

FINAL REPORT
FEBRUARY 2024

Water Rate Study



Prepared for:

Honolulu Board of Water Supply



Contents

1.0 Introduction	1-1
1.1 Purpose.....	1-1
1.2 Methodology	1-2
1.3 Foundations of the BWS’s Rate Planning Process	1-3
1.3.1 Vision.....	1-3
1.3.2 Mission.....	1-4
1.3.3 Water Master Plan	1-5
1.3.4 Capital Improvement Program	1-5
1.3.5 Long Range Financial Plan.....	1-6
1.3.6 Strategic Plan	1-6
1.4 Engaging the Public	1-7
1.4.1 Stakeholder Advisory Group Process.....	1-8
1.4.2 Outreach and Communications	1-9
1.5 Roles and Responsibilities of the Board	1-10
2.0 Financial Plan for Water Rate Setting Period	2-1
2.1 Key Findings.....	2-2
2.2 Projected Revenues Under Approved FY 2023 Rates.....	2-2
2.2.1 Customer Classes	2-3
2.2.2 Rate Schedule, FY 2023.....	2-4
2.2.3 Historical and Projected Number of Water Bills.....	2-8
2.2.4 Historical and Projected Billed Water Usage	2-8
2.2.5 Water Sales Revenue Under Previously Approved Rates Through FY 2023	2-9
2.2.6 Other Sources of Revenue	2-10
2.2.7 Total Projected Revenue Under Previously Approved Rates.....	2-11
2.3 Revenue Requirements	2-12
2.3.1 Operation and Maintenance Expense	2-12
2.3.2 Capital Improvement Program and Funding	2-13
2.3.3 Debt Service Requirements	2-16
2.3.4 Working Capital.....	2-17
2.3.5 Revenue Requirements Summary	2-17
2.3.6 Cashflow Summary	2-18
3.0 Cost of Service Allocations	3-1
3.1 Key Findings.....	3-2
3.2 Peaking Factors.....	3-3
3.2.1 Pressure Zone Evaluation – Wahiawa 1361.....	3-3
3.2.2 Pressure Zone Evaluation – Waialae Iki 1080	3-5

3.2.3 Pressure Zone Evaluation – Aliamanu 385 3-7

3.2.4 Pressure Zone Evaluation – Summary 3-9

3.3 Consumption by Customer Class 3-9

3.4 Water Usage Patterns 3-10

4.0 Proposed Water Rate Adjustments 4-1

4.1 Proposed Water Rate Adjustments 4-1

4.1.1 Customer Charge 4-2

4.1.2 Quantity Charge 4-2

4.1.3 Fire Meter Standby Charge 4-4

4.1.4 Other Charges, Services and Waivers 4-4

4.2 Proposed Rates - Cost of Service Allocations 4-5

4.3 Typical Bills 4-6

4.3.1 BWS Customers 4-6

4.3.2 Comparison to Other Utilities 4-10

4.4 Public Input on Draft Rate Proposal and Board Approval 4-11

5.0 Conclusion 5-1

6.0 Acknowledgments 6-1

Figures

Figure 1-1: Primary Steps of Rate Making 1-2

Figure 1-2: Iterative Rate Making Process 1-3

Figure 1-3: BWS Plans and Programs 1-5

Figure 2-1: Impact of Deferring 2024 Increases 2-18

Figure 3-1: Peaking Factors, Wahiawa 1361 - 2013 and 2021 3-4

Figure 3-2: Peaking Factors, Waialae Iki - 2013 and 2021 3-6

Figure 3-3: Peaking Factors, Aliamanu 385 - 2013 and 2021 3-8

Figure 3-4: Percent of Total Monthly Consumption by Customer Class 3-9

Figure 3-5: Single-Family Residential Water Usage Pattern, FY 2015, FY 2016, FY 2022 3-11

Figure 4-1: Impact of Rate Increases to Ending Balance 4-2

Figure 4-2: Typical Bill Comparison Single-Family Customer Class 4-6

Figure 4-3: Typical Bill Comparison Small Multi-Unit Customers, 3/4", 3 du 4-7

Figure 4-4: Typical Bill Comparison Multi-Unit Low Rise 4-8

Figure 4-5: Typical Bill Comparison Multi-Unit High Rise 4-8

Figure 4-6: Typical Bill Comparison Agricultural 4-10

Tables

Table 1-1: BWS Strategic Plan Goals and Objectives	1-7
Table 1-2: Stakeholder Advisory Group Meetings and Topics.....	1-9
Table 2-1: Summary of Financial Policies.....	2-1
Table 2-2: Customer Charge Rate Schedule, FY 2023	2-4
Table 2-3: Quantity Charge Rate Schedule, FY 2023.....	2-5
Table 2-4: Quantity Charge for Single-Family Customer, 6 k-gal/month, FY 2023	2-6
Table 2-5: Quantity Charge for Single-Family Customer, 35 k-gal/month, FY 2023	2-6
Table 2-6: Fire Meter Standby Charge Rate Schedule, FY 2023	2-7
Table 2-7: Historical and Projected Number of Bills, Annual.....	2-8
Table 2-8: Historical and Projected Annual Usage, mg.....	2-9
Table 2-9: Historical & Projected Water Sales Revenue Under Existing Rates, \$M	2-10
Table 2-10: Historical and Projected Miscellaneous Revenue, \$M	2-11
Table 2-11: Estimated Revenues, \$M	2-11
Table 2-12: Annual O&M Inflation Factors	2-12
Table 2-13: Adjusted Projected O&M, \$M.....	2-13
Table 2-14: Budgeted and Proposed Capital Improvement Program, \$M	2-14
Table 2-15: Projected Capital Sources and Uses of Funds, \$M.....	2-15
Table 2-16: Existing Debt Service Through FY 2029, \$M	2-16
Table 2-17: Projected New Debt Service Through FY 2029, \$M.....	2-17
Table 2-18: Projected Revenue Requirements, \$M.....	2-17
Table 2-19: Cashflow Summary	2-19
Table 3-1: Implemented Cost of Service Recommendation, 2018	3-3
Table 3-2: Peaking Factors, Wahiawa 1361 - 2013 and 2021	3-4
Table 3-3: Peaking Factors, Waialae Iki 1080 - 2013 and 2021	3-5
Table 3-4: Peaking Factors, Aliamanu - 2013 and 2021.....	3-7
Table 3-5: Peaking Factors, Summary of Pressure Zones Evaluated - 2013 and 2021	3-9
Table 4-1: Proposed Customer Charges and Effective Date	4-2
Table 4-2: Proposed Quantity Charges by Customer Class.....	4-3
Table 4-3: Proposed Fire Meter Standby Charge.....	4-4
Table 4-4: Implemented Cost of Service Recommendation, 2018	4-6
Table 4-5: Monthly Bill Change, Single-Family Sample Customers.....	4-7
Table 4-6: Monthly Bill Change, Multi-Unit Sample Customers	4-9
Table 4-7: Monthly Bill Change, Non-Residential Sample Customers	4-9
Table 4-8: Monthly Bill Change, Agricultural Sample Customers	4-10

Appendices

Appendix A Board Resolution Adopting Rates



1.0 Introduction

The City and County of Honolulu Board of Water Supply (BWS) is committed to providing the people of O’ahu with safe, dependable, and affordable water now and into the future. To meet this commitment, the BWS incurs annual costs to operate, maintain, repair, replace, expand, and upgrade the water system. To pay for these costs, the BWS must generate its own revenue through charges for services rendered. Water rates, which account for the majority of revenue, were last adjusted on July 1, 2022 as part of a multi-year rate increase strategy adopted in 2018. This report documents the process for updating the water rates.

The BWS is a semi-autonomous agency that provides approximately 145 million gallons per day (mgd) of potable water and 10 mgd of non-potable water to roughly one million people in the City and County of Honolulu (City) on O’ahu. The municipal potable water system provides dependable service through a complex system of 2,100 miles of pipe, 386 source and booster pumps, 212 water sources (wells, tunnels, and shafts), and 172 water storage reservoirs. The BWS provides non-potable water for irrigation and industrial uses through a water recycling facility and several separate brackish water sources. Groundwater currently is the only source for the BWS potable water supply, coming from rainfall over our watershed that is naturally filtered through volcanic rock and resides in aquifers that are more resilient during periods of drought. However, climate change creates uncertainty in how rainfall amounts may change over time. The BWS is planning to construct a seawater desalination facility (Kalaeloa Sea Water Desalination Facility) which will provide an additional 1.7 mgd capacity not subject to changes in rainfall. The BWS water system delivers high quality water at sufficient quantities to provide for the health and safety of the community and has built-in redundancies and resiliency.

1.1 Purpose

The purposes of this report are:

- to examine the future revenues of the water utility under existing rates, the BWS’s total operating expense and capital financing requirements, and the adequacy of projected revenues to meet the BWS’s total requirements;
- to evaluate the appropriateness of the current allocation of BWS’s net revenue requirements (revenues to be generated by rates; i.e., all expenses less non-rate and/or non-operating revenues), or costs of service by evaluating changes in water demand characteristics, considering the potential impacts of COVID on water demand characteristics, and conservation resulting from Red Hill issues;
- to develop a suitable Schedule of Water Rates and Charges that will generate revenues adequate to meet the financial needs of the BWS on a basis that recognizes customer costs of service and BWS policy considerations.

The BWS operates on a fiscal year (FY) starting July 1. This report covers the six-year period of July 1, 2023 (FY 2024) through June 30, 2029 (FY 2029).

1.2 Methodology

This study followed American Water Works Association (AWWA) M1: Principles of Water Rates, Fees and Charges, 7th edition guidelines, best fitting the data available from the BWS. The AWWA is an international scientific and educational association founded in 1881 to improve water quality and supply. This report presents the results of a detailed study of projected revenue requirements, demand characteristics, and proposed rates for water service. Revenues and revenue requirements are projected for the study period of FY 2024 – FY 2029. The study of revenue requirements recognizes projected operation and maintenance expense, capital improvement requirements met from revenues, principal and interest payments on existing and projected bond issues and borrowings, as well as other system obligations, debt service coverage, and working capital requirements.

Allocated costs of water service were developed in 2018 for each class of customer and type of service based on considerations of the BWS’s revenue needs and projected customer service requirements. Water rate adjustments are designed for customers in accordance with allocated costs of service and BWS policy and administrative considerations. This study provides a comparison of the water demand characteristics by customer class at the time of the previous study relative to current demand characteristics, to assess whether the current cost of service allocations are appropriate. Given the trends in water demand since the prior study and considering the potential impacts of COVID and conservation measures in response to Red Hill issues, the existing cost of service allocations have not been revised. The results of this evaluation are to update the rates required to meet the BWS’s projected revenue requirements using the cost of service allocations developed in 2018. The rate making process can include three steps as shown in Figure 1-1: determining revenue requirements from a financial plan or cashflow projection, costs of service, and rate setting. Sometimes a utility already has a cashflow projection and the rate setting process focuses on costs of service and rate setting. Sometimes the focus is solely on rate setting from the known cashflow projection. For the BWS, the rate setting process rigorously stepped through all three components within a paradigm of strong public engagement, utilizing BWS’s previous rate setting process, including the cost of service allocations, as the initial framework.

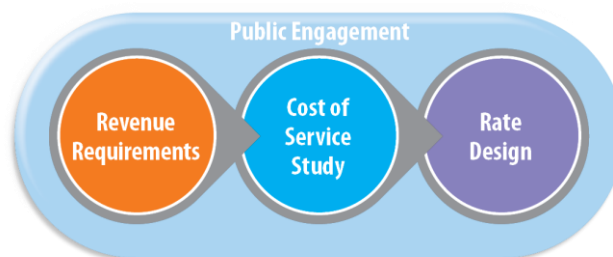


Figure 1-1: Primary Steps of Rate Making

The rate design process can vary between a simple process or an iterative process, soliciting feedback from internal and external stakeholders. The rate design process for the BWS, as shown in Figure 1-2, is an interactive and iterative process. Major steps in the process are shown, with the dates when those steps occurred.

Results of Stakeholder Advisory Group key values set the initial trend for designing rates. Recommended Board guidance based on those initial rate designs was used to further refine the proposed rates. Additional feedback was solicited from the Stakeholder Advisory Group, Commercial Stakeholder Advisory Group, Permitted Interaction Group, and the public, leading to the final review and acceptance of the proposed rates by the Board on November 27, 2023. These steps are described in detail in this report. The Board Resolution adopting the rates is included in Appendix A.

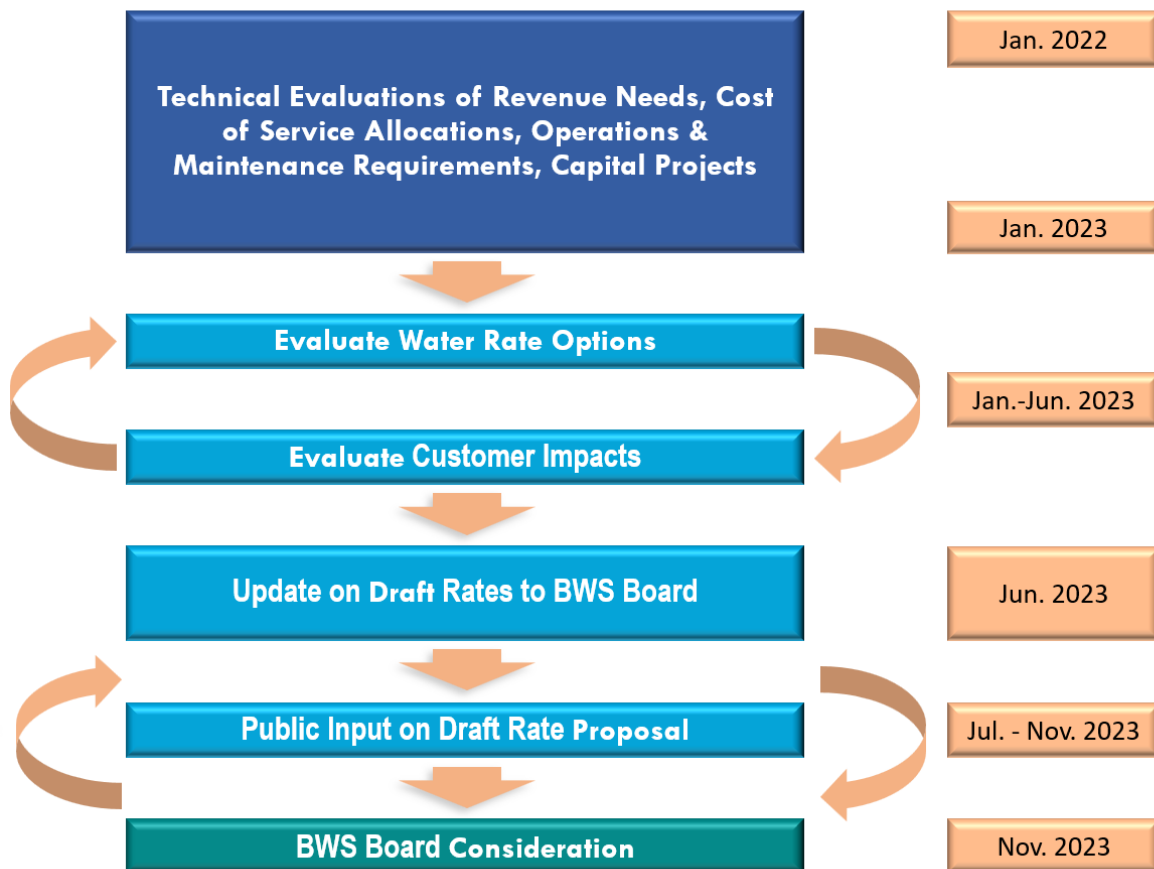


Figure 1-2: Iterative Rate Making Process

1.3 Foundations of the BWS's Rate Planning Process

1.3.1 Vision

The BWS's vision is Ka Wai Ola, Water for Life. This vision, the motivating force behind the BWS's planning policies and actions, captures the critical need for water – that water is the basis for life. With this vision comes the responsibility of the BWS's stewardship of, and the duty to manage, our natural water resources for both present and future generations. The ancient Hawaiians valued water as one of nature's greatest gifts and they lived in harmony with water. Land divisions (ahupua'a) mirrored the natural ecosystem – land was divided according to watershed boundaries, spanning from the mountain tops through upland forests to flatlands and the shore. Formal rules governed the use of water and

regulations were established and enforced in order to cultivate the resources in each ahupua‘a, to conserve as much as possible to lower the stress on the resources, and to ensure that a pure supply was available to everyone whether they lived in the mountains or close to the sea.

1.3.2 Mission

In Hawaii, water is a public trust resource and the BWS serves its customers with this trust in mind. The mission of the BWS is to provide safe, dependable, and affordable water now and into the future.

Safe addresses the multiple areas of individual and community needs. Water must meet all statutory and regulatory compliance standards in providing water for consumption and other uses. Water must provide for public health and safety such as firefighting and sanitation needs.

Dependable relies upon three factors:

- Sources of water must be sufficient and available now and into the future. The BWS ensures this through management of the watershed and groundwater supply, long range planning, and possible development of alternative sources of water.
- A water system that is designed, constructed, and operated with redundancy that continues delivery of water even with disruptions in parts of the system.
- Employees of the BWS who are committed to providing their customers with high quality water and excellent service.

Affordable water delivery is primary. The BWS establishes programs for efficiency in water use through conservation, infrastructure installation, and water system operations and maintenance. The BWS continually implements changes to its systems to deliver water at the most responsible cost to the customer.

To meet this mission, a variety of initiatives are either underway or have been completed. Among them are the Water Master Plan, development of Watershed Management Plans, the Water Conservation Plan, the Energy Savings Program, the Long-Range Financial Plan, and the latest update to the Strategic Plan, as depicted in Figure 1-3. The Capital Improvement Program is derived from the recommendations in the Water Master Plan. These various plans and initiatives are periodically updated, and an update of the Water Master Plan is schedule to begin in 2024.



Figure 1-3: BWS Plans and Programs

1.3.3 Water Master Plan

To continue to efficiently and effectively fulfill this important mission, in 2016 the BWS engaged in a rigorous three-year process to develop the Water Master Plan. The work effort integrated multiple elements in formulating the plan recommendations, including consistency with watershed management plans and development of strategies to ensure long-term sustainability in the face of growth, climate change, and other challenges. The analysis included performing a thorough condition assessment of the BWS infrastructure, developing hydraulic models for the entire BWS system, performing hydraulic evaluations of the water systems, and assessing necessary system improvements. The Water Master Plan provides the basis for identifying and prioritizing capital projects and a sustainable financial program. The Board adopted the Water Master Plan by resolution in October 2016¹ “institutionalizing its findings and direction and embedding them into the organization, institutionalizing its guidance for decades to come.” The Board further resolved that the BWS proceed with implementing the Water Master Plan and empowered the Manager with flexibility for non-substantive adjustments. The Board requires that the Manager annually report any updates to the Water Master Plan, as well as the Health of the Water System Scorecard. An update of the Water Master Plan is schedule to begin in 2024.

1.3.4 Capital Improvement Program

The Capital Improvement Program was developed to put the Water Master Plan into action. The program provides an engineering-based strategy for when specific water infrastructure projects should be implemented and prioritizes renewal and replacement of portions of the water system based on risk. BWS regularly reviews the capital plan and develops a 6-year capital plan on an annual basis.

¹ BWS. 2016 Water Master Plan. Available at: <https://www.boardofwatersupply.com/water-resources/water-master-plan>. October 2016.

1.3.5 Long Range Financial Plan

The Long-Range Financial Plan was developed to support the recommendations from the Water Master Plan, the Infrastructure Investment Plan and Operating Budgets. It includes two planning horizons – short term and long term. Short term refers to the current budget year plus planning years 1-10, at the time of development covering the period of FY 2018 – FY 2028. Long term refers to the subsequent period of FY 2029 – FY 2047. A ten-year financial model was developed for the short-term period. Qualitative analyses of various planning scenarios were applied for the long-term period to help evaluate uncertainties, identify strategies, inform customers and other stakeholders, and guide decision-makers as they continue to plan for O’ahu’s water future. The Board adopted the Long Range Financial Plan in March 2018². The Long Range Financial Plan was updated in 2021 in part to assess the potential impact of COVID on revenue sufficiency.

1.3.6 Strategic Plan

The Strategic Plan is a mechanism for the BWS to develop and apply near-term implementation actions based on the longer-term planning documents (e.g., the Water Master Plan). The BWS updated its 5-year Strategic Plan³ for 2023 through 2027 and the Board adopted the plan in January 2022. The Strategic Plan provides an internal and external perspective of the commitment of the BWS employees to deliver its mission by focusing on three strategic goals – resource, operational, and financial sustainability. These three strategic goals are interrelated and coordinated with the three main points of the BWS’s mission.

Resource Sustainability

Protect, conserve, and manage O’ahu’s water supplies and watersheds now and into the future through adaptive and integrated strategies.

Operational Sustainability

Build an effective organization that continuously works to provide dependable water service.

