis, cash on hand for 2021-2023.

6. Rate structure alternatives

GHD reviewed nine rate structure alternatives for BLCSD. The purpose of providing the comparison is to inform the association of water rate structure alternatives for consideration. These alternatives were adapted from the University of North Carolina's School of Government, Environmental Finance Center, which currently produces statewide water and wastewater rates across 12 states[17] and two 2018 studies from the California State Water Resource Board outlining water rate structures, and drought year water actions[18]. These alternatives include:

- **Flat rate:** A simple structure where customers pay the same fixed amount regardless of water usage.
- **Uniform rate:** Customers are charged a constant rate per unit of water consumed.
- **Metered rate:** Charges are based on actual water usage recorded by meters, ensuring that customers only pay for the water they use.
- **Tiered rate:** Rates increase with higher levels of consumption, encouraging conservation by charging more for excessive use.
- **Increasing block rate:** Similar to tiered rates, this structure charges progressively higher rates for each additional block of water consumed.
- **Declining block rate:** Charges decrease as water usage increases, typically used in contexts where high usage is encouraged or to benefit large-volume consumers.
- **Seasonal rate:** Rates vary depending on the time of year, reflecting changes in water availability and demand during different seasons.
- **Drought rate:** Implemented during periods of water scarcity, this structure imposes higher charges to discourage non-essential usage and manage limited resources effectively.
- **Water budget-based rate:** Each customer is assigned a customized water usage budget based on specific criteria (e.g., household size, landscape area), with rates increasing for usage beyond the allotted budget.

The following sections provide a comparison of the benefits and drawbacks of each outlined rate structure.

6.1 Flat rates

The flat rate structure is straightforward and easy to administer, making it appealing for both the utility and customers. It offers predictable revenue and is simple for customers to understand and budget for. However, the flat rate does not encourage water conservation, as customers pay the same amount regardless of usage. This structure may also fail to generate sufficient revenue to cover the full costs of operation, especially during periods of high demand.

[17] Irvin, 2016
[18] California State Water Board, 2018a and California State Water Board, 2018b

Additionally, it can be perceived as unfair because high and low water users are charged the same amount, regardless of their consumption levels[19].

6.2 Uniform rates

A uniform rate structure charges customers a constant rate per unit of water consumed, which promotes fairness by linking the cost to usage. This structure encourages water conservation by making customers more aware of their consumption, as they pay more if they use more water. The uniform rate's benefit is that revenue is proportionate to water use, which can be beneficial for the financial health of the utility. However, administering a uniform rate requires metering, which can add complexity. Additionally, consumers with higher water needs, such as large families, might face higher bills, which could lead to some community dissatisfaction[20].

6.3 Metered rates

Metered water rates are a pricing system where customers are charged based on the actual volume of water they use, as measured by a water meter. Under a metered system, the cost typically includes two components: a base fee to cover the fixed costs of maintaining the WS, and a variable fee that reflects the amount of water consumed. The variable portion is usually measured in units, such as gallons or cubic feet, with customers billed accordingly.

Metered rates promote water conservation by creating a direct financial incentive to use less water. Customers who are mindful of their water usage—such as by fixing leaks, installing low-flow fixtures, or watering gardens efficiently—can see lower bills.

This system is often viewed as more equitable than flat rates, as customers pay in proportion to their actual usage. However, implementing metered rates can involve significant upfront costs for installing and maintaining water meters, as well as ensuring accurate readings and billing. Despite these challenges, metered water rates are increasingly adopted worldwide as part of sustainable water management practices[21].

6.4 Tiered rates

A tiered rate structure encourages water conservation by charging higher rates for higher levels of consumption. This approach can protect low-usage customers by offering them lower rates. However, tiered rates are more complex to administer and communicate to customers. High-volume users may feel penalized, leading to potential dissatisfaction. Additionally, setting the correct thresholds for each tier can be challenging, as they must balance conservation goals with financial sustainability on the part of the user and the utility[22].