Financial Sustainability

Implement sound fiscal strategies to provide safe, dependable, and affordable water service.

For each goal, the Strategic Plan established the specific objectives presented in Table 1-1, each of which is relevant to and is informed by the Water Master Plan.

² Board minutes. March 27, 2018. Resolution No. 886, 2018.

³ BWS. Strategic Plan 2023 – 2027. Available at: <https://www.boardofwatersupply.com/strategicplan>. January 2022.

Table 1-1: BWS Strategic Plan Goals and Objectives

Sustainability Goals	Category	Strategic Objectives	Water Master Plan Objective
Resource Sustainability	Resource Sustainability	We will continuously adapt and implement resilient and sustainable solutions to mitigate climate and environmental changes to protect and manage O’ahu’s water resources and watersheds.	Water Resources Sustainability
	Water Quality	We will protect, preserve, and ensure the safety and quality of O’ahu’s water resources extending for at least seven generations.	Water Quality, Health and Safety
	Water Conservation	We will conserve O’ahu’s water resources, supply, and system capacity by reducing per capita demand and increasing water efficiency.	Water Conservation
	Resource Advocacy	We will lead, promote, and sustain partnerships with stakeholders to advocate and support community-driven initiatives to protect O’ahu’s water resources and watersheds.	Water Resources Sustainability
Operational Sustainability	Organizational Resiliency	We will ensure the necessary workforce, competencies, tools, and resources to support current and future needs.	All Water Master Plan Objectives
	Infrastructure	We will proactively assess and address water system risks and vulnerabilities to ensure water system adequacy, dependable service, and operational efficiency.	System Reliability and Adequacy
	Customer Service	We will consistently provide dependable service and a quality experience in every customer interaction.	Cost and Affordability
	Technology	We will ensure that our technology systems are current, secure, and leveraged to effectively support current and future BWS needs.	System Reliability and Adequacy;
	Strengthen Operational Partnerships	We will proactively collaborate with external government and community decision-makers and stakeholders to ensure that there is a holistic approach to critical environmental and social issues; and in so doing, reinforce the utility as a valued and trustworthy partner.	All Water Master Plan Objectives
Financial Sustainability	Financial Opportunities	We will strategically pursue and leverage financial opportunities.	Cost and Affordability
	Financial Planning	We will develop and implement short-, mid- and long-term financial plans and policies.	Cost and Affordability
	Financial Accountability	We will be accountable and transparent to our stakeholders through responsible and effective financial management.	Cost and Affordability

Source: Board of Water Supply, Strategic Plan 2023 – 2027, page 11.

Water Master Plan objectives shown for alignment between the Strategic Plan and Water Master Plan.

1.4 Engaging the Public

Public engagement is foundational to BWS’s rate setting process. The BWS has actively sought public input throughout this process, including holding public quarterly meetings with the Stakeholder Advisory Group, holding meetings with a recently formed Commercial Stakeholder Advisory Group, creating a Permitted Interaction Group and holding periodic meetings to discuss the rate setting process,

presenting at neighborhood boards, and numerous other activities. The inputs and feedback received from the different stakeholder groups and citizens engaged, shaped the rates ultimately adopted by the Board.

The process had two main focuses. The first occurred during development of the financial plan, evaluation of cost allocation and rate alternatives process. The Stakeholder Advisory Group and Permitted Interaction Group played key roles in providing input to the rates development process. The second occurred after the proposed rates were developed and comprised the extensive public outreach via community information meetings, neighborhood board presentations, and numerous other communications channels.

1.4.1 Stakeholder Advisory Group Process

The successful Stakeholder Advisory Group process from the Water Master Plan and previous rate study effort was carried into the current process for financial planning, cost of service, and rate setting. The BWS values the input of the Stakeholder Advisory Group and believes it is an important part of an open and transparent process for setting rates. This group was instrumental in providing input on the financial plan, cost equity and rate structure for the Board’s consideration.

The group is comprised of individual stakeholders representing the following interests:

Agriculture	Homeowner associations
Community organizations	General contractors
Developers	Large water users
Environmental	Realtors
Every Council District	Seniors / low income
Financial industry	Travel / tourism industry
Golf	Small business
Hawaiian culture	Utilities

Through the Stakeholder Advisory Group, which was formed in 2015, the BWS sought to learn more about the water-related perspectives and concerns of varied constituencies. By leveraging the Stakeholder Advisory Group’s links with organizations and communities of interest, the BWS sought to strengthen the public’s understanding of O’ahu’s complex water issues and enhance public confidence in the BWS’s commitment and ability to provide safe, dependable, and affordable water now and into the future.

As the BWS has made revisions to its capital improvement program in response to high inflation and the Red Hill crisis, and evaluated the resulting impacts to its financial plan, costs of service, and rate study, the members played a pivotal role by providing recommendations to the BWS on the best options to achieve the critical and delicate balance between water service adequacy and dependability, and infrastructure costs and rate affordability as well as recommendations regarding key financial policies and capital spending scenarios.

Through quarterly meetings, the group discussed and made recommendations for the BWS's consideration regarding:

- Key financial policies
- Capital spending scenarios
- Subsidization of specific customer classes
- Affordability issues

Table 1-2 the Stakeholder Advisory Group meetings directly related to developing the rates. The topics discussed in these meetings are discussed further in this report. Meeting presentations, notes and materials from these Stakeholder Advisory Group meetings are posted on the BWS website⁴.

Table 1-2: Stakeholder Advisory Group Meetings and Topics

Meeting	Date	Topics
44	October 20, 2022	Review of rate making process – revenue requirements, cost of service, rate design. Review external drivers on revenue requirement, cost of service allocations.
45	January 19, 2023	Discussions on Long Range Financial plan, water demand trends, and potential rate increase scenarios.
46	April 20, 2023	Review of potential reductions to O&M and CIP budgets, discussion on acceptable working capital targets, and discussion of non-uniform rate increases.
47	July 20, 2023	Discussion of rate design guideposts, rate alternatives.
48	October 19, 2023	Discussion of updated water rate proposal, summary of public input to date.

The BWS also met with its Commercial Stakeholder Advisory Group. The group is comprised of over 30 participants representing the BWS's non-residential customer class, including developers, business owners, tourism, and government. Meetings specifically discussing the rate making process were held on April 21, July 21, and October 20, 2023, covering the same topics as Stakeholder Advisory Group meetings 46, 47, and 48, respectively.

1.4.2 Outreach and Communications

Public outreach to the larger community regarding the Rate Study was conducted in conjunction with the BWS's comprehensive communications plan related to rate adjustments. Understanding the sensitivity of rate increases and benefits of keeping people informed, BWS reached out across the island to share results of the rate study, communicating proposed rates and the reasoning behind them.

Public outreach and engagement related to rates included:

⁴ The BWS stakeholder advisory group materials can be found at: <https://www.boardofwatersupply.com/sag/meetings>.

- Four Community Information Meetings held across O‘ahu. All of these meetings were televised on Olelo, and the recorded videos were posted on the BWS website in addition to being available on Olelonet on Demand.
- Twenty-one neighborhood board presentations were conducted, with more than 400 attendees.
- Seven Interest Group Presentations, with approximately 150 Attendees, which included the Chamber of Commerce Hawaii: Government Relations, House District 44 – Representative Darius Kila, Kukui Plaza, Green Business Conference and Stormwater Stakeholder Advisory Group.
- Seven City Council briefings were held, including the Mayor’s cabinet of top City leadership.
- A prominent section of the BWS website was dedicated to proposed rate changes and received over 1,700 page views.
- A special edition of Water Matters, the BWS customer newsletter, was distributed to all 170,000 account holders.
- BWS staff participated in various media interviews describing the proposed rates.

The BWS also met with the Small Business Regulatory Review Board to review the proposed changes to the rates. The Small Business Regulatory Review Board considers any rules proposed by a state agency that may impact small businesses and makes recommendations to the agency regarding the need for a rule change. The BWS proactively presented the proposed rates to receive any feedback from a small business perspective. At its meeting August 17, 2023, the Small Business Regulatory Review Board expressed support and unanimously recommended that the BWS proceed to hold a public hearing on the proposed rates.

Public feedback and comments were key objectives of these extensive outreach activities. The BWS received an additional 117 comments via letters, email, BWS website, telephone and the Star Advertiser. Each commenter who provided contact information received a written response from BWS.

1.5 Roles and Responsibilities of the Board

As a semi-autonomous agency, the BWS is governed by a seven-member Board of Directors (Board). Five members are appointed by the Mayor and approved by the City Council. The remaining two directors are the Director of the Hawaii State Department of Transportation and the Chief Engineer of the City Department of Facility Maintenance. The Board sets policies and prescribes regulations for the management, control and operation of O‘ahu’s municipal water resources and distribution system and sets and adjusts rates and charges for the furnishing of water services. During this rate setting process, the Board received regular updates on the Stakeholder Advisory Group meetings including inputs and suggestions. The Board set policies (such as revised financial policies), provides input on capital spending scenarios, set guardrails (i.e., a framework) by which to finalize rates and rate structures, and approved the rates.

The Board also created a Permitted Interaction Group comprising three members of the Board. The Permitted Interaction Group collaborated with the BWS senior management team to consider policy issues associated with the development of the updated schedule of water rates. On July 11, 2023 and

September 6, 2023, meetings were held with the Permitted Interaction Group to provide input regarding water rate policy issues, which was subsequently considered by the full Board as part of the water rate approval process. Members of the Permitted Interaction Group also attended the Community Information Meetings held in August 2023 to hear directly from the public. The Permitted Interaction Group Final Report dated September 15, 2023, was submitted to the full Board for information on September 25, 2023.

On November 27, 2023, pursuant to the Revised Charter of Honolulu Section 7-110, after publication of notice of Public Hearing on October 27 and 29, a Public Hearing was held by the Board of Water Supply for the purpose of considering proposed revisions to the Schedule of Rates and Charges for the Furnishing of Water and Water Service. Written and oral testimonies were presented at the foregoing meetings and the Public Hearing received in writing through November 27, 2023, on the Proposed Revisions and were given due consideration and incorporated as appropriate. After thorough consideration of the comments, testimonies and presentation from all parties, the BWS Board voted in support of the adoption of Resolution No. 976, 2023, adopting the revisions to the Schedule of Rates and Charges for the Furnishing of Water and Water Service for Fiscal Years 2024-2029, effective from and after February 1, 2024, and to remain in effect until superseded.

The overarching objective of the adopted water rates is to produce sufficient increases in revenues through FY 2029, providing the additional funds needed to implement the Capital Improvement Plan and sustain safe, dependable, and affordable water resources on O‘ahu. Due to varying rate increase allocations at a rate tier level to meet the Board’s goals for affordability at the Essential Needs tier, the percent change in a bill for a given customer may not reflect the annual revenue adjustment.

Based upon input received throughout the extensive public engagement process, the new rates were designed with the following goals in mind:

- continue priority investments in O‘ahu’s water infrastructure,
- encourage conservation,
- provide funding for disaster recovery, and
- provide relief for most sensitive customers by limiting the rate increases at the Essential Needs tier.

2.0 Financial Plan for Water Rate Setting Period

The water rate study process begins with development of the financial plan, which answers these questions:

- Are projected revenues under current rates sufficient to meet net revenue requirements (costs associated with providing service)?
- If not, how much additional revenue is needed each year?

Once these two questions are answered, the process of developing and setting rates to support revenue requirements can begin. The BWS set water rates for the period FY 2024 – 2029, which is the focus of this report.

In March 2018, the Board adopted a Long-Range Financial Plan that covers 30 years. This plan provides guidance as to the possible long-term impacts of financial policy decisions as well as a range of economic condition impacts. The plan first details the projected revenues and expenses for a 10-year period (FY 2019-FY 2028) based on the availability of sufficient and appropriate information at the time of the report. In response to the COVID-19 global pandemic and its profound impacts on Hawaii’s economy and BWS’s customers, the Long Range Financial Plan was updated in February 2021.

The Long-Range Financial Plan was developed as part of the intensive process with the Stakeholder Advisory Group. To develop a set of financial policies, this process included a several months-long, iterative discussion regarding the amount of working capital (amount of funds available to cover expenses), how to fund capital projects, appropriate level of debt service coverage, and maximum ratio of debt to net assets. The stakeholders reviewed the BWS’s financial policies at the time, policies of comparable utilities, and bond rating agencies’ guidance as a basis for suggesting revisions to the financial policies. Table 2-1 summarizes the Board adopted policies in 2018 because of these discussions. The Stakeholder Advisory Group suggested these changes to maintain the BWS’s strong credit ratings (AAA) as well as concerns over having sufficient funds in the event of an emergency.

These policies set the framework of the rate update for the current rate study.

Table 2-1: Summary of Financial Policies

Metric	Adopted 2018
Working Capital Balance	Target 180 days of operating and maintenance expenses, but never less than 60 days
Debt Service Coverage	1.7x senior debt service, 1.6x all-in debt service
Debt to Net Asset Ratio	No more than 50 percent debt to net asset ratio
Contingency Reserve	Included in revised target fund balance

In light of the uncertain environment that existed at the time of the current rate update, the Board decided to allow the Working Capital Balance to decline temporarily to under 60 days for the initial two

years of the study. This supported another goal expressed by the Board of keeping the increase in any fiscal year to 10 percent or less to mitigate the associated affordability burden.

The Long-Range Financial Plan reflects the Board’s policies and recommendations and is incorporated by BWS in development of its annual CIP and budgeting process. BWS periodically (at least annually) updates its 6-year CIP to reflect current conditions and anticipated requirements. While the Long-Range Financial Plan acts a guide for policy and long-term investment levels and informs the CIP, the financial plan in this study is largely driven by the most current 6-year CIP and current Operating Budget. The financial plan is used to determine how much money the BWS needs to operate the water system each year.

2.1 Key Findings

The financial plan for the rate setting period (FY 2024 - FY 2029) shows the BWS will need to generate additional revenue in order to meet projected annual operating costs, debt service, cash-funded capital, bond covenants, and required fund balances. Over the study period, BWS is planning for \$1.3B in capital projects, and total annual operation and maintenance (O&M) increases of approximately \$49M. In order to generate sufficient revenue over the study period and conform to BWS financial policies, annual rate increases are projected as follows:

- February 1, 2024 – 10.0%
- July 1, 2024 – 10.0%
- July 1, 2025 – 9.0%
- July 1, 2026 – 8.5%
- July 1, 2027 – 8.0%
- July 1, 2028 – 8.0%






A detailed discussion of the projected rate increases, including the actual rates by customer class and consumption tier, is provided in Section 4.

2.2 Projected Revenues Under Approved FY 2023 Rates

The first step is to project revenues from water sales and other sources, which requires understanding the customer classes, the existing rates, and projecting the number of bills and amount of billed water. These revenues comprise charges for services rendered (e.g., potable water delivery, non-potable water delivery, meter and service installation) and interest earnings. They do not include taxes or assessments. The BWS’s main revenue source is water sales, which are derived from the number of accounts, the number of meters and customer usage. Projected revenues under approved FY 2023 rates refer to revenues from rates that were in effect as of July 1, 2022 (FY 2023), prior to the December 2023 approval of the rate schedule for the FY 2024 – FY 2029 period.

2.2.1 Customer Classes

The BWS supplies potable and non-potable water to most of O‘ahu. The majority of the BWS’s customers receive water priced at retail rates with the balance of customers on contract rates. The current retail water customer classes are defined below:

	<p>Single-Family Residential: this customer class comprises single-family homes and duplexes.</p>
	<p>Multi-Unit Residential: this customer class comprises residences not captured under Single-Family Residential such as triplexes, townhomes, condominiums and apartment buildings. Low-rise constitutes up to three stories in height. High-rise refers to higher than three living stories.</p>
	<p>Non-Residential: this customer class comprises all customers whose property is not used for residential or agricultural purposes. Examples of Non-Residential customers include, commercial, industrial, government, religious, schools, hotels/ resorts and mixed commercial/ residential.</p>
	<p>Agricultural: this customer class comprises those customers whose primary activities involve agriculture, stock raising or dairy farming on a commercial basis and have submitted an application for Agricultural service that is approved by the BWS. Only one dwelling unit is allowed on a meter qualifying for the agricultural quantity charge.</p>
	<p>Non-Potable: this customer class comprises those customers that have elected to use non-potable brackish water for irrigation and landscape watering.</p>

The BWS also provides infrastructure to support private fire protection systems. Private fire protection systems consist of special water services connected to automatic fire sprinkler systems usually installed in large buildings, multi-unit and high-rise complexes, and industrial plants. Private fire protection systems can also be connected to on-site private water systems with private fire hydrants usually in schools, shopping centers and townhouse complexes. These services consist of a lateral connection to the municipal water system, isolation valves, a detector check or FM meter and a backflow prevention device.

The BWS provides R-1 recycled wastewater for irrigation that meets the Reuse Guidelines Volume I: Recycled Water Facilities prepared by the Hawaii State Department of Health Wastewater Branch as well as reverse osmosis (RO) demineralized wastewater under contracts with specific customers

(contractual customers). The R-1 rates fall into two categories: R-1 (Golf) and R-1 (Other) and reflect similar pricing within each subclass. However, R-1 (Golf) receives a larger discount due to the ancillary benefits golf courses provide such as stormwater abatement. The BWS also provides ocean cooling water under a contractual arrangement with the University of Hawaii, John A. Burns School of Medicine (JABSOM).

Nearly all water customers pay for their water per the published Schedule of Rates and Charges for the Furnishing of Water and Water Service. This section describes the BWS's water rate schedule that was in effect as of September 10, 2018 when the previous 5-year rate increases were adopted.

2.2.2 Rate Schedule, FY 2023

Prior to the December 2023 approval of the rate schedule for the period FY 2024 – FY 2029, the rate schedule was last updated in 2018, with the last scheduled rate adjustment taking effect July 1, 2022 (FY 2023). BWS water rates are intended to meet revenue requirements, which represent BWS's annual costs to provide potable water, non-potable/ recycled water, and service for fire protection. Under the BWS rate structure, rate revenue requirements are met through two different charges, a customer charge and quantity charge. The customer charge is a monthly flat charge that varies by meter size assessed to all potable, non-potable, and recycled water customers. The quantity charge varies by customer class and consists of four rate tiers (which vary by unit price and volume of water used) for Single-Family and Multi-Unit, three rate tiers for Agricultural, and a uniform rate for all water usage for Non-Residential and Non-Potable customers.

2.2.2.1 Customer Charge

The BWS charges a monthly charge that varies by meter size assessed to all potable, non-potable, and recycled water customers. This charge covers the costs of such things as the billing system, customer service and billing staff, meter maintenance and repair, meter reading and processing, and mailing bills. Table 2-2 shows the FY 2023 customer charge rate schedule.

Table 2-2: Customer Charge Rate Schedule, FY 2023

Effective Date	July 1, 2022
Meter Size	\$/mo
5/8" or 3/4"	12.09
1"	15.28
1.5"	17.41
2"	43.45
3"	53.55
4"	101.92
6"	181.64
8"	276.78
12"	598.53

2.2.2.2 Quantity Charge

The rate structure for Single-Family Residential and Multi-Unit Residential customers is an inclining tier structure. As more water is used, the higher the unit price of each tier. This structure is used to encourage efficient use of water and water conservation. Commercial customers are billed using a uniform rate structure (a single rate regardless of consumption amount. Agricultural customers are billed using a mixed structure, the initial tier rates are inclining and then the third tier (the greatest volume) is charged a lower rate than the two initial tiers.

The quantity charge, together with the customer charge, is designed to recover annual revenue requirements. Table 2-3 shows the quantity charge of the water rate schedule in FY 2023. The billed quantities are based on the rounded down usage on a thousand gallon (k-gal) basis for the billing period.

Table 2-3: Quantity Charge Rate Schedule, FY 2023

Effective Date	July 1, 2022
Customer Class	\$/k-gal
Single-family (Monthly per dwelling unit)	
Tier 1: Essential Needs First 2,000 gallons	4.46
Tier 2 2,001-6,000 gallons	5.25
Tier 3 6,001-30,000 gallons	5.85
Tier 4 Over 30,000 gallons	9.25
Multi-Unit (Monthly per dwelling unit)	
Tier 1: Essential Needs First 2,000 gallons	3.77
Tier 2 gallons 2,001-4,000 gallons	4.43
Tier 3 4,001-10,000 gallons	5.03
Tier 4 Over 10,000 gallons	5.98
Non-Residential All Usage	5.27
Agricultural (Monthly per account)	
Tier 1: Essential Needs First 2,000 gallons	4.46
Tier 2 2,001-6,000 gallons	5.25
Tier 3 Over 6,000 gallons	2.12
Non-Potable/ Brackish All Usage	2.90
Recycled Water	
R-1 Golf - All Usage	0.65
R-1 Other - All Usage	1.96
RO - All Usage	6.36

Single-Family Residential customers are billed based on the metered usage in the billing period. A dwelling unit is equal to one single-family residence. In FY 2023, usage that falls within Tier 1 (Essential Needs, ≤ 2 k-gal/du) was billed at \$4.46/k-gal. For usage that is greater than 2 k-gal/du, the quantity portion of the bill is divided into the tiers.

Table 2-4 displays the calculation of a monthly quantity charge for a single-family residence using 6 k-gal per month, under the quantity charges in effect for FY 2023. Table 2-5 illustrates the monthly quantity charge for a single-family customer using 35 k-gal per month.

Table 2-4: Quantity Charge for Single-Family Customer, 6 k-gal/month, FY 2023

	Monthly Usage (k-gal)	Quantity Charge (\$/k-gal)	Monthly Quantity Charge (\$)
Tier 1 (Essential Needs): 0-2 k-gal	2	\$4.46	\$8.92
Tier 2: 2-6 k-gal	4	\$5.25	\$21.00
Total	6		\$29.92

Table 2-5: Quantity Charge for Single-Family Customer, 35 k-gal/month, FY 2023

	Monthly Usage (k-gal)	Quantity Charge (\$/k-gal)	Monthly Quantity Charge (\$)
Tier 1 (Essential Needs): 0-2 k-gal	2	\$4.46	\$8.92
Tier 2: 2-6 k-gal	4	\$5.25	\$21.00
Tier 3: 6-30 k-gal	24	\$5.85	\$140.40
Tier 4: Over 30 k-gal	5	\$9.25	\$46.25
Total	35		\$216.57

Multi-family residential customers are billed in a similar fashion as single family, but the BWS applies a different rate to tiers with different boundaries than that used for single-family customers. In addition, the determination of consumption is based on a per dwelling unit consumption amount (total metered consumption divided by the number of units connected to the meter). Since a duplex has two dwelling units, it would pay \$4.46/k-gal for the first 4 k-gal of billed water (2 k-gal/du * 2 du), \$5.25/k-gal for the next 8 k-gal, \$5.85/k-gal for the next 48 k-gal, and \$9.25/k-gal for billed usage over 60 k-gal.

Non-Residential customers are charged a uniform rate due to the highly variable water usage within this customer class. In FY 2023, the rate was \$5.27/k-gal.

Agricultural customers are charged for water use under a mixed tier rate structure. The rate for Tier 2 is higher than Tier 1, but then the rate for Tier 3 is lower than the two initial tiers. This structure is sometimes used when a goal or objective is to provide a discount to certain sectors as a means to encourage economic development. The first tier for Agricultural customers is set equal to the first tier of the Single-Family customer class, recognizing that many agricultural customers are served water for

both their home and their farm through a single meter. The large volume tier is lower than the previous tiers to support and encourage local agriculture.

Where available, customers can choose to receive non-potable water for irrigation and other allowed uses. In FY 2023, Non-Potable customers were charged a uniform rate of \$2.90/k-gal.

2.2.2.3 Fire Meter Standby Charge

The Fire Meter Standby Charge, or readiness to serve, applies to services used exclusively for private fire protection purposes, including automatic fire sprinkler services connected to alarm systems, fire hydrants, and wet standpipes. Fire Meter Standby Charges are a monthly charge based on the fire meter size. Table 2-6 summarizes the Fire Meter Standby Charge in FY 2023.

Table 2-6: Fire Meter Standby Charge Rate Schedule, FY 2023

Effective Date	July 1, 2022
Fire Meter Size	\$/mo
2" and smaller	7.99
3"	10.29
4"	14.23
6"	28.44
8"	52.94

2.2.2.4 Adjustment to Published Rates

The BWS has the ability to apply two adjustments to published rates: a power cost adjustment and an environmental regulations compliance fee cost adjustment. These charges provide BWS with a mechanism to make small adjustments to water rates, if needed, during the time period within the approved multi-year rates.

The Power Cost Adjustment allows BWS to increase the quantity charge for all customer classes by \$0.01/k-gal for every \$500,000 that the actual electricity costs exceed the projected power costs that were used in the development of the rates. For example, if actual electricity costs were \$1.0 million more than projected electricity costs used when developing the rates, the quantity charge for all tiers would increase \$0.02/k-gal, in the following fiscal year.

The Environmental Regulations Compliance Fee Cost Adjustment allows BWS to increase the quantity charge for all customer classes by \$0.01/k-gal for every \$500,000 of additional costs incurred to comply with any federal or state environmental law or regulation.

2.2.2.5 Standby Emergency Water Service

The BWS provides standby emergency water service on a case-by-case basis through contractual arrangement for such services. Contracts are negotiated by the Manager and Chief Engineer. Delivery of emergency water is contingent upon the BWS's ability to meet Water System Standards requirements, and provide that existing customers of the system do not experience unintentional impacts to their service.

2.2.2.6 Waivers

The BWS may waive water system facilities charges and new meter cost for qualified affordable and homeless dwelling units, up to 500 dwelling units per year. The BWS recognizes the lack of affordable housing and homelessness are major issues in its service area. This waiver will remain in effect until superseded.

The BWS may waive new meter charges for high rise multi-unit residential fire sprinkler retrofits, recognizing that retrofits due to a change in code can adversely impact low-income residents through higher rents and homeowner association costs. This waiver provision will remain in effect until superseded.

The BWS may waive water system facilities charges and new meter cost for qualified new farmers needing a ¾" or 1" meter. This program will expire when the total waivers granted reaches \$1M.

2.2.3 Historical and Projected Number of Water Bills

Table 2-7 shows the historical and projected bills for all water customers. The projection assumes that the number of bills over the forecast period remains constant from FY 2022 amounts⁵. Approximately 91 percent of bills are Single-Family Residential customers.

Table 2-7: Historical and Projected Number of Bills, Annual

Customer Class	Historical			Projected Annual
	FY 2020	FY 2021	FY 2022	
Single-Family	1,744,032	1,758,466	1,779,333	1,779,333
Multi-Unit	72,514	72,668	72,519	72,519
Non-Residential	99,736	98,856	99,801	99,801
Agricultural	3,997	3,940	4,068	4,068
Non-Potable	830	828	803	803
RO	93	82	72	84
R-1 (Other)	322	357	360	360
R-1 (Golf)	83	86	85	85
Total	1,921,607	1,935,283	1,957,041	1,957,053

Note: Totals may not add due to rounding.

2.2.4 Historical and Projected Billed Water Usage

Table 2-8 shows the historical (FY 2020 - FY 2022) and projected study period water use. In FY 2022, the BWS's customers' billed water use was 46,503 million gallons (mg). The Single-Family Residential customer class accounts for about 37 percent of water sales. The Non-Residential customer class

⁵ The Water Master Plan estimated growth in water demand to average 0.2 percent per year between 2012 and 2040. If average usage per bill stays constant, then a change in the number of customers equates to a change in demand. If that growth is not realized, rates would not generate sufficient revenues to meet costs. Therefore, conservative financial planning means using more conservative growth assumptions than those estimated for capital needs assessments to ensure sufficient revenues even if customer demand is lower than forecast. Basing the financial plan on lower projected growth and usage helps minimize the potential need for future large rate adjustments should water demand fall short of projections.

accounts for about 32 percent of sales, and the Multi-Unit Residential customers account for 22 percent. The remaining customers account for about 10 percent of billed water usage.

Total projected water usage for FY 2023 is 44,909 mg. Consistent with the assumption of stable customer base for the projection period, water consumption is assumed to remain essentially flat at FY 2023 levels. This assumption is driven in part by the ongoing BWS focus on sustainability and customers' ongoing conservation efforts as a way to limit consumption, the uncertainties surrounding the impact of COVID on tourism, and the conservation measures related to Red Hill.

Table 2-8: Historical and Projected Annual Usage, mg

Customer Class	Historical			Projected Annual
	FY 2020	FY 2021	FY 2022	
Single-Family	16,244	17,241	17,045	16,473
Multi-Unit	9,996	10,391	10,102	9,763
Non-Residential	14,734	13,874	14,788	14,291
Agricultural	843	878	938	906
Non-Potable	608	626	602	582
RO	541	471	478	480
R-1 (Other)	1,409	1,503	1,389	1,315
R-1 (Golf)	1,001	1,197	1,160	1,098
Total, mg ⁽¹⁾	45,377	46,180	46,503	44,909

⁽¹⁾ Does not include private fire protection water usage due to the wide variability in the amount of water that could be billed.

Note: Totals may not add due to rounding.

Once the number of bills and water use is projected, the previously approved rates can be applied to the corresponding fiscal year bills and consumption to project water sales revenues.

2.2.5 Water Sales Revenue Under Previously Approved Rates Through FY 2023

Water sales revenue was estimated for the study period by applying the rates previously approved for the FY 2019 - FY 2023 period to the customer accounts and billed water use projections. The revenue remains relatively flat, as shown in Table 2-9, consistent with the assumption that customer base and water consumption remain stable during the study period. The revenues between FY 2020 and FY 2022 include the approved rate increases from the prior 5-year rate setting period. For the BWS, weather is the single biggest factor that impacts water sales from one year to the next.

Table 2-9: Historical & Projected Water Sales Revenue Under Existing Rates, \$M

Customer Class	Historical			Projected Annual
	FY 2020	FY 2021	FY 2022	
Single-Family	\$95.7	\$103.8	\$108.7	\$112.7
Multi-Unit	\$46.1	\$48.3	\$47.0	\$46.4
Non-Residential	\$76.3	\$73.0	\$79.1	\$78.2
Agricultural	\$1.8	\$1.9	\$2.1	\$2.1
Non-Potable	\$1.6	\$1.7	\$1.7	\$1.7
RO	\$2.7	\$2.5	\$2.7	\$3.1
R-1 (Other)	\$2.9	\$3.0	\$2.9	\$2.6
R-1 (Golf)	\$0.6	\$0.7	\$0.7	\$0.7
Private Fire Service	\$0.7	\$0.8	\$0.8	\$0.5
Total Water Sales¹	\$228.3	\$235.7	\$245.7	\$248.0

(1) Does not include Ocean Cooling.

Note: Totals may not add due to rounding.

2.2.6 Other Sources of Revenue

Table 2-10 summarizes the other revenue sources of the BWS. The BWS generates additional revenue from providing billing services for the Department of Environmental Services (ENV), meter installations (domestic and private fire), rental income, interest earnings, ocean cooling⁶, and other miscellaneous sources.

⁶ The BWS provides potable water for ocean cooling under contractual arrangement with the University of Hawaii's JABSOM. This contract is set to expire in 2027.

Table 2-10: Historical and Projected Miscellaneous Revenue, \$M

Category	Historical			Projected						
	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Other Water Revenues	\$0.3	\$0.2	\$0.2	\$0.3	\$0.2	\$0.2	\$0.2	\$0.2	\$0.2	\$0.2
ENV Billing	\$2.6	\$2.7	\$2.7	\$2.6	\$2.6	\$2.6	\$2.6	\$2.6	\$2.6	\$2.6
Revenues from Installations	\$0.7	\$0.5	\$0.4	\$0.5	\$0.4	\$0.4	\$0.4	\$0.4	\$0.4	\$0.4
Merchandising & Jobbing	\$0.2	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3
Misc. Non-operating Revenue	\$0.1	\$0.1	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
Non-operating Rental Income	\$0.1	\$0.2	\$0.1	\$0.2	\$0.2	\$0.2	\$0.2	\$0.2	\$0.2	\$0.2
Interest Income	\$5.8	\$5.8	\$3.8	\$5.8	\$5.2	\$5.2	\$5.2	\$5.2	\$5.2	\$5.2
Ocean Cooling	\$1.4	\$1.5	\$1.4	\$1.5	\$1.5	\$1.5	\$1.6	\$0.0	\$0.0	\$0.0
Total Misc. Revenues	\$11.3	\$11.4	\$8.9	\$11.3	\$10.5	\$10.6	\$10.6	\$9.0	\$9.0	\$9.0

Note: Totals may not add due to rounding.

Other revenues except for ocean cooling are presumed to remain flat at FY 2024 budgeted levels. The annual ton-hours of ocean cooling is presumed to remain constant and that the unit rates increase 2 percent per year, resulting in a forecasted 2 percent per year increase in ocean cooling revenues.

Miscellaneous revenues help offset some of the rate-based revenue requirements.

2.2.7 Total Projected Revenue Under Previously Approved Rates

Table 2-11 presents the historical and projected revenues through FY 2029 at rates previously approved from the prior 5-year rate setting period (FY 2019 – FY 2023). These revenues include both the quantity and base charge, and will be lowered by any bad debt expense (e.g., unpaid water customer bills that are written off). The revenues under the previously approved rates are shown through FY 2029 to align with the rate setting period and to determine the required increases given projected increases in revenue requirements.

Table 2-11: Estimated Revenues, \$M

Category	Historical			Projected						
	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Water Sales (Table 2-9)	\$228.3	\$235.7	\$245.7	\$247.9	\$247.9	\$248.0	\$248.0	\$248.0	\$248.0	\$248.0
Miscellaneous (Table 2-10)	\$11.3	\$11.4	\$8.9	\$11.3	\$10.5	\$10.6	\$10.6	\$9.0	\$9.0	\$9.0
Total Revenues	\$239.6	\$247.0	\$254.7	\$259.2	\$258.5	\$258.5	\$258.5	\$257.0	\$257.0	\$257.0

Note: Totals may not add due to rounding.

2.3 Revenue Requirements

Revenue requirements are the utility’s annual costs to provide service, in this case, potable water, non-potable/ recycled water, and service for fire protection. Revenue requirements comprise annual operation and maintenance (O&M) costs, capital related costs (e.g., annual debt service, cash-funded capital), and reserve requirements (e.g., debt service reserve, working capital). The BWS needs to have sufficient financial resources to enable it to proactively maintain water infrastructure, reduce the amount of emergency repairs, and conduct needed infrastructure improvements and/or expansions (also known as capital improvements) in a timely manner, all while providing safe, dependable, and affordable water service to its customers. Projections of the cash requirements to meet annual system expenditures (or revenue requirements) are developed in this subsection. Once the annual revenue requirements are known, the additional revenue needed to address any shortfall in meeting revenue requirements can be determined.

2.3.1 Operation and Maintenance Expense

2.3.1.1 O&M Projection

FY 2024 operating expenses are based on the BWS FY 2024 Approved Budget, with future year projections based on applying an annual inflation factor. At the time of the analysis, inflation was tracking higher than historical levels, which prompted discussions and an analysis of appropriate short term inflation factors to use over the study period. Based on a review of inflation forecasts in the short term, the consensus was that inflation would ease, but relatively slowly. Table 2-12 displays the inflation factors applied to the analysis.

Table 2-12: Annual O&M Inflation Factors

	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Annual Inflation Factor	4.5%	4.0%	3.5%	3.5%	3.5%

Historically, BWS had experienced annual underspend of its budgeted O&M expenses generally between 15 and 20 percent. In recent years, BWS has focused on a more rigorous budgeting processes, with the intent of having budgeted O&M expenses track more closely with actual spending. In 2022, actual O&M spending was approximately 92 percent of budgeted amounts, and in 2023 the O&M spending was 96 percent of budgeted amounts. This analysis assumes that BWS spends 100 percent of budgeted and projected O&M expenses.

BWS includes as part of its FY 2024 CIP a project for a new Kalaeloa Sea Water Desalination Facility. BWS anticipates additional projected O&M expenses when the facility is brought online. The projections assume these additional O&M expenses are incurred starting in FY 2027.

The resulting O&M projection shown in Table 2-13 grows from \$203.5 million in FY 2024 to \$252.2 million in FY 2029, representing an annual average increase of 4.4 percent per year. Items designated as “Fixed Charges” in the O&M budget include items such as electric power for the water distribution system, retirement contributions, and benefits. The Fixed Charges category accounts for about 31 percent of annual O&M costs. Field Operations account for about 18 percent of annual O&M. The Water Systems Operation Division accounts for about 9 percent of annual O&M costs.

Table 2-13: Adjusted Projected O&M, \$M

Division & Staff Office	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Office of the Manager & Chief Engineer	\$1.1	\$1.1	\$1.2	\$1.2	\$1.2	\$1.3
Executive Support Office	\$15.1	\$15.8	\$16.4	\$17.0	\$17.6	\$18.2
Communications Office	\$1.6	\$1.6	\$1.7	\$1.8	\$1.8	\$1.9
Human Resources Office	\$0.8	\$0.8	\$0.9	\$0.9	\$0.9	\$1.0
Water Quality Division	\$7.1	\$7.4	\$7.7	\$8.0	\$8.2	\$8.5
Customer Care Division	\$5.4	\$5.6	\$5.8	\$6.0	\$6.2	\$6.5
Land Division	\$0.5	\$0.5	\$0.5	\$0.5	\$0.6	\$0.6
Water Resources Division	\$15.8	\$16.5	\$17.2	\$17.8	\$18.4	\$19.1
Field Operations Division	\$37.6	\$39.3	\$40.8	\$42.3	\$43.7	\$45.3
Capital Projects Division	\$9.2	\$9.7	\$10.0	\$10.4	\$10.8	\$11.1
Water Systems Operations Division	\$18.6	\$19.4	\$20.2	\$20.9	\$21.7	\$22.4
IT Division	\$20.7	\$21.6	\$22.5	\$23.3	\$24.1	\$25.0
Finance Division	\$6.1	\$6.4	\$6.6	\$6.9	\$7.1	\$7.4
Fixed Charges	\$63.9	\$66.8	\$69.5	\$71.9	\$74.4	\$77.0
Capital Improvement Program Implementation Allowance	\$0.0	\$0.0	\$0.0	\$6.6	\$6.8	\$7.0
Total	\$203.5	\$212.6	\$221.1	\$235.4	\$243.7	\$252.2

Note: Total may not add due to rounding.

2.3.2 Capital Improvement Program and Funding

The approved Water Master Plan identifies the general capital needs to repair, replace, upgrade and/or expand water system infrastructure. Annually, the BWS develops a detailed 6-year capital improvement program incorporating recommendations from the Water Master Plan and includes projects based on current needs and conditions. Annual capital-related costs of the program comprise cash and principal and interest payments on existing and future debt.

2.3.2.1 Capital Improvement Program

Anticipated annual capital improvement costs (escalated) vary between \$146 million and \$248 million over the study period FY 2024 to FY 2029 as shown in Table 2-14. The inflated dollars presume annual inflation factors as summarized in Table 2-12. Table 2-14 also shows how much of the projected capital improvement program is expected to be encumbered each year (either spent or contracts let). Not all of the capital improvement program may be encumbered due to projects being delayed, canceled or replaced. The projected encumbered rate is based on recent rates of capital encumbrances at the BWS. BWS 6-year capital projections extend to FY 2028, for the purposes of this analysis it is assumed that the capital spending for FY 2029 is consistent to FY 2028 levels.

Table 2-14: Budgeted and Proposed Capital Improvement Program, \$M

Capital Projects	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Non-potable	\$40	\$0	\$0	\$2	\$0	\$0
Tools & Resources	\$3	\$4	\$11	\$4	\$4	\$3
Treatment	\$6	\$12	\$1	\$1	\$1	\$5
Sources	\$96	\$124	\$34	\$9	\$37	\$69
Facilities	\$28	\$15	\$14	\$20	\$14	\$18
Storage	\$0	\$5	\$9	\$1	\$2	\$66
Pumps	\$19	\$22	\$17	\$24	\$10	\$17
Pipelines	\$22	\$48	\$80	\$68	\$138	\$27
Total	\$213	\$230	\$167	\$130	\$207	\$207
Total – Escalated	\$213	\$239	\$182	\$146	\$241	\$248
Capital Improvement Program Encumbered	\$204	\$223	\$173	\$133	\$217	\$226

Note: Totals may not add due to rounding.

These costs can be paid for through a mix of cash and debt, which ultimately comes from water rates and charges.

2.3.2.2 Capital Sources and Uses of Funds

Trade-offs between cash financing (also known as pay-as-you-go, “pay-go” or equity) and debt financing were discussed and evaluated during the rate projection process. While cash keeps the total cost lower because there are no financing costs, the burden for paying for long-lived assets resides solely on the current customers even though future customers benefit from those assets. Debt financing increases the total cost due to the financing costs (e.g., interest payments and issuance costs), but spreads those costs over many years (e.g., 10-30), which lowers the immediate impact on revenue requirements as well as spreads the costs between current and future users of those assets. In 2018, the Stakeholder Advisory Group’s input to the Board supported a mix of debt and equity to finance capital needs and to cap the debt-to-net asset ratio at 50 percent, as adopted by the Board and summarized in Table 2-1. As part of the current study, the Stakeholder Advisory Group recommended annual rate increases (fiscal year) of no more than 10 percent. To maintain rate increases at this level, future revenue requirements were reduced by assuming more debt for this forecast period than a 50 percent mix.

Table 2-15 reflects using a mix of cash, bonds, State Revolving Fund/WIFIA loans, and water system facilities charges to finance annual capital-related costs.