6.5 Increasing block rates

The increasing block rate structure is effective in promoting water conservation by charging progressively higher rates for each additional block of water consumed. The aim of this rate structure is that those who use more water pay more, which can help fund system improvements and conservation programs. However, this structure is complex to administer and communicate to customers, and it may be perceived as punitive by high-volume users, such as large families. Careful calibration of the meter, accurate tracking of water consumption, and additional analysis is required to avoid placing unintended financial burdens on users, which can lead to consumer dissatisfaction[23].

6.6 Decreasing block rates

The declining block rate structure is beneficial for large users, such as agricultural or industrial customers, by lowering costs as consumption increases. This can encourage economic development by reducing water costs for high-volume users and is relatively simple to implement for these customers. However, this structure discourages water

[19] California State Water Board, 2018a; Irvin, 2016
[20] California State Water Board, 2018a; Irvin, 2016
[21] Boyle, T., Giurco, D., Mukheibir, P., Liu, A., Moy, C., White, S., & Stewart, R.,2013
[22] California State Water Board, 2018a; Irvin, 2016
[23] California State Water Board, 2018a; Irvin, 2016

conservation by rewarding higher usage, which may conflict with community conservation goals. Additionally, it can be perceived as inequitable, as low-volume users may end up paying more per unit of water than high-volume users, which could lead to dissatisfaction[24].

6.7 Seasonal rate

A seasonal rate structure aligns pricing with the availability and demand for water throughout the year, encouraging conservation during peak periods when water is scarce. This can help manage supply constraints during droughts or high-demand seasons, incentivizing users to reduce consumption during critical times. However, the seasonal rate is more complex to administer as the variables that impact the rate can repeated shift due to ever-changing environmental conditions. The seasonal rate can often lead to fluctuating bills throughout the year. This may also cause frustration among customers who prefer predictable costs, and it may not provide consistent revenue if usage drops significantly during higher-rate periods[25].

6.8 Drought rate

The drought rate structure is highly effective in reducing water usage during periods of water scarcity. By imposing higher charges during drought conditions, it discourages non-essential water use and helps manage limited resources effectively. This rate can be implemented as a temporary measure to address immediate water scarcity challenges, raising awareness of the need for conservation. However, the sudden imposition of higher rates may cause financial hardship for customers, leading to significant pushback or dissatisfaction. Successful implementation requires clear communication and public engagement to inform customers for the need for such measures. The drought rate structure is only meant to be used temporarily during times of emergency or extreme conditions[26].

6.9 Water-based budget rate

The water budget-based rate structure is customizable to each household's specific needs, which promotes fairness by considering factors like household size and landscape area. This structure encourages efficient water use by setting a tailored budget for each customer, with rates increasing if the allotted budget is exceeded. It also allows for the incorporation of environmental and social equity considerations into rate setting. However, this approach is complex to administer, requiring detailed data collection and ongoing management, which can lead to high administrative costs. Customers may also find it difficult to understand and track their water budget, which could lead to confusion and dissatisfaction[27].

7. Water rate analysis

BLCSD charged a combination of fixed monthly charges and consumption fee to its 40 connections from 2000 until 2023, when three more connections were added, generating an annual operating revenue in the range of $35,000-$39,000 between 2021 and 2023. These revenues were allocated to cover expenses such as licenses, permits, labor, maintenance, repairs, utilities, and WS management.

As part of this Study, the fee was assessed on three parameters focusing on sustainability of the organization to meet its operational requirements and affordability for the end users. The parameters covered for this assessment are as follows:

1. **Cost recovery**: The cost recovery ratio measures the alignment of revenues with operating expenses. Between 2021 and 2024, the cost recovery on operating income (revenue vs. expenses) was positive (>1) for most years, averaging 1.05. Key statistics from the analysis show that between 2021 and 2024, the BLCSD had an average

[24] California State Water Board, 2018a; Irvin, 2016
[25] California State Water Board, 2018a; Irvin, 2016
[26] California State Water Board, 2018a; California State Water Board, 2018b Irvin, 2016
[27] California State Water Board, 2018; Irvin, 2016

revenue collection rate of 86% and an average cost recovery rate of 1.16, suggesting a profitable operational status. The cost recovery further increases to 1.53 if capital expenses for installation of meters are not considered in the operational expenses indicating healthy and financially sustainable operations.

Table 1 Cost Recovery data 2021-2024

Year	2021	2022	2023	2024
Invoicing	$ 39,864	$ 38,759	$ 39,125	NA
Operating Income	$ 34,811	$35,180	$ 31,629	$38,877
Operating expenses	$ 15,333	$ 37,418	$42,976	$38,224
Collection Rate	87%	91%	81%	NA
Cost Recovery	2.27	0.94	0.74	1.02

2. **Median household income (MHI):** Affordability was assessed using water costs as a percentage of the MHI. The flat rate of $51.88 and 54.61 per month accounted for 1.49% and 1.56% of the local annual MHI at $41,806 in 2021-22 and 2023 respectively. These rates are below affordability thresholds established by the EPA (4.5%) and the United Nations (5%). The rates are also aligned with rural water affordability benchmarks (1.92%) of the State of California.
3. **Cash on hand:** This ratio measures the number of days that an organization can continue paying its operating expenses with the amount of cash currently available. Based on review of major US based water companies, average cash on hand was noted to be in the range of 150-190 days. This study suggests that BLCSD's cash on hand dropped from 463 days in 2021 to 95 days in 2023 due to major repair and water meter expenses. However, BLCSD recovered back to a healthy cash on hand of 655 days in 2024. Table 2 presents the BLCSD data from 2021 to 2024.

Table 2 Cash on Hand data 2021-2023

Year	2021	2022	2023	2024
Cash Balance	$19,478.38	$17,240.74	$5,893.22	$28,108.64
Cash on Hand	463	168	95	655

8. Recommended rate structure

Transitioning from a flat rate for all consumption structure to a tiered meter rate structure offers the BLCSD a more sustainable, equitable, and conservation-focused approach to water billing. The recommended structure divides water usage into tiers, with progressively higher rates charged as consumption increases. This incentivizes conservation while ensuring affordability for basic water needs. The tiered rate structure enhances financial viability for the utility while promoting equity among customers. Low-volume users, such as seniors or small households, benefit from affordable rates in the lower tiers, while higher-tier rates generate additional revenue from heavy water users. This approach promotes fairness and encourages conservation by making wasteful usage more expensive. At the same time, the fixed base fee guarantees a steady revenue stream to cover non-variable costs, creating a balanced and reliable financial model.

8.1 Implementation plan

BLCSD should consider implementing a comprehensive metered tiered system plan. Below is an example of an implementation plan that is designed to collect and monitor water consumption data and engage the community for transparency and trust.

Start Date: TBD (Based on BLCSD timeline)
The timeline would start when the BLCSD is ready for the rate change.

8.1.1 Short-term: Data collection and monitoring (months 1-3)

Short term data collection and reconciliation of the date from past years will be needed to better understand water usage trends and align the implementation plan with an appropriate metered rate structure.

- Gather and analyze consumption data: Begin by reconciling and analysing the water usage data from the installed meters over last three to five years. Establish baseline consumption patterns to inform future rate structures.
- Conduct operational impact assessment: Analyze how the metered system affects operational costs and align this with financial planning.
- System efficiency evaluation: Monitor water usage trends to identify inefficiencies, leaks, or irregular consumption patterns that may require additional maintenance or upgrades.
- Compliance: Prepare for the required notification and public hearing processes, as prescribed by Proposition 218, for presenting rate adjustments to property owners. Public notices are sent 45 days in advance of any hearing.
- Develop stakeholder alignment: Engage with any regulatory agencies, to align processes to meet regulatory standards.