Table 2-15: Projected Capital Sources and Uses of Funds, \$M

Name	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Carryover of Prior Year	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Sources of Funds						
Cash	\$31.5	\$56.0	\$49.2	\$57.9	\$72.1	\$74.2
Bond Issue	\$45.4	\$89.1	\$34.2	\$60.0	\$137.9	\$126.4
State Revolving Fund Loan	\$39.4	\$29.5	\$20.9	\$7.3	\$0.0	\$15.7
WIFIA	\$0.0	\$14.9	\$58.1	\$0.0	\$0.0	\$0.0
Grants	\$22.4	\$19.0	\$0.0	\$0.0	\$0.0	\$0.0
ARPA	\$25.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Special Expendable Fund	\$40.8	\$15.2	\$10.3	\$8.3	\$8.0	\$10.0
Total Sources	\$204.4	\$223.7	\$172.7	\$133.5	\$218.0	\$226.3
Uses of Funds						
Capital Improvement Program Encumbered	\$204.1	\$223.2	\$172.5	\$133.2	\$217.3	\$225.7
Bond Cost of Issuance	\$0.2	\$0.5	\$0.2	\$0.3	\$0.7	\$0.6
Total Uses	\$204.4	\$223.7	\$172.7	\$133.5	\$218.0	\$226.3
Unused Funds	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0

Note: Totals may not add due to rounding.

As shown in Table 2-15, a combination of financing sources including cash and bond sales are used to fund the capital improvement program.

In addition to cash financing and bond issuances, sources of funds include State Revolving Fund⁷ loans, WIFIA financing, Grants and disbursements from the American Rescue Plan Act (ARPA), and transfers from the Special Expendable fund (water system facilities charges). BWS utilizes the Special Expendable fund only for projects that are growth related. BWS evaluates eligibility of projects for SRF, WIFIA, and grants and determines the feasibility of applying for those sources. The remainder of the capital spending plan is financed through a combination of cash financing and bond issuances.

Cash financing of the 6-year capital improvement program is projected to be \$341 million and is planned to occur every year to smooth out the revenue requirements. Annual bond issuances are assumed, with a total issuance of \$493 million over the forecast period. The BWS provided a projection of State Revolving Fund loans totaling \$113 million over the study period. BWS projects \$73 million in WIFIA financing over the study period. BWS anticipates receipt of \$41 million in grants, and an additional \$25 million in disbursements from ARPA. Special Expendable, or water system facilities charges, fund amounts are determined based on the percent of capital improvement program each year that is considered to be growth-related, and total \$93 million over the study period.

⁷ The State Revolving Fund is a program financed by the U.S. Environmental Protection Agency and administered by the Hawaii Department of Health.

The amount of capital financed through debt is approximately 58 percent of total capital spending over the study period.

Uses of funds comprise the encumbered capital improvement program and bond issuance costs, which are presumed to be 0.5 percent of the bond amount. Bond issuance costs cover all transaction costs associated with completing the sale of the debt. These costs include legal costs, marketing and underwriting fees (i.e., underwriter’s discount), financial advisory fees, rating agency fees, and other expenses such as trustee fees, advertising, printing, etc.

2.3.3 Debt Service Requirements

Debt service requirements include principal and interest payments being made on bonds and loans previously issued, as well as forecasted payments for projected future bonds and loans.

2.3.3.1 Existing Debt Service

Existing debt service includes principal and interest payments on bonds and State Revolving Fund payments on loans obtained prior to the planning period. Table 2-16 shows the existing debt service schedule. In FY 2029, debt service on existing bonds and loans is expected to be \$38 million.

Table 2-16: Existing Debt Service Through FY 2029, \$M

	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Bonds	\$27.4	\$27.6	\$29.0	\$29.0	\$29.0	\$29.0
State Revolving Fund & JABSOM	\$8.1	\$8.1	\$8.0	\$8.0	\$8.1	\$8.1
State Revolving Fund Fees	\$1.1	\$1.1	\$1.0	\$0.9	\$0.9	\$0.8
Total	\$36.6	\$36.8	\$38.0	\$38.0	\$37.9	\$37.9

Note: Totals may not add due to rounding.

2.3.3.2 Projected New Debt Service

Projected new debt service includes the debt service on the anticipated bond issuances, State Revolving Fund loans, and WIFIA borrowings shown in Table 2-15. Table 2-17 shows the projected debt service related to new bonds, State Revolving Fund loans, and WIFIA borrowings for the proposed capital improvement program. Bond terms are forecast to be 30 years with a 3.5 percent interest rate for the study period. The State Revolving Fund loan term is 20 years with an interest rate of 1.15 percent. WIFIA terms are forecast to be 30 years, with an interest rate of 3.15 percent. Note that due to the payback terms of WIFIA, debt service payback on borrowings within the study period are anticipated to occur beyond FY 2029. State Revolving Fund loans are subject to an annual fee of 1.5 percent of the outstanding annual balance. New debt service amounts are projected to add \$0.6 million to \$26.7 million per year to the revenue requirements over the study period, as shown in Table 2-17.

Table 2-17: Projected New Debt Service Through FY 2029, \$M

	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Bonds	\$0.0	\$2.5	\$7.3	\$9.2	\$12.4	\$19.9
State Revolving Fund	\$0.0	\$2.1	\$3.7	\$4.9	\$5.3	\$5.3
WIFIA	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
State Revolving Fund Fees	\$0.6	\$1.0	\$1.3	\$1.3	\$1.3	\$1.4
Total	\$0.6	\$5.5	\$12.3	\$15.4	\$19.0	\$26.7

Note: Totals may not add due to rounding.

2.3.4 Working Capital

Working capital is the days cash available to help cover normal operations, extraordinary expenses (e.g., disaster recovery), bond covenant requirements and other reserve policies, as well as to provide some buffer in case water revenues are lower than projected. It is typically expressed as days of working capital and is defined as the working capital balance divided by the annual operating expenses.

As part of the rate setting process, discussions with the Stakeholder Advisory Group included balancing projected rate increases with ability to maintain the working capital balances. The Board decided to allow the Working Capital Balance to decline temporarily to under 60 days for the initial two years of the study. Within the rate setting period, the working capital balance is built back up to levels more consistent with the Board approved policy.

More discussion is included in Section 4.

In 2018, the Stakeholder Advisory Group provided input to the Board in support of increasing the working capital target to 180 days and maintaining a minimum of 60 days. The Board considered and adopted this input as policy.

In 2023, the rates adopted by the Board included temporarily relaxing the policy as a way to mitigate individual year rate increases. The recommendation included allowing the balance to be lower than 60 days, for no more than 2 years. More discussion on working capital balances is included in Section 4.

2.3.5 Revenue Requirements Summary

Table 2-18 presents the summary of the revenue requirements over the rate study period. Revenue requirements are projected to grow from \$272 million in FY 2024 to \$391 million by FY 2029.

Table 2-18: Projected Revenue Requirements, \$M

Line Item	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
O&M	\$203.5	\$212.6	\$221.1	\$235.4	\$243.7	\$252.2
Debt Service	\$37.2	\$42.3	\$50.3	\$53.3	\$56.9	\$64.6
Cash Funded Capital	\$31.5	\$56.0	\$49.2	\$57.9	\$72.1	\$74.2
Total	\$272.2	\$311.0	\$320.7	\$346.6	\$372.7	\$391.0

Note: Totals may not add due to rounding.

2.3.6 Cashflow Summary

The cashflow brings together the revenues and expenses discussed above into a single picture. System revenues must be sufficient to finance the costs of operation and maintenance, routine annual capital improvements, debt service costs on existing and proposed debt, and cash financing of capital while maintaining an adequate operating reserve, complying with all revenue bond coverage requirements, and complying with the BWS financial policies.

Figure 2-1 depicts impact to fiscal year ending cash balances if the FY 2024 and FY 2025 rate increases were not implemented. At the end of FY 2024, the projected ending balance would be projected at \$15.7M, or approximately 26 days working capital. By the end of FY 2025, the ending balance would be projected at a deficit, which would increase over time.

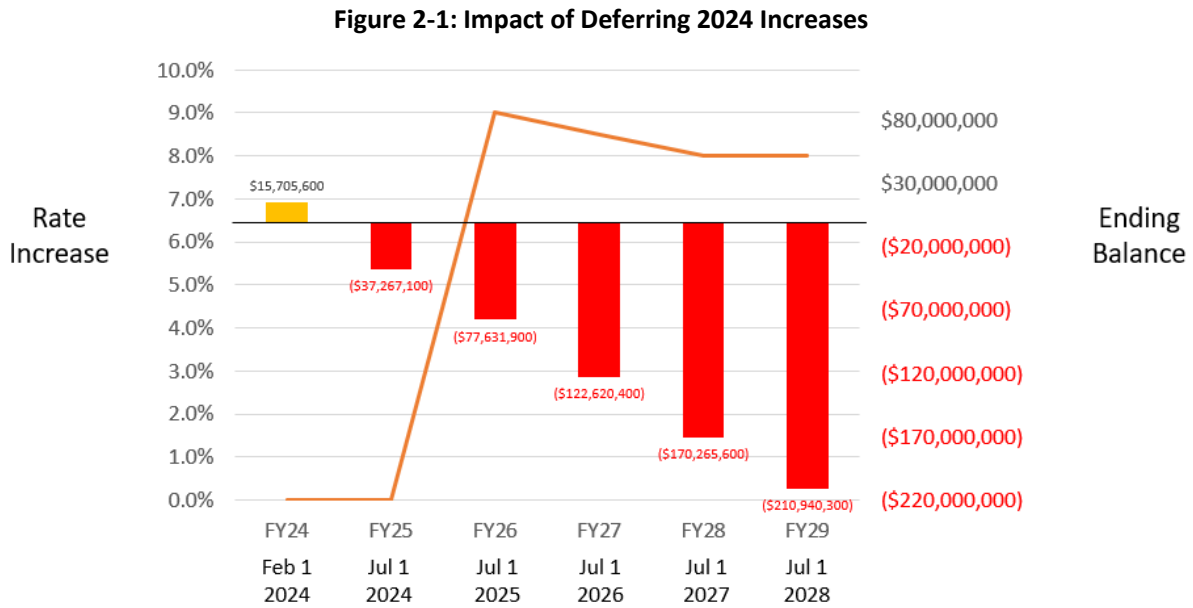


Table 2-19 summarizes the projected revenues, non-rate based income, and projected revenue adjustments needed to meet revenue requirements. The table shows the projected cashflow, rate increases, and working capital balances for the rate setting period.

Table 2-19: Cashflow Summary

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Billed Wtr User Charges Under Approved Rates [1]							
Single-family	\$112,653,800	\$112,653,800	\$112,653,800	\$112,653,800	\$112,653,800	\$112,653,800	\$112,653,800
Multi-unit	\$46,421,500	\$46,421,600	\$46,421,600	\$46,421,600	\$46,421,600	\$46,421,600	\$46,421,600
Non-Residential	\$78,159,600	\$78,159,500	\$78,159,500	\$78,159,500	\$78,159,500	\$78,159,500	\$78,159,500
Agricultural	\$2,077,600	\$2,077,600	\$2,077,600	\$2,077,600	\$2,077,600	\$2,077,600	\$2,077,600
Non-Potable	\$1,716,900	\$1,716,900	\$1,716,900	\$1,716,900	\$1,716,900	\$1,716,900	\$1,716,900
R-1 Golf	\$748,200	\$748,200	\$748,200	\$748,200	\$748,200	\$748,200	\$748,200
R-1 Other	\$2,611,500	\$2,611,600	\$2,611,600	\$2,611,600	\$2,611,600	\$2,611,600	\$2,611,600
RO (Subject to Published Rates)	\$2,701,900	\$2,692,200	\$2,692,200	\$2,692,200	\$2,692,200	\$2,692,200	\$2,692,200
Private Fire Service	\$540,000	\$540,000	\$540,000	\$540,000	\$540,000	\$540,000	\$540,000
Total Water Billed Charges	\$247,631,000	\$247,621,400	\$247,621,400	\$247,621,400	\$247,621,400	\$247,621,400	\$247,621,400
User Charge Revenue Adjustment:							
Year	Adjustment	Effective Months					
2024	10.0%	5	\$10,317,600	\$24,762,100	\$24,762,100	\$24,762,100	\$24,762,100
2025	10.0%	12		\$27,238,400	\$27,238,400	\$27,238,400	\$27,238,400
2026	9.0%	12			\$26,966,000	\$26,966,000	\$26,966,000
2027	8.5%	12				\$27,760,000	\$27,760,000
2028	8.0%	12					\$28,347,800
2029	8.0%	12					\$30,615,700
Water User Charge Revenue Adjustment	\$0	\$10,317,600	\$52,000,500	\$78,966,500	\$106,726,500	\$135,074,300	\$165,690,000
Total Billed Water User Charge Revenue	\$247,631,000	\$257,939,000	\$299,621,900	\$326,587,900	\$354,347,900	\$382,695,700	\$413,311,400
Contractual Water Revenue	\$308,900	\$318,500	\$329,800	\$341,100	\$353,000	\$365,500	\$378,600
Allowance for Pandemic Delinquencies	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Prior Year's Pandemic Delinquencies Collected	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Miscellaneous Income [2]	\$5,510,000	\$5,320,000	\$5,350,000	\$5,380,600	\$3,820,000	\$3,820,000	\$3,820,000
Uncollected Revenues	(\$495,300)	(\$515,900)	(\$599,200)	(\$653,200)	(\$708,700)	(\$765,400)	(\$826,600)
Interest Income	\$5,800,000	\$5,200,000	\$5,200,000	\$5,200,000	\$5,200,000	\$5,200,000	\$5,200,000
Total Revenue	\$258,754,600	\$268,261,600	\$309,902,500	\$336,856,400	\$363,012,200	\$391,315,800	\$421,883,400
Annual Expenditures							
Operation and Maintenance Expense	\$193,113,900	\$203,461,800	\$212,617,600	\$221,122,300	\$235,425,000	\$243,664,900	\$252,193,200
Debt Service							
Existing Debt - Bonds	\$24,478,100	\$27,418,200	\$27,605,300	\$29,012,000	\$29,013,800	\$29,010,100	\$29,004,300
Existing Debt - SRF & JABSOM	\$8,001,600	\$8,050,400	\$8,099,600	\$8,000,200	\$8,011,500	\$8,062,900	\$8,114,900
SRF Fees - Existing Loans	\$1,222,600	\$1,149,500	\$1,075,800	\$1,001,400	\$926,300	\$850,400	\$773,700
Proposed Debt - Bonds	\$0	\$0	\$2,466,800	\$7,310,600	\$9,171,500	\$12,434,200	\$19,931,500
Proposed Debt - SRF	\$0	\$28,100	\$2,051,500	\$3,713,200	\$4,886,700	\$5,298,400	\$5,298,400
Proposed Debt - WIFIA	\$0	\$0	\$0	\$0	\$0	\$0	\$0
SRF Fees - Proposed Loans	\$7,500	\$597,900	\$1,014,200	\$1,280,200	\$1,328,500	\$1,261,400	\$1,428,700
WIFIA Fees - Proposed Loans	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal Debt Service	\$33,709,800	\$37,244,100	\$42,313,200	\$50,317,600	\$53,338,300	\$56,917,400	\$64,551,500
Transfers to:							
Cash Funded Capital	\$24,104,300	\$31,453,200	\$56,047,900	\$49,214,100	\$57,861,900	\$72,093,200	\$74,225,000
Total Annual Expenditures	\$250,928,000	\$272,159,100	\$310,978,700	\$320,654,000	\$346,625,200	\$372,675,500	\$390,969,700
Beginning of Year Balance	\$63,363,361	\$29,900,000	\$26,002,500	\$24,926,300	\$41,128,700	\$57,515,700	\$76,156,000
Annual Increase (Decrease)	(\$33,463,361)	(\$3,897,500)	(\$1,076,200)	\$16,202,400	\$16,387,000	\$18,640,300	\$30,913,700
End of Year Operating Fund Balance	\$29,900,000	\$26,002,500	\$24,926,300	\$41,128,700	\$57,515,700	\$76,156,000	\$107,069,700
Target 180 Days of O&M [3]	\$95,234,300	\$100,337,300	\$104,852,500	\$109,046,600	\$116,100,000	\$120,163,500	\$124,369,200
Minimum 60 Days of O&M [3]	\$31,744,800	\$33,445,800	\$34,950,800	\$36,348,900	\$38,700,000	\$40,054,500	\$41,456,400
Estimated Days of Working Capital	57	47	43	68	89	114	155
DSCR - Bonds	2.68	2.36	3.24	3.19	3.34	3.56	3.47
DSCR - Aggregate	1.95	1.74	2.30	2.30	2.39	2.59	2.63

[1] Calculated using the approved water rates.

[2] Includes billing services for ENV and other misc income.

[3] Based on BWS 2018 Financial Policies

In addition to supporting sufficient revenue to meet revenue requirements, this schedule of revenue increases considers the Board approved financial policies.

- Days of working capital requirement (minimum 60 days) is relaxed from the 2018 policy in order to achieve rate increases not to exceed 10 percent in any fiscal year during the rate setting period.
- Days of working capital returns to over 60 days by FY 2026, and increases to 155 by FY 2029, positioning the BWS to potentially reach 180 days shortly after the study period.
- The debt service coverage ratio for senior debt is projected to be 2.4x in FY 2024, then remains above 3.0x for all remaining years in the forecast period, well above the policy target of 1.7x and the bond covenant requirement of 1.2x.

- The “all-in” debt service coverage ratio is projected to be 1.7x in FY 2024, increasing to 2.6x in FY 2029. All years in the forecast period are projected to be above the policy target of 1.6x coverage.
- Total debt issues between FY 2024 and FY 2029 cover 58 percent of total encumbered capital over the same period. The projection of higher level of debt over 50 percent of financed capital represents the Stakeholder Advisory Group recommendation to incur debt as a mechanism to mitigate short-term rate increases.
- Future debt issues are presumed to be fixed rate debt, keeping the amount of variable rate debt below the 20 percent cap.



3.0 Cost of Service Allocations

The costs to provide service to customers, also known as the cost of service, can be allocated to customer classes once revenue requirements are established. These net revenue requirements must be recovered through rates. The cost of service analysis is the process of determining the cost of providing water service to each of the defined customer classifications. A cost of service analysis includes a functionalization and allocation of water system revenue requirements (the costs of service) followed by the distribution of costs by customer classification based on the annual usage, peak demands, and customer-related costs for which each class of service is responsible. The allocations of these costs to functional costs, cost centers and ultimately to the customer classes take into account the quantity of water used, relative peak demand requirements placed on the system, the number and size of services to customers, and other relevant factors. The allocation process ultimately determines the costs on a unit basis (e.g., number of customers, usage). The unit rates then help guide the process for setting rates.

A detailed cost of service evaluation was conducted in 2018, following the guidelines set out in AWWA M1: *Principles of Water Rates, Fees, and Charges, 7th edition*. The purpose of that analysis was to understand to what extent the costs incurred in serving each customer class are being recovered from that customer class. The results of that evaluation informed the development and approval of the rate schedule at the time.

As part of this rate study update, an evaluation of water use patterns was performed to determine whether it was appropriate to update the cost of service allocations developed as part of the 2018 evaluation. Given that the quantity of water used and relative peak demand requirements comprise a significant part of assigning cost of service factors, BWS considered the possibility that the impacts of the COVID pandemic and conservation measures resulting from Red Hill issues may have temporarily impacted consumption patterns. Revising cost of service allocations with potentially skewed data could adversely affect the cost allocations.

The evaluation of water demand characteristics focused on:

- Change in peak demand patterns, particularly among single family residential customers, comparing 2013 data (which was used to inform the prior rate study) to 2021 data (which would be used to inform current rate study); and
- Change in total water usage by customer class, evaluating trends in monthly data from March 2020 through November 2022.
- Change in water user characteristics by evaluating usage within the existing tier structure, particularly among single family residential customers, comparing 2015 and 2016 data (which was used to inform the prior rate study) to 2022 data (which would be used to inform current rate study).

The intent of the evaluation was to determine the extent of changes to demand characteristics, if any, and whether potential changes suggested a long-term rebalancing of consumption patterns that would

require an update to cost of service allocations, or a short-term anomalous shift in trends precipitated by events such as COVID and/or Red Hill.

This section presents the results the evaluation, and discussion surrounding the recommendation to maintain the existing cost of service allocations as originally developed in 2018⁸.

3.1 Key Findings

The analysis involved both an evaluation of peak demand factors and overall customer water use patterns by customer class. The evaluation indicated the following:

- A comparison of 2013 and 2021 peaking factors from three pressure zones did not indicate consistent changes;
- In early 2020 (start of COVID pandemic), single family residential consumption increased while non-residential consumption decreased;
- From April 2020 through November 2022, both single family residential and non-residential consumption have been trending back towards pre-pandemic levels, although they have yet to reach those levels;
- Water usage for single family customers in 2022 follows a pattern consistent with the usage characteristics in 2015 and 2016;
- Updating cost of service allocations based on current usage conditions would likely increase the cost of service allocated to single-family residential customers and likely not be reflective of the actual longer-term demand characteristics.