8.1.2 Medium-term: Community engagement (months 4-9)

Conduct any or all of the following items associated with community engagement, based on the initial feedback from the community.

- **Execute educational campaigns**: Host community workshops, town hall meetings, and informational sessions to explain the benefits of the proposed rate structure options, and conservation incentives.
- **Establish feedback mechanisms**: Establish open channels for residents to voice concerns or provide feedback, such as surveys, suggestion boxes, or a dedicated online portal.
- **Increase transparency efforts**: Share consumption data trends and progress on meeting regulatory goals to build trust and encourage community buy-in.

8.1.3 Long-term: Revenue recovery strategy (months 6-12)

- **Create rate adjustment proposal**: Based on consumption data and cost-of-service studies, develop and present a tiered-rate structure or other appropriate rate options that align with community needs and operational sustainability. An example is provided below as a base but needed to be updated based on the water use data. While the below example is based on the water consumption and billing data for the period between 2015 and 2025, it is recommended that BLCSD analyse the data since installation of the water meters for annual and seasonal trends to determine the appropriate tier structure and charges.
- **Outline implementation plan**: Outline a phased approach for implementing new rates, including clear timelines and transition strategies to ease the financial burden on customers. These steps can be revised as part of the updated implementation plan

- **Post-Timeline (Ongoing Monitoring):** After the initial six months, BLCSD will continue to monitor performance metrics, gather feedback, and prepare for the first annual review. Adjustments will be made as necessary to monitor that the program meets financial and operational goals while promoting water conservation effectively.

9. Metered tiered rate recommendation

The following is an example of a hybrid tiered rate structure with a fixed monthly fee and usage-based fee billed in alternate months. The recommended rate structure is aligned with the following factors considered for this analysis:

i. Water consumption data for the period of 11 years between 2015 and 2025.

ii. expenses for FY 2026, based on the Board adopted budget of $101,808 and

iii. expenses for 2027-2030, estimated based on an annual rise of 4% aligned to inflation.

The fixed monthly fee is estimated to cover 70% of the expenses and the usage-based fee will account for remaining 30%. This will help in providing a consistent source of income for operation of the system. Considering the usage pattern of residential users and elementary school, the below example will hold good for all the users.

1. **Base Charge:**

   Fixed Monthly Service Fee: $120.00 per month (for residential users)

   Fixed Monthly Service Fee: $325.00 per month (for commercial users)

   - This charge covers essential operational, maintenance, and administrative costs of the WS, and allocates resources so that basic system expenses are met regardless of usage. It guarantees a minimum contribution toward the system's ongoing costs.

2. **Usage Charge:**

   Variable Monthly Charge**:** Fee based on water consumption

   - The usage charge applies for a baseline basic water need in tier 1 for water used up to a threshold, which is based on household water consumption (measured in gallons per month) for the consumers over a period of 11 years between 2015 and 2025. The first-tier locks-in rates so that even the lowest residential users reach the $120minimum bill, while higher consumption results in progressively higher costs to commensurate with the additional expenses. Table 3 provides an example of three tiers of water rate usage and corresponding price-per-gallon rates ranked from least to greatest. The water consumption of these Tiers is based on the reported water consumption by BLCSD customers during 2024.

Table 3 Example of Tiered Meter Rates showing four tiers of water rate usage, and corresponding price-per-gallon rates ranked from least to greatest.

Tier	Water Usage (Gallons/Billing Cycle)	Rate	Rationale
Tier 1: Basic Water Needs	0 – 10,000 gallons	$ 25.00 per 1000 gallons used	For Small and moderate households who use any water in the month will reach the $120 minimum bill when combined with the base fee.
Tier 2: Larger Water Users	10,001+ gallons	$ 40.00 per 1,000 gallons used	Higher rates to discourage disproportionally higher water use.