Based on the water use characteristics evaluation, stakeholder input, and guidance from the Board, the cost-of-service allocations developed as part of the 2018 rate study are applied to this current rate study. The relative changes in demand characteristics since the prior rate study appear to coincide with COVID and conservation measures as part of Red Hill. Given the uncertainty surrounding both of those issues and potential future shifts in demand characteristics, cost of service allocations were not updated from the 2018 analysis.

The implemented recommendation from the 2018 study, which is also applied to this study, is summarized below:

⁸ The previous rate study can be located on the BWS website at: <https://www.boardofwatersupply.com/bws/media/files/bws-rate-study-final-2019-08.pdf>

Table 3-1: Implemented Cost of Service Recommendation, 2018

Customer Class	Cost of Service Recovery
Single-Family Residential	95%
Multi-Unit Residential	100%
Agricultural	60%
Non-Potable	80%
R-1	70%
R0	63%
Non-Residential	117%

3.2 Peaking Factors

Demand patterns of customers vary depending on their maximum day and peak hour rates of demand relative to average demands. These differences in demand patterns can create differences in the costs to serve those customers. From a cost of service perspective, extra capacity costs represent those operating costs incurred due to demands in excess of average use and capital-related costs for additional plant and system capacity beyond that required for average use.

Peaking factors represent maximum flow relative to average flow in a system. Shifts in peaking factors among customer classes would result in a reallocation of the extra capacity costs. For example, higher peaking factors for single family residential customers would result in a greater portion of the extra capacity costs being allocated to single family residential customers increasing the rates for these customers.

An analysis comparing peaking factors from 2013, which was the basis for the peaking factors in 2018, and peaking factors from 2021 was performed to see if the changes would suggest the need for an adjustment to the relative peaking factors to apply to the cost-of-service analysis.

In coordination with BWS staff, three pressure zones were identified and evaluated for the purpose of this analysis – Wahiawa 1361, Waialae Iki 1080, and Aliamanu 385. These pressure zones were selected in part due to each being predominately residential zones (greater than 85%) with relatively large demand. The prior rate study determined that peaking factors for single family residential customers are higher than other customers, so evaluating peaking factors in pressure zones with a larger proportion of residential customers could inform the degree to which changes may have occurred.

Peaking factors were derived from SCADA information, with some adjustments based on engineering judgement. SCADA information was obtained in 15-minute intervals for the one-week period which represented the week with peak demand for each pressure zone. From the peak demand week, the peak 24-hour period was selected for comparison.

3.2.1 Pressure Zone Evaluation – Wahiawa 1361

Wahiawa 1361 is a pressure zone in central O’ahu that is supplied by Wahiawa Booster No. 2 and includes two reservoirs, each with 0.5 million gallon (MG) of storage volume that maintain zone pressure. Water supply is from Wahiawa Wells 1 and 2, which is pumped through pressure zones

Wahiawa 1075 and Wahiawa 1180 to reach Wahiawa 1361. Table 3-2 Figure 3-1 summarize the results of the peaking factor comparison of 2013 data and 2021 data.

Table 3-2: Peaking Factors, Wahiawa 1361 - 2013 and 2021

Date	24-Hour Demand (gpm)	Adjusted Peak Factor
8/28/2013	195	2.54
8/8/2021	263	2.13

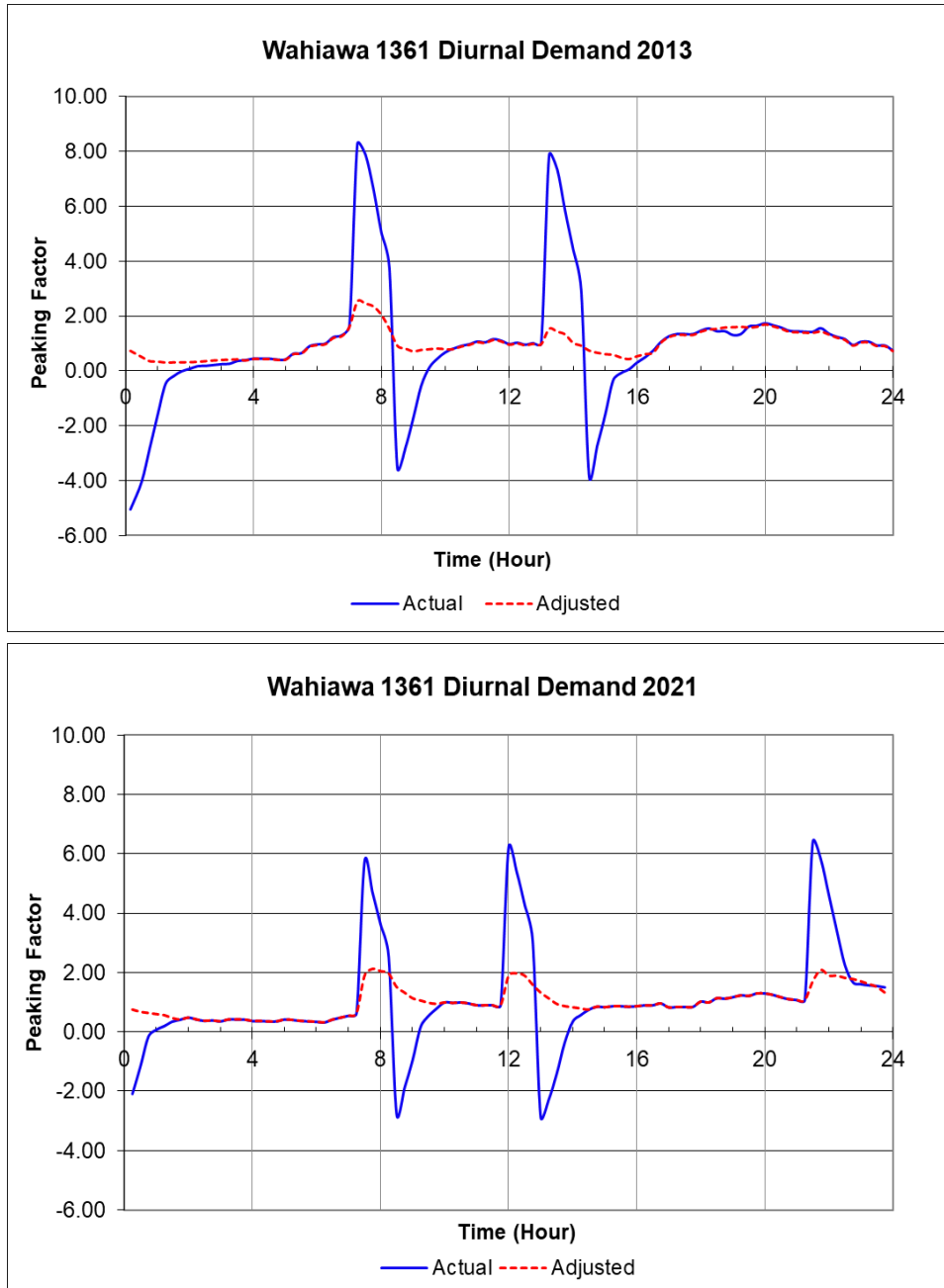


Figure 3-1: Peaking Factors, Wahiawa 1361 - 2013 and 2021

For Wahiawa 1361, the 2021 data indicates a shift in demand mainly in the late evening and around noon. This could suggest the impact of the pandemic on customer demand habits, with more customers at home during these time periods and potentially more occupied units in that system.

The adjusted peaking factor using 2013 data was 2.54, compared to 2.13 using 2021 data.

3.2.2 Pressure Zone Evaluation – Waialae Iki 1080

Waialae Iki 1080 is a pressure zone that serves an upper elevation area of Waialae Iki valley on the east side of the Honolulu metro area. It is supplied by Waialae Iki Booster No. 4 and includes one 0.2 MG reservoir. Water supply is from a combination of sources that supply the Honolulu metro area including wells near Pearl Harbor, Kalihi, and within Honolulu. Table 3-3 and Figure 3-2 summarize the results of the peaking factor comparison of 2013 data and 2021 data.

Table 3-3: Peaking Factors, Waialae Iki 1080 - 2013 and 2021

Date	24-Hour Demand (gpm)	Adjusted Peak Factor
8/21/2013	112	2.91
8/28/2021	89	2.71

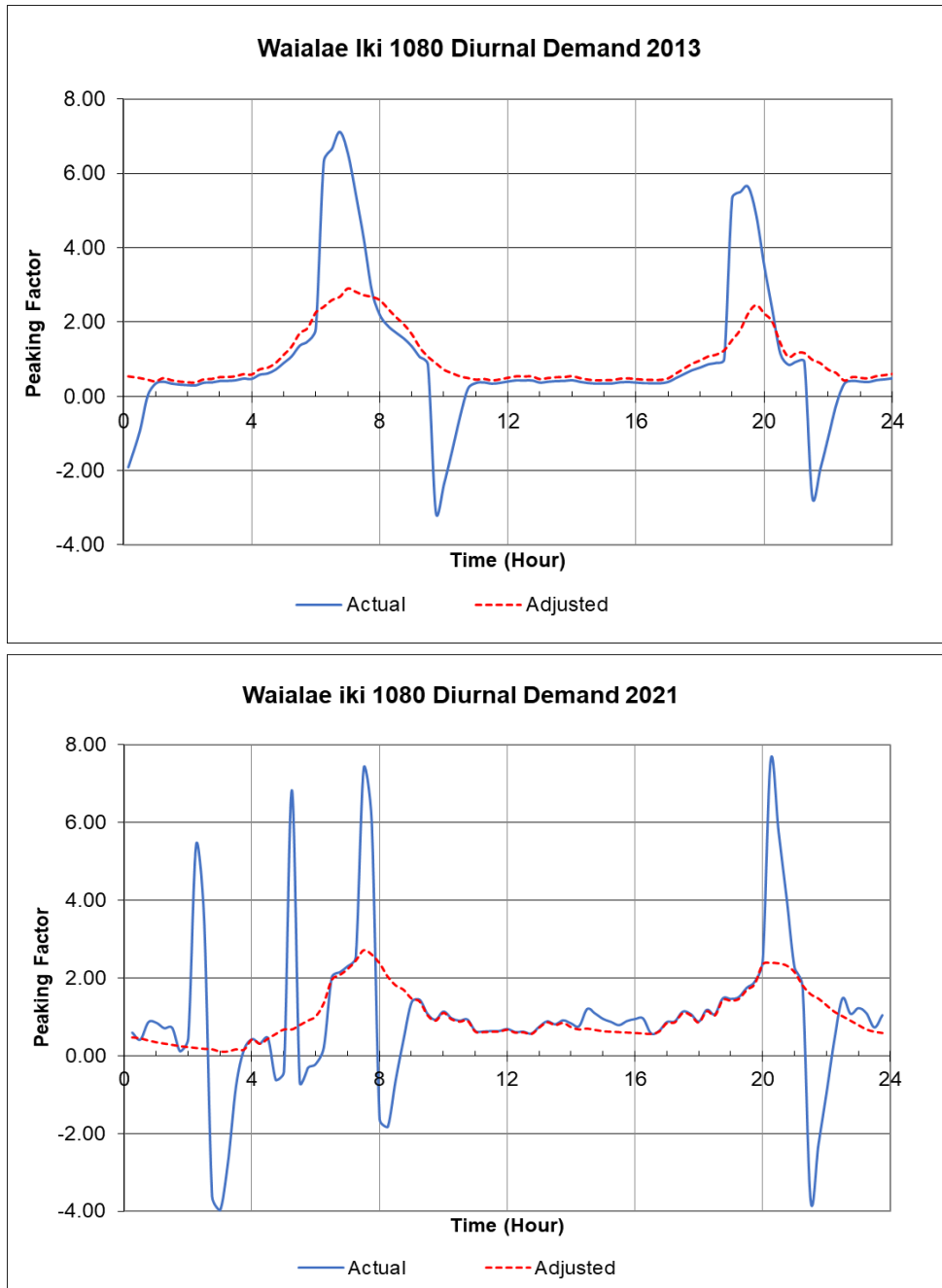


Figure 3-2: Peaking Factors, Waialae Iki - 2013 and 2021

For Waialae Iki 1080, the 2021 data indicates more fluctuations in the morning timeframe, however the peaks in the evening remain consistent when compared with 2013 information.

The adjusted peaking factor using 2013 data was 2.91, compared to 2.71 using 2021 data.

3.2.3 Pressure Zone Evaluation – Aliamanu 385

Aliamanu 385 is a pressure zone that serves a residential area located midway between Pearl Harbor and downtown Honolulu. It is supplied by Aliamanu Booster station and includes one 1.0 MG reservoir. Water supply is from multiple wells near Pearl Harbor that serve the Honolulu metro area including wells potentially affected by Red Hill. Table 3-4 and Figure 3-3 summarize the results of the peaking factor comparison of 2013 data and 2021 data.

Table 3-4: Peaking Factors, Aliamanu - 2013 and 2021

Date	24-Hour Demand (gpm)	Adjusted Peak Factor
8/28/2013	748	1.87
8/10/2021	731	2.19

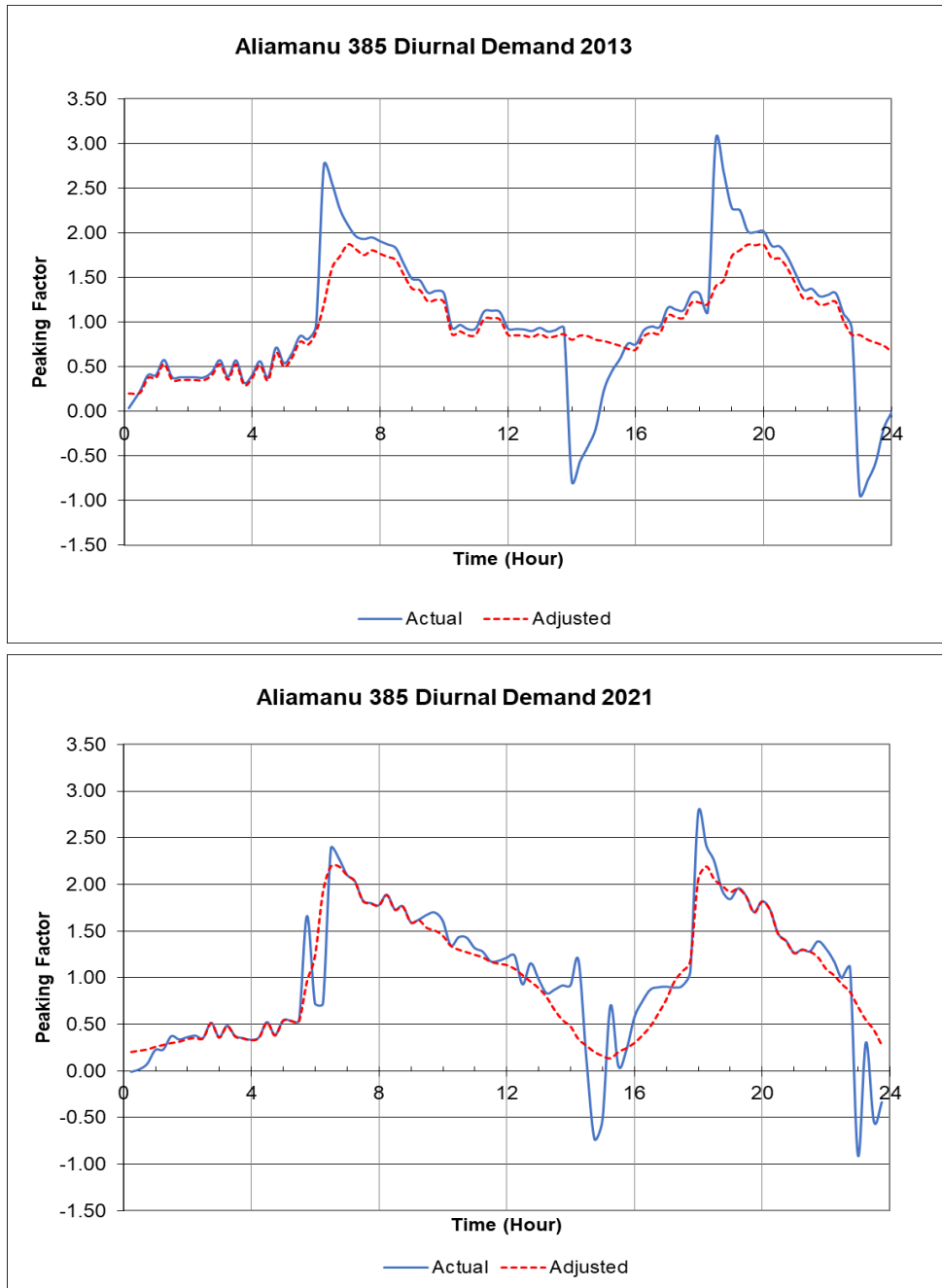


Figure 3-3: Peaking Factors, Aliamanu 385 - 2013 and 2021

For Aliamanu 385, the 2021 data indicates a morning peak, followed by a steady decrease throughout the day until an evening peak. Similar to the trends seen in Wahiawa 1361, this could suggest the impact of the pandemic on customer demand habits, with more customers at home during these time periods and potentially more occupied units in that system.

The adjusted peaking factor using 2013 data was 1.87, compared to 2.19 using 2021 data. The peaking factor being higher in 2021 is the opposite trend seen in the other two evaluated pressure zones.

3.2.4 Pressure Zone Evaluation – Summary

Table 3-5: Peaking Factors, Summary of Pressure Zones Evaluated - 2013 and 2021

Zone	Date	24-Hour Demand (gpm)	Adjusted Peak Factor	Peak Hour Trend
Wahiawa 1361	8/28/2013	195	2.54	Lower
	8/8/2021	263	2.13	
Waialae Iki 180	8/21/2013	112	2.91	Lower
	8/28/2021	89	2.71	
Aliamanu 385	8/28/2013	748	1.87	Higher
	8/10/2021	731	2.19	

Comparing the peaking factors used in 2018 to 2021 data shows changes in the peaking size and pattern. However, it is likely that the shifts in these patterns reflect changes in customer behavior related to the pandemic and measures in response to Red Hill. This would suggest that the shift in demand trends would be a short-term and temporary shift, unlikely to persist after these circumstances have resolved. Therefore, it was determined that maintaining the 2018 peaking factors was likely to be more representative of the demand over this forecast period.

3.3 Consumption by Customer Class

The evaluation the peaking factors suggested that demand characteristics for customers may have shifted due to the pandemic. The peaking factor evaluation focused on a 24-hour period, a very specific timeframe intended to compare data for different years. To capture demand trends at a more aggregate level, an evaluation of demand over time by customer class was performed. Figure 3-4 summarizes the percent of total monthly consumption by customer class, from January 2016 through November 2022.

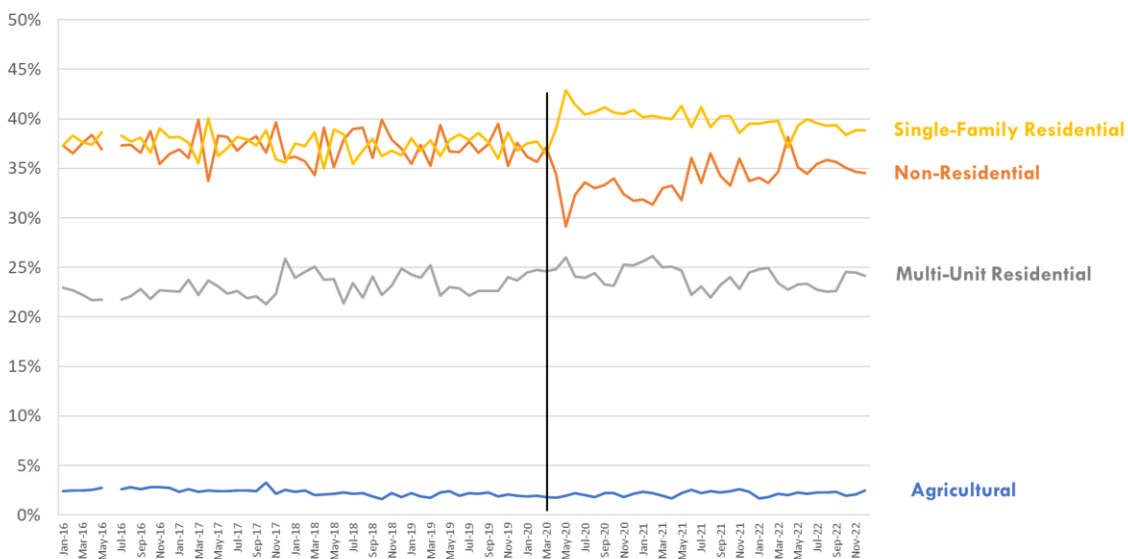


Figure 3-4: Percent of Total Monthly Consumption by Customer Class

The historical monthly consumption by customer class suggests a shift in demand characteristics as a result of COVID. For the period from January 2016 through February 2020, the single family residential and non-residential customer categories tracked at roughly the same level, between 35 and 40 percent of total demand. However, immediately after the start of the pandemic (March 2020), single family residential share of total demand increased to over 40 percent, while non-residential share declined to under 30 percent.

A key part of the discussion in deciding whether to adjust the cost of service allocations is whether the shift in the proportional share of consumption by customer class since the 2018 study will be representative of future consumption trends. The data suggests that while single family residential share of demand consistently exceeded non-residential share after the start of the pandemic, the demand has started to trend back to pre-pandemic levels. This suggests that utilizing demand characteristics during the pandemic may not be representative of the demand share by customer class over this study period. Given the relatively higher share for the single-family residential customer class, it is likely that updating the cost of service factors would increase the share of costs allocated to the single family residential class.

These results, in combination with the evaluation of peaking factors, informed the decision to utilize the cost of service allocations developed as part of the 2018 study.

3.4 Water Usage Patterns

In 2018, BWS adopted a four-tier rate structure for residential customers that includes categories for Single-Family Residential and Multi-Unit Residential. The development of the number and size of the tiers was based in part on a water usage analysis, utilizing usage curves for each of the residential customer classes for FY 2015 and FY 2016.

As part of the current study, an analysis of usage focused primarily on Single-Family Residential customers was performed to determine whether shifts in usage characteristics would suggest the need for a change in the structure of the tiers. Figure 3-5 summarizes the Single-Family Residential water usage pattern in FY 2022 to the pattern from FY 2015 and FY 2016, which was the basis for the existing tiers developed in the previous study.

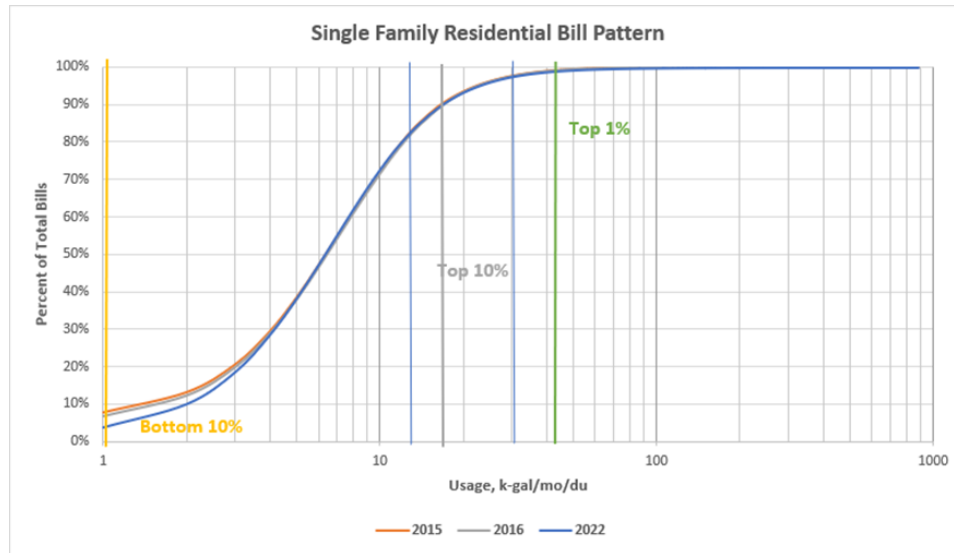


Figure 3-5: Single-Family Residential Water Usage Pattern, FY 2015, FY 2016, FY 2022

A limited review was performed for Multi-Unit Residential customers, which indicated some variation in the data when comparing 2015/2016 to 2022. Based on the similarities between the usage characteristics for Single-Family customers and the concern that the FY 2022 usage data may not reflect a steady state usage profile given behavior changes due to the pandemic and Red Hill, the decision was made to maintain the existing tiers and not make any additional changes to the rate structure for the Single-Family Residential category at this time.



4.0 Proposed Water Rate Adjustments

4.1 Proposed Water Rate Adjustments

In 2018, the Board set a series of guardrails regarding rate structure, which remain in effect for this rate setting process. These guardrails include:

- Monthly customer charge varies by meter size
- Establish an Essential Need tier for residential
- Retain Agricultural customer subsidy levels
- Retain Non-Residential uniform rate
- Establish uniform rates for R-1 and RO customers
- Establish a fire meter standby charge

The current rate setting process incorporates the following approach:

- All customer classes will have the same percentage increases
- No single fiscal year increase greater than 10 percent
- Rate increase for the Essential Needs tier limited to 2.5 percent per fiscal year
- Maintain existing cost of service allocations

The following presents the proposed water rates for the study period through FY 2029 that meet the Board's guardrails.

The existing rates remain in effect until January 31, 2023. On February 1, 2024, water rates for all customer classes will increase by 10 percent. In subsequent years, the increases are 10 percent for FY 2025, 9 percent for FY 2026, 8.5 percent for FY 2027, 8 percent for FY 2028, and 8 percent for FY 2029. Figure 4-1 summarizes the impact of the water rate increases to ending balances.

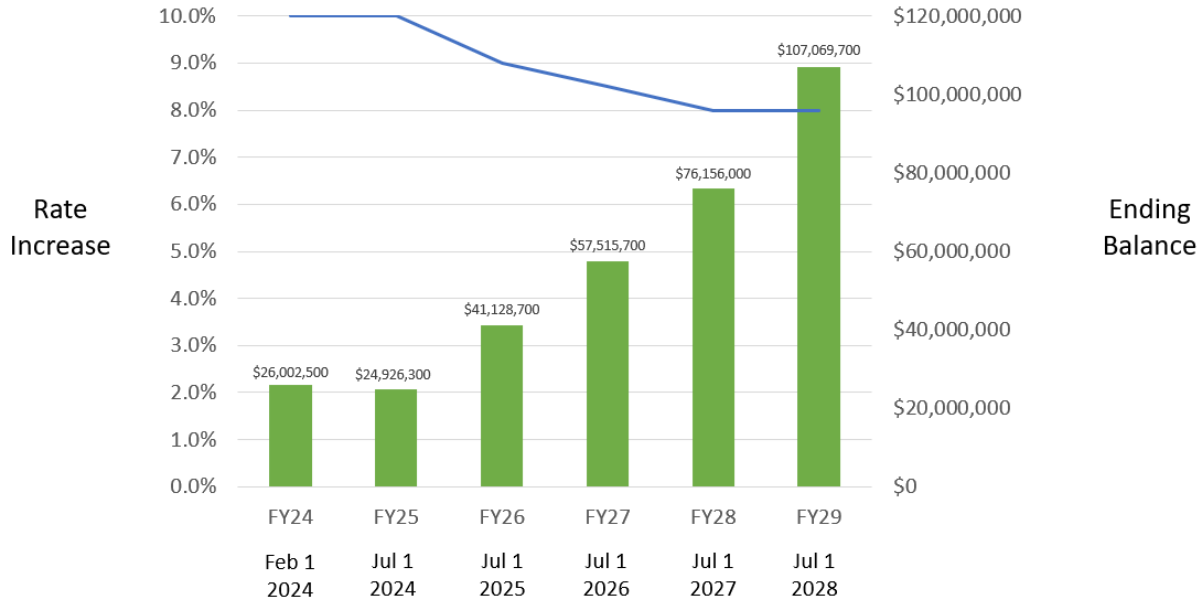


Figure 4-1: Impact of Rate Increases to Ending Balance

4.1.1 Customer Charge

The customer charge is assessed for each month that service is provided, regardless of usage. The proposed charges and effective dates are shown in Table 4-1.

Table 4-1: Proposed Customer Charges and Effective Date

Effective Date	February 1, 2024	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
Meter Size	\$/mo	\$/mo	\$/mo	\$/mo	\$/mo	\$/mo
5/8" or 3/4"	\$13.30	\$14.63	\$15.95	\$17.30	\$18.68	\$20.18
1"	\$16.81	\$18.49	\$20.15	\$21.87	\$23.62	\$25.50
1.5"	\$19.15	\$21.07	\$22.96	\$24.91	\$26.91	\$29.06
2"	\$47.80	\$52.57	\$57.31	\$62.18	\$67.15	\$72.52
3"	\$58.91	\$64.80	\$70.63	\$76.63	\$82.76	\$89.38
4"	\$112.11	\$123.32	\$134.42	\$145.85	\$157.52	\$170.12
6"	\$199.80	\$219.78	\$239.56	\$259.93	\$280.72	\$303.18
8"	\$304.46	\$334.90	\$365.05	\$396.07	\$427.76	\$461.98
12"	\$658.38	\$724.22	\$789.40	\$856.50	\$925.02	\$999.02

4.1.2 Quantity Charge

The existing quantity rates and tiers will remain in effect through January 31, 2023. On February 1, 2024, the quantity rates shown in Table 4-2 will take effect.

Table 4-2: Proposed Quantity Charges by Customer Class

Effective Date	February 1, 2024	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
Customer Class	\$/k-gal	\$/k-gal	\$/k-gal	\$/k-gal	\$/k-gal	\$/k-gal
Single-family (Monthly per dwelling unit)						
Tier 1: Essential Needs First 2,000 gallons	\$4.57	\$4.69	\$4.80	\$4.92	\$5.05	\$5.17
Tier 2 2,001-6,000 gallons	\$5.78	\$6.35	\$6.92	\$7.51	\$8.11	\$8.76
Tier 3 6,001-30,000 gallons	\$6.53	\$7.34	\$8.15	\$8.98	\$9.82	\$10.74
Tier 4 Over 30,000 gallons	\$10.95	\$12.32	\$13.67	\$15.06	\$16.48	\$18.02
Multi-Unit (Monthly per dwelling unit)						
Tier 1: Essential Needs First 2,000 gallons	\$3.86	\$3.96	\$4.06	\$4.16	\$4.27	\$4.37
Tier 2 2,001-4,000 gallons	\$4.87	\$5.36	\$5.84	\$6.34	\$6.85	\$7.39
Tier 3 4,001-10,000 gallons	\$5.70	\$6.52	\$7.33	\$8.16	\$9.01	\$9.93
Tier 4 Over 10,000 gallons	\$7.21	\$8.25	\$9.27	\$10.33	\$11.40	\$12.57
Non-Residential All Usage	\$5.80	\$6.38	\$6.95	\$7.54	\$8.14	\$8.80
Agricultural (Monthly per account)						
Tier 1: Essential Needs First 2,000 gallons	\$4.57	\$4.69	\$4.80	\$4.92	\$5.05	\$5.17
Tier 2 2,001-6,000 gallons	\$5.78	\$6.35	\$6.92	\$7.51	\$8.11	\$8.76
Tier 3 Over 6,000 gallons	\$2.33	\$2.57	\$2.81	\$3.05	\$3.29	\$3.56
Non-Potable/ Brackish All Usage	\$3.19	\$3.51	\$3.82	\$4.15	\$4.48	\$4.84
Recycled Water						
R-1 Golf (1) All Usage	\$0.72	\$0.79	\$0.86	\$0.93	\$1.00	\$1.08
R-1 Other (1) All Usage	\$2.16	\$2.37	\$2.59	\$2.80	\$3.03	\$3.27
RO (1) All Usage	\$7.00	\$7.70	\$8.39	\$9.10	\$9.83	\$10.62

(1) Contract customers will be assessed the published rate unless specifically stated otherwise in the customer's contract.

4.1.3 Fire Meter Standby Charge

The Fire Meter Standby Charge, for readiness to serve, applies to services used exclusively for private fire protection purposes, including automatic fire sprinkler services connected to alarm systems, fire hydrants, and wet standpipes. Fire service charges will be charged a flat monthly charge based on fire meter size. Table 4-3 presents the proposed change and charges, which will take effect on February 1, 2024.

Table 4-3: Proposed Fire Meter Standby Charge

Effective Date	February 1, 2024	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
Fire Meter Size	\$/mo	\$/mo	\$/mo	\$/mo	\$/mo	\$/mo
2" and smaller	\$8.79	\$9.67	\$10.54	\$11.43	\$12.35	\$13.34
3"	\$11.32	\$12.45	\$13.57	\$14.73	\$15.90	\$17.18
4"	\$15.65	\$17.22	\$18.77	\$20.36	\$21.99	\$23.75
6"	\$31.28	\$34.41	\$37.51	\$40.70	\$43.95	\$47.47
8"	\$58.23	\$64.06	\$69.82	\$75.76	\$81.82	\$88.36

In addition to the Standby Charge, any misuse or non-fire protection related water usage will be billed at twice the highest quantity charge in effect at that time.

4.1.4 Other Charges, Services and Waivers

4.1.4.1 Adjustments to Published Rates

The BWS has two possible adjustments to published rates: power cost adjustment and environmental fee adjustment. These charges reflect that changes may occur between rate studies and provide the BWS with a mechanism to make small adjustments to the water rates, if needed. For the rate projections included in this report, these adjustments are not assumed implemented over the rate setting period.

- **Power Cost Adjustment.** If total actual electricity costs in a year exceed the projected power costs used to develop the rates, then in the following fiscal year the BWS may increase the quantity charge for all customer classes \$0.01/k-gal for every \$500,000 that the actual costs were over the projected costs. For example, if actual electricity costs in year 1 were \$1 million more than used in the rate study, the quantity charge would increase \$0.02/k-gal in year 2 (added to the published rate).
- **Environmental Regulations Compliance Fee Cost Adjustment.** The BWS may increase the quantity charge by \$0.01/k-gal for every \$500,000 of additional costs that the BWS incurs to comply with any federal or state environmental law or regulation. This adjustment recognizes that new regulations may be imposed between rate studies (during the period covered by the published rates) and provides the BWS the ability to adjust the quantity charge to reflect additional costs that the BWS would incur to meet the new regulations.

4.1.4.2 Standby Emergency Water Service

The BWS provides standby emergency water service on a case-by-case basis through a contractual arrangement for such services. Contracts are negotiated by the Manager and Chief Engineer. Delivery of emergency water is contingent upon the BWS's ability to meet Water System Standards requirements and that existing customers of the system do not experience unintentional impacts to their service.

4.1.4.3 Waivers

The BWS may waive water system facilities charges for qualified affordable and homeless dwelling units, up to 500 dwelling units per year. The BWS recognizes the lack of affordable housing and homelessness as two of the biggest problems facing Honolulu. As such, it has established criteria under which the water system facilities charges may be waived. This coincides with the Mayor's initiative on affordable housing and homelessness. This waiver provision will remain in effect until superseded.

The BWS may waive the new meter charges for residential fire sprinkler retrofits, recognizing that retrofitting high-rise apartments/ condominium buildings with fire sprinklers due to a change in code can adversely impact low-income residents by raising rents/ homeowner association costs beyond their means. The waiver also reflects the BWS's concern for the health and safety of its customers and is doing what it can to help make fire sprinkler retrofits less costly. This waiver provision will remain in effect until superseded.

The BWS may waive water system facilities charges and new meter cost for qualified new farmers needing a ¾" or 1" meter and connecting to the BWS system for the first time. A new farmer is defined as any entity starting up a new agricultural enterprise that will be actively growing crops and/or raising livestock for food purposes, or dairy farming on a commercial basis, that does not already have a meter on the BWS system for the purpose of farming. Existing farming operations and expansion of existing operations do not qualify. This program will expire when the total waivers granted reaches \$1M, unless otherwise extended prior to that time.

4.2 Proposed Rates - Cost of Service Allocations

As detailed in Section 3, based on the water use characteristics evaluation, stakeholder input, and guidance from the Board, the cost of service allocations developed as part of the 2018 rate study are applied to this current rate study. The proposed rates in this study reflect no change to the prior cost of service allocations.

The relative changes in demand characteristics since the prior rate study appear to coincide with COVID and conservation measures related to Red Hill, with more recent trends indicating a shift back to pre-pandemic demand characteristics. Using the demand characteristics during the pandemic period would derive cost of service allocations that would likely increase the cost of service allocated to single-family residential customers and not necessarily be reflective of the demand characteristics over the rate setting period.

The implemented cost of service allocations, derived as part of the 2018 study and applied to the current analysis, are summarized below:

Table 4-4: Implemented Cost of Service Recommendation, 2018

Customer Class	Cost of Service Recovery
Single-Family Residential	95%
Multi-Unit Residential	100%
Agricultural	60%
Non-Potable	80%
R-1	70%
R0	63%
Non-Residential	117%

4.3 Typical Bills

The following presents the change in sample bills between FY 2024 and FY 2029 for Single-Family Residential, Multi-Unit Residential, Non-Residential and Agricultural customers. A Single-Family bill comparison to other utilities is also presented.

4.3.1 BWS Customers

Figure 4-2 presents the total bill at different levels of Single-Family billed usage per dwelling unit (du), ranging from the essential needs level, to about 50 percent usage, to the mathematical average bill, to the top 1 percent of bills level. Table 4-5 presents the annual change in the total monthly bill for the examples shown in Figure 4-2.

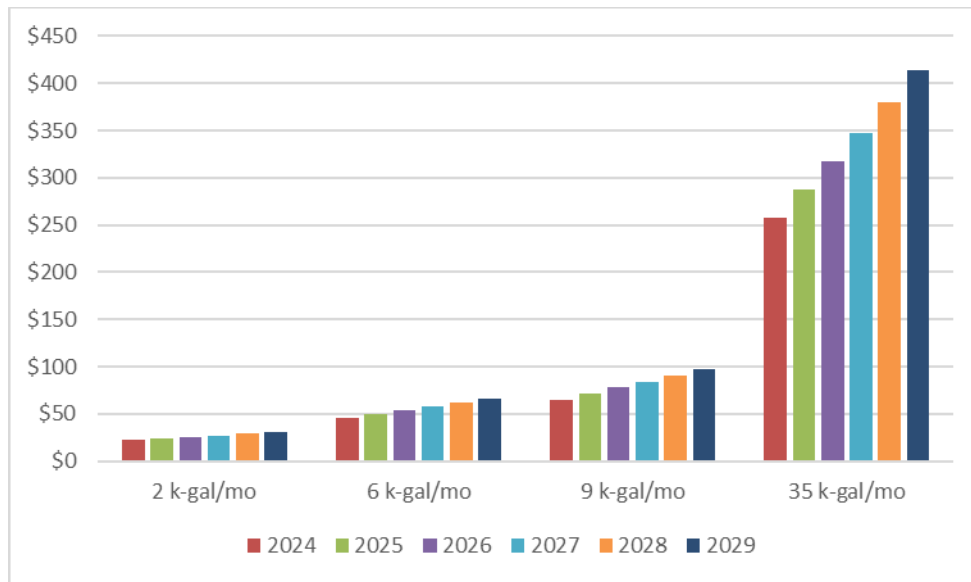


Figure 4-2: Typical Bill Comparison Single-Family Customer Class

Table 4-5: Monthly Bill Change, Single-Family Sample Customers

Billed Usage ⁽¹⁾ , k-gal/mo/du	FY 2024 ⁽²⁾	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
2	\$1.43	\$1.56	\$1.55	\$1.60	\$1.63	\$1.75
6	\$3.53	\$3.87	\$3.84	\$3.95	\$4.03	\$4.34
9	\$5.56	\$6.31	\$6.25	\$6.44	\$6.57	\$7.10
35	\$28.28	\$30.27	\$29.92	\$30.81	\$31.45	\$34.06

(1) Meter size is 3/4 inch for billed usage levels.

(2) After February 1, 2024

Figure 4-3 presents the total monthly bill for two small Multi-Unit Residential usage levels presuming a 3/4-inch meter and 3 dwelling units. Figure 4-4 and Figure 4-5 show similar information for typical Multi-Unit Residential low-rise and high-rise customers, respectively.