3. **Seasonal Rate Adjustment:**

   Summer Surcharge: An additional $1.00 per 1,000 gallons for usage in June, July, and August. This surcharge helps manage demand during peak summer months and promotes conservation when water resources are more limited.

4. **Drought Rate Adjustment**

Drought Rates are similar to seasonal rates but instead of applying higher rates during an entire time period, they adjust rates based on the local area's drought level, as defined by EPA and the local Water Boards. Higher levels of drought result in higher prices for water in order to encourage conservation.

Table 4 Drought Rates based on drought stages.

#	Stage of Drought	Surcharge per 1000 gallon	
		Tier 1	Tier 2
1	No drought	$ 0.00	$ 0.00
2	Stage 1	$1.00	$1.21
3	Stage 2	$2.00	$2.42
4	Stage 3	$3.00	$3.63
5	Stage 4	$4.00	$4.84
6	Stage 5	$5.00	$6.05

5. **Conservation Incentive:**

In order to encourage the consumers for water conservation, an incentive bonus of $10.00 will be provided to the consumers with monthly consumption below 2000 gallons per 2-month billing cycle.

6. **Example Semi-Monthly Bill Scenarios:**

Basic Water Needs (<10,000gallons):

- Usage: 7,500 gallons
- Base Charge: $120.00 per month = $240.00
- Usage Charge: $25 for every 1000 gallon for 7,500 gallons = $ 187.50
- Total Bi-Monthly Bill: $ 427.50

Larger Water Users (>10,000 gallons):

- Usage: 12,000 gallons
- Base Charge: $120.00 per month = $240.00
- Usage Charge: 12,000 gallons at tiered rates:
  - Tier 1 Charges of $25 for every 1000 gallon for the first 10,000 gallons used = $250
  - Tier 2 2,000 gallons at $40 for every 1000 gallons over first 10,000 gallons = $80
- Total Bi-Monthly Bill: $570.00

7. **Affordability Considerations:**

- Low-income assistance: A discount or rebate on the base charge could be offered to qualifying low-income households, if feasible, so the monthly fixed fee of $120.00 is collected consistently and additionally it does not impose undue financial hardship
- Conservation incentives: Households that consistently use less water can still benefit by keeping their total costs near the minimum bill, while larger users are incentivized to conserve.

8. **Transition Plan:**

- Education and awareness: Before the metered rate system is implemented, residents will receive clear communication about the new structure, including how to monitor water usage, tips for reducing consumption, and detailed billing examples.

- Trial period: During the first two-months billing cycle after installation, residents may receive mock bills showing their water usage and how it would translate into costs, allowing them time to adjust their habits before the new rates are enforced.

This metered rate structure example maintains a minimum bill of $120.00 per month along with conservation incentive might encourage water conservation through tiered usage rates. The combination of a fixed base charge and variable consumption charges allow for a fairer and more sustainable billing system that reflects actual water usage, promotes responsible consumption, and supports the long-term viability of the water system.

10. Conclusion

The BLCSD appears to have steady operations to maintain a sustainable and equitable WS, with exception to the concerns emerging from its aging infrastructure and manpower planning. The current hybrid fee structure, while straightforward, does not incentivize water conservation, and risks regulatory non-compliance. The planned transition to a new tiered rate system represents a critical opportunity to promote fairness, encourage responsible water use, and improve long-term financial stability.

The proposed 6-to-12-month implementation plan, coupled with the adoption of a tiered rate structure, provides a path forward supported by adoption and evaluation of the water usage data. By reconciling, collecting (as required) and analyzing water consumption data, maintaining community engagement, and ensuring regulatory compliance, BLCSD can implement the system driven by a sense of collective responsibility towards water conservation with its residents. Additionally, addressing affordability concerns through targeted assistance programs, if feasible, will help select residents to continue with their water needs and expenses by adopting judicious usage.

While BLCSD does not currently plan to increase water rates, GHD recommends that any future rate adjustments follow the frameworks outlined by Proposition 218 and California Government Code or CSDs (§61100).

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