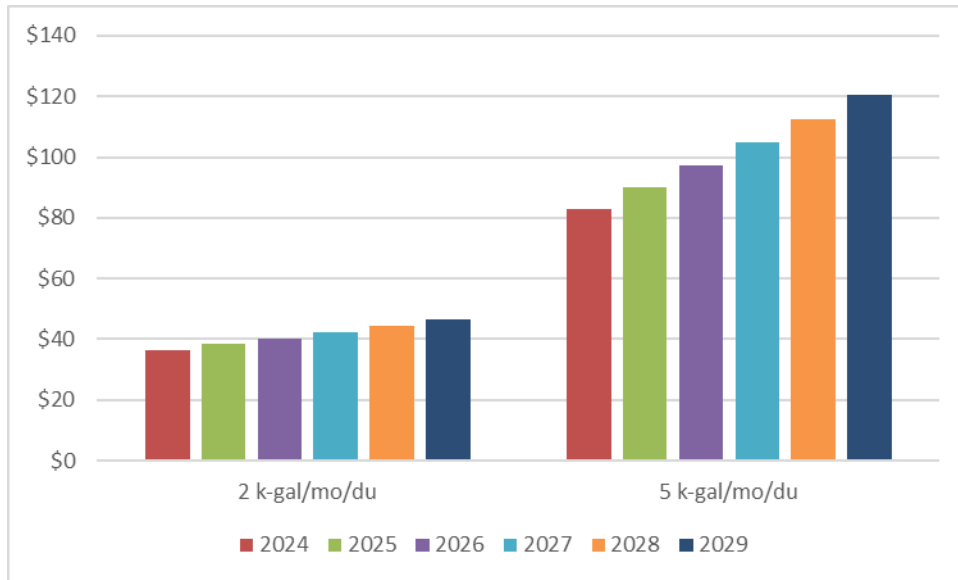
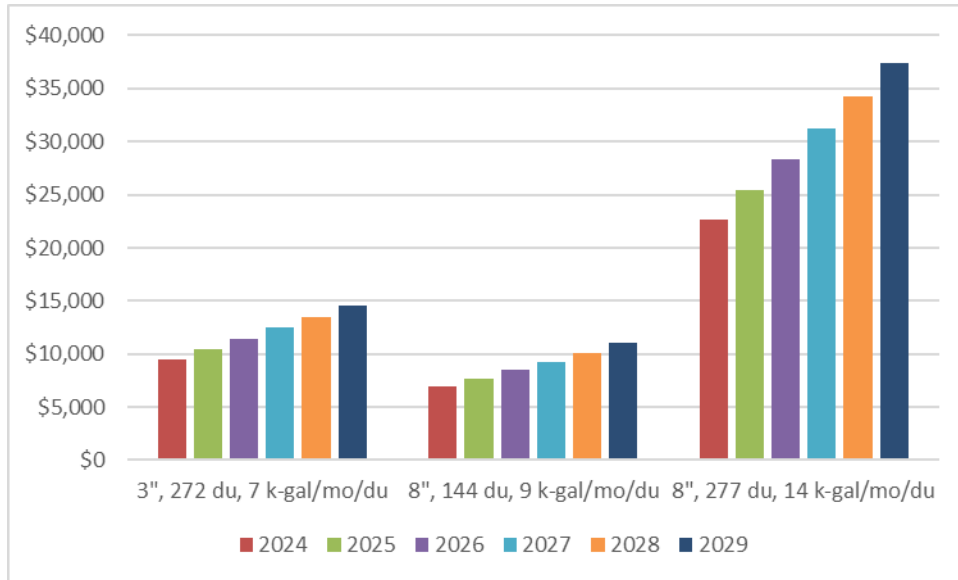
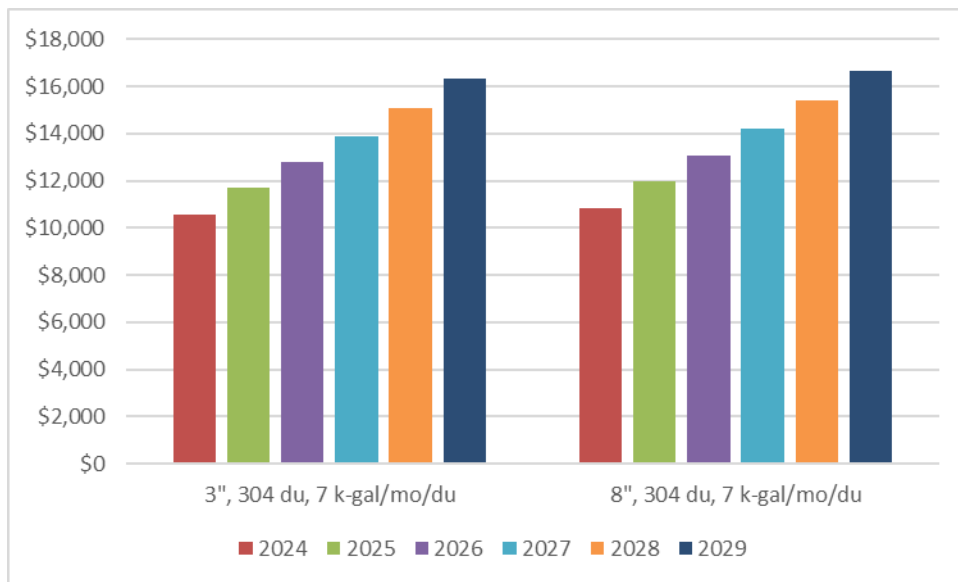


Figure 4-3: Typical Bill Comparison Small Multi-Unit Customers, 3/4", 3 du



Note: Per dwelling unit usage is calculated from the total usage divided by the number of dwelling units.

Figure 4-4: Typical Bill Comparison Multi-Unit Low Rise



Note: Per dwelling unit usage is calculated from the total usage divided by the number of dwelling units.

Figure 4-5: Typical Bill Comparison Multi-Unit High Rise

Table 4-6 shows the year-to-year change in the monthly bill for the indicated usage, meter size and number of dwelling units.

Table 4-6: Monthly Bill Change, Multi-Unit Sample Customers

Billed Usage (k-gal/mo/du), meter size, dwelling units	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Multi-Unit Small						
2 k-gal, 3/4", 3 du	\$2	\$2	\$2	\$2	\$2	\$2
5 k-gal, 3/4", 3 du	\$6	\$7	\$7	\$7	\$8	\$8
Multi-Unit Low Rise						
7 k-gal, 3", 272 du	\$844	\$993	\$983	\$1,009	\$1,032	\$1,113
9 k-gal, 8", 144 du	\$665	\$789	\$781	\$801	\$820	\$885
14 k-gal, 8", 277 du	\$2,802	\$2,869	\$2,834	\$2,906	\$2,975	\$3,221
Multi-Unit High Rise						
7 k-gal, 3", 304 du	\$943	\$1,109	\$1,098	\$1,127	\$1,153	\$1,244
7 k-gal, 8", 304 du	\$965	\$1,133	\$1,122	\$1,152	\$1,178	\$1,271

Table 4-7 shows the dollar change in the monthly bill from year-to-year for sample Non-Residential customers.

Table 4-7: Monthly Bill Change, Non-Residential Sample Customers

Customer Class	Meter Size	Avg. Monthly Usage k-gal	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Restaurant	1.5"	229	\$122	\$135	\$133	\$137	\$140	\$151
Church	2"	233	\$127	\$140	\$138	\$143	\$146	\$157
Office Building	3"	458	\$247	\$271	\$269	\$277	\$282	\$305
Hotel	6"	1,525	\$822	\$904	\$895	\$921	\$941	\$1,016
School or College	8"	2,940	\$1,577	\$1,735	\$1,717	\$1,768	\$1,805	\$1,950
Large Shopping Center	3"	4,906	\$2,591	\$2,850	\$2,821	\$2,904	\$2,966	\$3,203
Large Landscaped Area	8"	9,914	\$5,252	\$5,778	\$5,720	\$5,888	\$6,013	\$6,494
Large Industrial	8"	31,232	\$16,487	\$18,136	\$17,954	\$18,483	\$18,874	\$20,384

Figure 4-6 presents a comparison of bills for three typical Agricultural customers at the meter and average billed monthly usage shown.

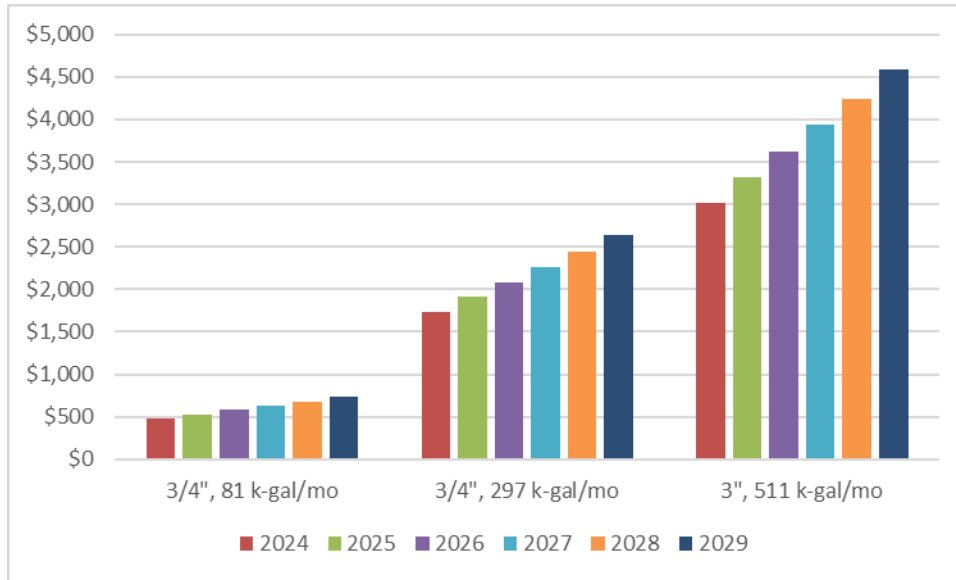


Figure 4-6: Typical Bill Comparison Agricultural

Table 4-8 presents the year-to-year change in a bill at the specified meter size and monthly billed usage level for three sample Agricultural customers.

Table 4-8: Monthly Bill Change, Agricultural Sample Customers

Meter Size k-gal/mo	Avg. Usage	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
3/4"	81	\$44	\$48	\$48	\$49	\$50	\$54
3/4"	297	\$158	\$174	\$172	\$177	\$181	\$195
2"	511	\$275	\$302	\$299	\$308	\$314	\$340

4.3.2 Comparison to Other Utilities

Figure 4-7 presents a comparison of the BWS’s proposed rates for FY 2024 with the rates as of October 2023 of other county water systems in the state and the 50 largest cities in the United States for a Single-Family customer billed for 9 k-gal and using a 3/4" meter size, comparable to the BWS’s smallest meter size. The BWS is generally in the middle of bills in comparison to the other counties and largest cities. The teal color is the BWS, the purple bars are the other islands in ascending order: Hawaii County, Maui County, and Kauai County.

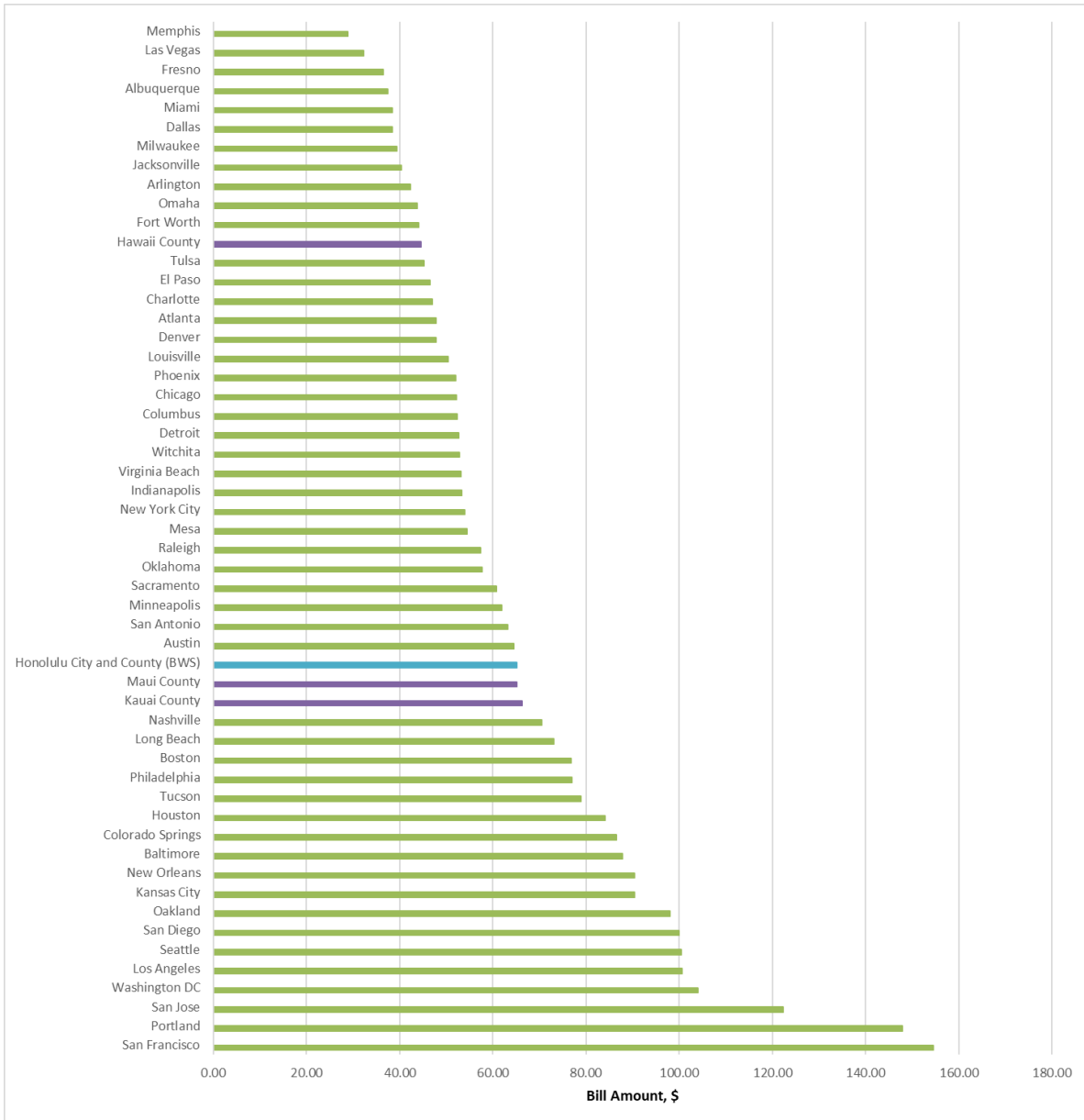


Figure 4-7: Multicity Comparison of Single-Family Residential Bill at 9 k-gal, 3/4" meter size

4.4 Public Input on Draft Rate Proposal and Board Approval

Once the set of recommended rates was developed based on significant input from the Stakeholder Advisory Group, Board and Permitted Interaction Group, an extensive public outreach effort related to the proposed rate schedule began. Community information meetings were held in four regions across O’ahu during August 2023. Twenty-five people attended in person, and the meetings were televised on Olelo Community Media. Meeting video was also posted on the BWS website and made available on OleloNet OnDemand.

Additional live meetings included neighborhood boards and special interest groups. Twenty-one neighborhood board presentations were conducted with over 400 attendees, in total. Overall, comments at the neighborhood board meetings were positive and supportive of the BWS's approach and rationale for the water rate increases. The BWS conducted seven interest group presentations, with approximately 150 attendees, which included the Chamber of Commerce Hawaii: Government Relations, House District 44 – Representative Darius Kila, Kukui Plaza, Green Business Conference and Stormwater Stakeholder Advisory Group. Seven City Council member briefings were held including a briefing to the Mayor's Cabinet of top City leadership.

Additional outreach via paper and electronic media were also used to reach the public. The BWS website presenting the proposed changes to rates received over 1,700 page views. A special edition of Water Matters, the BWS customer newsletter, which focused on the proposed water rates, was distributed to all 170,000 BWS account holders, local newspapers, social media, TV and radio stations. The BWS staff participated in radio and TV interviews describing the proposed rates.

Common questions at all the meetings include the following topics: desalination, Red Hill, tiered rates for non-residential (resorts should pay more), conservation initiatives, and sewer rates too high. This mirrors the questions heard at the community information meetings.

Community comments: Some individuals stated, "it was unfair to raise the lowest rate . . . because no matter how much less water used, there is no cheaper rate." "Tier 3 is too broad and does not encourage smart water use or water conservation efforts." "Need to keep Agriculture rates as low as possible to allow food production to continue . . ." Non-Residential rates should be split out and a special category be established for facilities serving visitor . . ." Comments received in support of rate increase – "As a residential customer, I support the increase." "I have no problem with the increase rates for water usage." "I understand most of the reasoning behind the proposed water rate hikes except, why are homeowners going to be responsible for the Navy's mess created by the Red Hill crisis."

Overall reception by the public and small businesses of the rate proposal has been positive. While the community is concerned about rates going up (along with inflation in the economy), they understand the reasons behind the proposed increases and support maintaining the integrity of the water system is critical.

Prior to the November 27, 2023 public hearing, the BWS received approximately 117 written and oral comments (not including Neighborhood Board comments) of which 102 opposed or have concerns about increases and 15 supported increases and felt they were needed. General comments from individuals included: people were upset about the burden of paying for costs associated with Red Hill and that the Navy should pay these costs (60); concerns about Kupuna on fixed incomes (23), concerns about planning, development, infrastructure, and waivers (80), increases too high (38), and the cost-of-living increases (32).

Additionally, a small business impact statement of the proposed changes to the rates and associated definitions, other charges and waivers was presented to the Small Business Regulatory Review Board. The impact statement specifically addressed concerns small businesses might have with changes in water rates, such as potential bill impacts, restrictions on water usage, and/or ease of understanding.

Between the impact statement and presentation, small business representatives in the Stakeholder Advisory Group and Commercial Stakeholder Advisory Group, and a presentation to the Chamber of Commerce Hawaii, the BWS kept small businesses informed of the changes. Response was neutral to positive.

The Board approved the Schedule of Water Rates and Charges on November 27, 2023. Resolution No. 976, 2023 became effective on February 1, 2024 and to remain in effect until superseded.



5.0 Conclusion

The BWS last enacted a schedule of rate increases in 2018 for the period of July 1, 2019 through June 30, 2023. Rates had not changed since July 1, 2022. Since they were enacted, a number of adverse conditions have impacted the BWS financially, including the COVID-19 global pandemic, much higher than anticipated inflation, dramatic increases in energy costs, and the Red Hill crisis. The BWS proposed rates strive to strike an appropriate balance between what is required to continue to provide safe and dependable water with affordability. The proposed rate plan (February 2024 through June 2029) requires rate adjustments each year. Cumulatively over the study period, the proposed rate schedule is projected to result in a 66.9 percent increase in revenues. While the increases are consistent across all customer classes, these increases do not necessarily match increases in rates for individual customers as a result limiting the increase for the Essential Needs tier to 2.5 percent per fiscal year while implementing higher increases in the highest usage tiers in order to encourage conservation.

The preceding increases replace those approved by BWS in 2018 that set rates through June 30, 2023. While the BWS has been able to use available fund balances in addition to rate-based revenues to cover higher than anticipated operating and capital expenses since then, investments in infrastructure will require more revenue than what can be expected under current rates. As a result, rates need to be increased to generate additional revenues.

In alignment with Board objectives, the following will be implemented:

- All customer classes will have the same rate increases, with increases of:
 - February 1, 2024 – 10.0%
 - July 1, 2024 – 10.0%
 - July 1, 2025 – 9.0%
 - July 1, 2026 – 8.5%
 - July 1, 2027 – 8.0%
 - July 1, 2028 – 8.0%
- Essential needs quantity charge increased by 2.5 percent each fiscal year to support affordability.

In advance of the next rate study, the BWS may want to consider exploring:

- Whether the Non-Residential customer class can and/or should be subdivided into smaller, more homogenous groups of customers for which a basis for greater definition in cost allocation and equitable rate setting could be established. Doing so would necessitate review of existing Non-Residential customer premise types and likely the creation of additional premise types in order to develop an adequate data set to support the required analyses;
- Evaluating consumption patterns and update the cost of service analysis, if appropriate;
- Separating residential and non-residential meters for mixed-use buildings; and
- Separating residential and agricultural meters for farms currently using one meter for domestic and irrigation uses.



6.0 Acknowledgments

Critical to the development of the Rate Study was a diverse, collaborative team of contributors and reviewers. The following organizations and their staff have dedicated significant time and effort to shaping a reliable, sustainable water future for the people of O’ahu.

Board of Water Supply

Board of Directors

Na’alehu Anthony, Chair

Kapua’ala Sproat, Vice Chair

Bryan Andaya, Member

Jonathan Kaneshiro, Member

Gene Albano, Member, Ex-officio

Ed Sniffen, Member, Ex-officio

Executive Management

Ernest Y. W. Lau, Manager and Chief Engineer

Erwin Kawata, Deputy Manager and Chief Engineer

Cost of Service/Water Rate Study Project

Joe Cooper, Project Manager

Kathleen Elliot-Pahinui, Information Officer

Board of Water Supply Division and Offices

Jennifer Elflein, Customer Care

Jason Nikaido, Field Operations

Kevin Ihu, Water System Operations

Roland Fenstemacher, Water Quality
(Acting)

Michael Matsuo, Land

Michele Thomas, Human Resources

Henderson Nuuhiwa, IT

Jadine Uraski, Capital Projects (Acting)

Barry Usagawa, Water Resources

Joe Cooper, Finance

Raelynn Nakabayashi, Executive
Support

Consultant Team

CDM Smith

Harris & Company



Appendix A

Board Resolution Adopting Rates

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

RESOLUTION NO. 976, 2023

ADOPTING THE REVISIONS TO THE SCHEDULE OF RATES AND CHARGES
FOR THE FURNISHING OF WATER AND WATER SERVICE FOR
FISCAL YEARS 2024 – 2029, EFFECTIVE FROM AND AFTER FEBRUARY 1, 2024, AND
TO REMAIN IN EFFECT UNTIL SUPERSEDED

WHEREAS, the mission of the Board of Water Supply is to provide safe, dependable, and affordable water now and into the future; and

WHEREAS, pursuant to the Revised Charter of Honolulu Section 7-109, the Board has the power to fix and adjust reasonable rates and charges for the furnishing of water and for water services; and

WHEREAS, a five-year cost of service and rate study was completed to determine the necessary revenue adjustments to support the operations of the Board of Water Supply; and

WHEREAS, inflation and the cost of capital improvements have increased more rapidly than the revenues generated by the Board of Water Supply's previous Schedule of Rates and Charges for the Furnishing of Water and Water Service, necessitating an increase in rates and charges; and

WHEREAS, the Board of Water Supply needs to increase monitoring and develop new water sources in the light of the fuel leak at the Red Hill Bulk Fuel Storage Facility; and

WHEREAS, the Board of Water Supply seeks to increase its annual replacement of pipeline to 21 miles per year to adequately maintain its distribution system; and

WHEREAS, the Board of Water Supply recognizes the importance of affordable water to meet essential household needs; and

WHEREAS, the Board of Water Supply recognizes the benefits of a viable local agricultural industry on Oahu and the importance of an affordable supply of water for that industry; and

WHEREAS, the Board of Water Supply recognizes the benefit of encouraging the use of recycled and non-potable water resources as a way to manage and sustain the potable water resources on Oahu;

WHEREAS, the foregoing issues and priorities culminated in proposed revisions to the Schedule of Rates and Charges for the Furnishing of Water and Water Service ("Proposed Revisions");

WHEREAS, all customers were notified of the Proposed Revisions and opportunities to obtain additional information, along with instructions to submit comments, through mailed

“Water Matters” billing inserts and the Board of Water Supply website beginning in September 2023;

WHEREAS, four community information meetings were held by the Board of Water Supply on August 14, 2023, August 15, 2023, August 16, 2023, and August 23, 2023 in Kāne’ohe, Mō’ili’ili, Kapolei and Mililani, respectively, the purpose of informing the public of the proposed revisions to the Schedule of Rates and Charges for the Furnishing of Water and Water Service; and

WHEREAS, on November 27, 2023, pursuant to the Revised Charter of Honolulu Section 7-110, after publication of notice of Public Hearing on October 27 and 29, a Public Hearing was held by the Board of Water Supply for the purpose of considering proposed revisions to the Schedule of Rates and Charges for the Furnishing of Water and Water Service; and

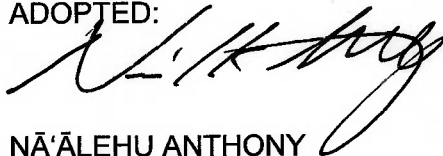
WHEREAS, testimonies (i) presented at the foregoing meetings and Public Hearing and (ii) received in writing through November 27, 2023 on the Proposed Revisions were given due consideration and incorporated as appropriate; and

WHEREAS, the Board of Water Supply met with a Stakeholder Advisory Group and a Commercial Stakeholder Advisory Group multiple times in 2023 to solicit feedback and gather input on the Proposed Revisions; now, therefore,

BE IT RESOLVED that the Board of Water Supply understands and acknowledges that adoption of the Proposed Revisions may result in the temporary deviation from the financial policies adopted by Resolution 873, 2017, establishing a target minimum of 60 days working capital cash on hand. The Board of Water Supply nonetheless recognizes that the reserve of working capital was designated for the purpose of addressing economic and revenue downturns and emergency situations, such that the reserve of working capital would be accessed when required to ensure continued operations and capital expenditures; and

BE IT FINALLY RESOLVED by the Board of Water Supply, City and County of Honolulu, that in support of these objectives and the mission of the Board of Water Supply, the Revised Schedule of Rates and Charges for Fiscal Years 2024 – 2029 is adopted as attached hereto, and that said rates and charges shall become effective from and after February 1, 2024, and shall remain in effect until superseded.

ADOPTED:



NĀ'ĀLEHU ANTHONY
Chair

Honolulu, Hawai'i
November 27, 2023

ADOPTION OF RESOLUTION NO. 976, 2023, ADOPTING THE REVISION TO THE SCHEDULE OF RATES AND CHARGES FOR THE FURNISHING OF WATER AND WATER SERVICE FOR FISCAL YEARS 2024-2029, EFFECTIVE FEBRUARY 1, 2024, THROUGH JUNE 30, 2029, AND TO REMAIN IN EFFECT UNTIL SUPERSEDED WAS ADOPTED ON NOVEMBER 27, 2023

	AYE	NO	COMMENT
NA'ALEHU ANTHONY	X		
KAPUA SPROAT	X		
BRYAN P. ANDAYA	X		
JONATHAN KANESHIRO	X		
EDWIN H. SNIFFEN	X		
GENE C. ALBANO			ABSTAIN

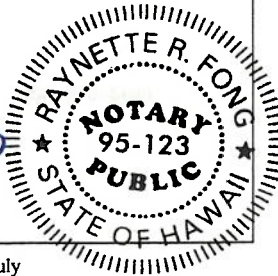
AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
NOTICE OF PUBLIC HEARING

}
}
}
}
}
}
}

STATE OF HAWAII }
 } SS.
City and County of Honolulu }

Doc. Date: <u>undated</u>	# Pages: <u>- 2 -</u>
Notary Name: <u>Raynette R. Fong</u>	<u>First</u> Circuit
Doc. Description: <u>Affidavit of Publication</u>	
<u>Raynette R. Fong</u> <small>Notary Signature</small>	<u>10/31-23</u> <small>Date</small>



Kimberly Masu being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

Honolulu Star-Advertiser 2 times on:
 10/27, 10/29/2023

MidWeek 0 times on:

The Garden Island 0 times on:

Hawaii Tribune-Herald 0 times on:

West Hawaii Today 0 times on:

Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

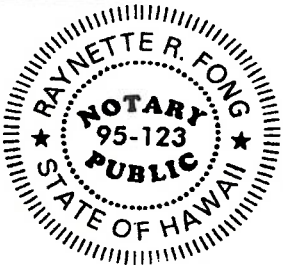
Kimberly Masu

 Kimberly Masu

Subscribed to and sworn before me this 31st day of October A.D. 2023

Raynette R. Fong

 Notary Public of the First Judicial Circuit, State of Hawaii
 My commission expires:



Ad # 0001430661

Raynette R. Fong
 Notary Public, State of Hawaii
 My Commission Expires: 03/24/2027

ICSP.NO.: _____

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that the BOARD OF WATER SUPPLY, CITY AND COUNTY OF HONOLULU, will hold a PUBLIC HEARING in the Board Room, Public Service Building, 630 South Beretania Street, Honolulu, HI 96843, on MONDAY, NOVEMBER 27, 2023, at 2:00 p.m., or soon thereafter...

Limited seating will be available in the Board Room for testifiers or those wishing to attend the meeting in person. The public may also view the livestream of the meeting online at www.boardofwatersupply.com/live.

TESTIMONY MAY BE SUBMITTED AS FOLLOWS:

Written testimony should include the submitter's address, email address, and phone number. Testimony must be received by Monday, November 27, 2023, at noon. Submit written testimony by:

- Email to board@hws.org
Online at boardofwatersupply.com/testimony
Mail or hand deliver to Board of Water Supply, 630 S. Beretania Street, Honolulu, HI 96843
Fax to (808) 748-5079

Oral testimony will be accepted remotely and in person during the meeting. Pre-registration is encouraged to facilitate as much remote and in-person testimony as reasonably possible during the time allotted.

- To testify remotely using the Zoom videoconferencing platform, please submit your request by email to board@hws.org or online at boardofwatersupply.com/testimony.
Zoom registration instructions, as well as participant guidelines, will be sent to the contact information provided.
To testify in person at the meeting, please pre-register by submitting your request by Monday, November 27, 2023, by email to board@hws.org or online at boardofwatersupply.com/testimony.

MATERIALS AVAILABLE FOR INSPECTION: Meeting materials ("board packet" under HRS Section 92-7.5) are accessible at boardofwatersupply.com/boardmeetings.

VIEWING THE MEETING: The meeting will be viewable via livestreaming on the BWS website: www.boardofwatersupply.com/live. Video will appear on screen. You may have to click the arrow on video to start it. You may have to unmute audio as muted audio tends to be the default setting.

SPECIAL REQUESTS AND ACCOMMODATIONS

If you require special assistance, an auxiliary aid or service, and/or an accommodation due to a disability to participate in this meeting (i.e., sign language interpreter, interpreter for language other than English, or wheelchair accessibility), please call (808) 748-5172 or email your request to board@hws.org at least three business days prior to the meeting date.

Upon request, this notice is available in alternate formats such as large print, Braille, or electronic copy.

BOARD OF WATER SUPPLY, CITY AND COUNTY OF HONOLULU SCHEDULE OF RATES AND CHARGES FOR THE FURNISHING OF WATER AND WATER SERVICE

Customer Charge: There is a charge for each month service is provided based on the meter size, effective as follows:

Table with columns for Meter Size and rows for February 1, 2024, July 1, 2024, July 1, 2025, July 1, 2026, July 1, 2027, July 1, 2028. Rows include sizes from 5/8" or 3/4" to 12".

Quantity Charge: In addition to the Customer Charge, there is a charge for all water use rounded down to the nearest 1,000 gallons (k-gal), effective as follows:

Large table with columns for service type, date, and quantity. Rows include Single-Family Residential, Multi-Unit Residential, Non-Residential, Agricultural, Non-Potable/Brushish, Recycled Water R-1 Golf, Recycled Water R-1 Other, Reverse Osmosis (RO).

Fire Meter Standby Charge: For those receiving private fire service, there is an additional fire meter standby charge billed monthly based on the size of the fire meter effective as follows:

Table with columns for Fire Meter Size and rows for February 1, 2024, July 1, 2024, July 1, 2025, July 1, 2026, July 1, 2027, July 1, 2028. Rows include sizes 2" and smaller, 3", 4", 6", 8".

Customer Class Definitions

Potable Water means all water that meets State Department of Health Drinking Water Standards. For all customers, all potable water used for irrigation will be billed in accordance with the primary usage of the property.

Residential, Single-family residential refers to single-family and duplex residences. Multi-unit refers to multi-unit residences including apartments, condominiums and townhouses.

Agricultural refers to a parcel devoted to agricultural activities. To qualify for Agricultural Quantity Charges, a customer must submit a written application to the Board of Water Supply and furnish satisfactory proof that they are engaged in agriculture on a commercial basis.

Non-residential refers to any property not used for residential or agricultural purposes. To determine appropriate quantity charges, combinations of residential and non-residential may require separate meters for each use.

Non-Potable/Brushish

- R-1 Recycled Water: R-1 recycled water is recycled wastewater that meets State Department of Health Reuse Guidelines.
R-1 Golf: R-1 Golf are those customers that receive R-1 water used primarily for golf course irrigation.
R-1 Other: R-1 Other are those customers that receive R-1 recycled water for uses other than golf course irrigation.
Reverse Osmosis (RO): Demineralized Water is recycled wastewater that has been demineralized through reverse osmosis.

The R-1 Golf, R-1 Other and RO Customer and Quantity Charges shall not supersede existing or individually negotiated charges unless expressly identified in the contract.

Fire Meter Standby Charge: For readiness to serve, applies to services used exclusively for private fire protection purposes, including automatic fire sprinkler services connected to the alarm systems, fire hydrants, and wet standpipes.

Continued in the next column:

Standby Charge: A Standby Charge will be negotiated by the Manager and Chief Engineer with each private water system contracting for interconnection service. Such service shall be provided only during emergency or temporary service outages with the intent to protect against interrupted water service supporting normal private system requirements.

Water service shall be provided in accordance with Board of Water Supply Rules and Regulations Section 1-101 Availability of Water which requires that "the Department have sufficient pressure and water supply available for domestic use and fire protection and can assume new or additional service without detriment to those presently being served."

Power Cost Adjustment: When total power, or electricity, costs to the Board of Water Supply exceed the amount used in calculating the annual Schedule of Rates and Charges, then the Quantity Charge may be increased \$0.01 per 1,000 gallons for every \$500,000 incremental power cost coverage in the following fiscal year.

Environmental Regulations Compliance Fee Cost Adjustment: The Quantity Charge may be increased \$0.01 per 1,000 gallons for each \$500,000 of additional costs that the Board of Water Supply is required to incur in order to comply with any Federal or State environmental laws or regulations.

Waiver of Water System Facilities Charge for Qualified Affordable and Homeless Dwelling Units: The Board of Water Supply may waive the Water System Facilities Charge and new meter cost for qualified on-site affordable and homeless dwelling units, up to 500 dwelling units per year.

Waiver of Water System Facilities Charge for New Farmers: The Board of Water Supply may waive the Water System Facilities Charge and new meter cost for qualified new farmers needing a 3/4- or 1-inch water meter and connecting to the BWS system for the first time.

Waiver of Water System Facilities Charge for Agricultural Operations: The Board of Water Supply may waive the Water System Facilities Charge and new meter cost for qualified new agricultural enterprises that will be actively growing crops and/or raising livestock for food purposes, or dairy farming on a commercial basis.

Revision to the Schedule of Rates and Charges for the Furnishing of Water and Water Service

Amended by Resolution No. 976,2023, effective from and after February 1, 2024, and to remain in effect until superseded.

Customer Charge

There is a customer charge for each month service is provided based on the meter size, effective as follows:

Meter Size	February 1, 2024	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
5/8" or 3/4"	13.30	14.63	15.95	17.30	18.68	20.18
1"	16.81	18.49	20.15	21.87	23.62	25.50
1.5"	19.15	21.07	22.96	24.91	26.91	29.06
2"	47.80	52.57	57.31	62.18	67.15	72.52
3"	58.91	64.80	70.63	76.63	82.76	89.38
4"	112.11	123.32	134.42	145.85	157.52	170.12
6"	199.80	219.78	239.56	259.93	280.72	303.18
8"	304.46	334.90	365.05	396.07	427.76	461.98
12"	658.38	724.22	789.40	856.50	925.02	999.02

Quantity Charge

In addition to the Customer Charge, there is a charge for all water used, rounded down to the nearest 1,000 gallons (k-gal), effective as follows:

Single-Family Residential (Monthly per dwelling unit)	February 1, 2024	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
Tier 1: Essential Needs First 2,000 gallons	\$4.57	\$4.69	\$4.80	\$4.92	\$5.05	\$5.17
Tier 2 2,001 – 6,000 gallons	\$5.78	\$6.35	\$6.92	\$7.51	\$8.11	\$8.76
Tier 3 6,001 – 30,000 gallons	\$6.53	\$7.34	\$8.15	\$8.98	\$9.82	\$10.74
Tier 4 Over 30,000 gallons	\$10.95	\$12.32	\$13.67	\$15.06	\$16.48	\$18.02
Multi-Unit Residential (Monthly per dwelling unit)	February 1, 2024	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
Tier 1: Essential Needs First 2,000 gallons	\$3.86	\$3.96	\$4.06	\$4.16	\$4.27	\$4.37
Tier 2 2,001 – 4,000 gallons	\$4.87	\$5.36	\$5.84	\$6.34	\$6.85	\$7.39
Tier 3 4,001 – 10,000 gallons	\$5.70	\$6.52	\$7.33	\$8.16	\$9.01	\$9.93
Tier 4 Over 10,000 gallons	\$7.21	\$8.25	\$9.27	\$10.33	\$11.40	\$12.57

Non-Residential	February 1, 2024	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
All Usage	\$5.80	\$6.38	\$6.95	\$7.54	\$8.14	\$8.80
Agricultural (Monthly per account)	February 1, 2024	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
Tier 1: Essential Needs First 2,000 gallons	\$4.57	\$4.69	\$4.80	\$4.92	\$5.05	\$5.17
Tier 2 2,001 – 6,000 gallons	\$5.78	\$6.35	\$6.92	\$7.51	\$8.11	\$8.76
Tier 3 Over 6,000 gallons	\$2.33	\$2.57	\$2.81	\$3.05	\$3.29	\$3.56
Non-Potable/Brackish	February 1, 2024	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
All Usage	\$3.19	\$3.51	\$3.82	\$4.15	\$4.48	\$4.84
Recycled Water						
R-1 Golf	February 1, 2024	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
All Usage	\$0.72	\$0.79	\$0.86	\$0.93	\$1.00	\$1.08
R-1 Other	February 1, 2024	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
All Usage	\$2.16	\$2.37	\$2.59	\$2.80	\$3.03	\$3.27
Reverse Osmosis (RO)	February 1, 2024	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
All Usage	\$7.00	\$7.70	\$8.39	\$9.10	\$9.83	\$10.62

Fire Meter Standby Charge

For those receiving private fire service, there is an additional fire meter standby charge billed monthly based on the size of the fire meter effective as follows:

Fire Meter Size	February 1, 2024	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
2" and smaller	\$8.79	\$9.67	\$10.54	\$11.43	\$12.35	\$13.34
3"	\$11.32	\$12.45	\$13.57	\$14.73	\$15.90	\$17.18
4"	\$15.65	\$17.22	\$18.77	\$20.36	\$21.99	\$23.75
6"	\$31.28	\$34.41	\$37.51	\$40.70	\$43.95	\$47.47
8"	\$58.23	\$64.06	\$69.82	\$75.76	\$81.82	\$88.36

Customer Class Definitions

Potable Water means all water that meets State Department of Health Drinking Water Standards. For all customers, all potable water used for irrigation will be billed in accordance with the primary usage of the property. Potable water customers are divided into the following classes:

Residential

Single-family residential refers to single-family and duplex residences.

Multi-Unit refers to multi-unit residences including apartments, condominiums and townhouses. Low-rise constitutes up to three stories in height. High-rise refers to higher than three living stories.

Agricultural

Agricultural refers to a parcel devoted to agricultural activities. To qualify for Agricultural Quantity Charges, a customer must submit a written application to the Board of Water Supply and furnish satisfactory proof that they are engaged in agriculture on a commercial basis. Only one dwelling unit will be allowed on a meter qualifying for the agricultural quantity charges. To continue to qualify, the application must be renewed each fiscal year.

Non-Residential

Non-residential refers to any property not used for residential or agricultural purposes. To determine appropriate quantity charges, combinations of residential and non-residential may require separate meters for each use; e.g. separate residential and non-residential meters.

Non-Potable Water means all water that does not meet State Department of Health Drinking Water Standards. It is divided into the following classes:

Non-Potable/ Brackish

Customers that receive non-potable/ brackish water.

R-1 Recycled Water

R-1 recycled water is recycled wastewater that meets State Department of Health Reuse Guidelines.

R-1 Golf are those customers that receive R-1 water used primarily for golf course irrigation.

R-1 Other are those customers that receive R-1 recycled water for uses other than golf course irrigation

Reverse Osmosis (RO) Demineralized Water

RO water is recycled wastewater that has been demineralized through reverse osmosis.

The R-1 Golf, R-1 Other and RO Customer and Quantity Charges shall not supersede existing or individually negotiated charges unless expressly identified in the contract.

Fire Meter Standby Charge

The Fire Meter Standby Charge, for readiness to serve, applies to services used exclusively for private fire protection purposes, including automatic fire sprinkler services connected to the alarm systems, fire hydrants, and wet standpipes. These must be protected against theft and leakage or waste of water. No connections or usage of water for other than fire-fighting and system testing purposes is allowed. In addition, for any misuse or non-fire protection related water use, such usage will be billed at twice the highest quantity charge in effect at that time. For any such misuse or leakage, the Customer shall be subject to penalty pursuant to Chapter 1, Article 3, Section 1-3.1 of the Revised Ordinances of Honolulu. Except for misuse and non-fire protection related use as described above, there are no quantity charges associated with these services.

Standby Charge: A Standby Charge will be negotiated by the Manager and Chief Engineer with each private water system contracting for interconnection service. Such service shall be provided only during emergency or temporary service outages with the intent to protect against interrupted water service supporting normal private system requirements. Water used shall be charged at the applicable quantity rate for each thousand gallons. Approval of activation and duration is contingent upon impacts to BWS customers' level of service and BWS's ability to meet Water System Standards requirements. Activation of service will require a written request submitted to the Manager and Chief Engineer at least 48 hours before service is required, unless waived by the Manager and Chief Engineer.

Water service shall be provided in accordance with Board of Water Supply Rules and Regulations Section 1-101 Availability of Water which requires that “the Department have sufficient pressure and water supply available for domestic use and fire protection and can assume new or additional service without detriment to those presently being served.”

Power Cost Adjustment: When total power, or electricity, costs to the Board of Water Supply exceed the amount used in calculating the annual Schedule of Rates and Charges, then the Quantity Charge may be increased \$0.01 per 1,000 gallons for every \$500,000 incremental power cost overage in the following fiscal year.

Environmental Regulations Compliance Fee Cost Adjustment: The Quantity Charge may be increased \$0.01 per 1,000 gallons for each \$500,000 of additional costs that the Board of Water Supply is required to incur in order to comply with any Federal or State environmental laws or regulations.

Waiver of Water System Facilities Charge for Qualified Affordable and Homeless Dwelling Units

The Board of Water Supply may waive the Water Systems Facilities Charges and new meter cost for qualified on-site affordable and homeless dwelling units, up to 500 dwelling units per year. The waivers will be granted when the building permit is submitted for approval. To qualify, the dwelling units must be certified as either affordable or homeless dwelling units by the appropriate agency of the City and County of Honolulu. Waiver of the Water System Facilities Charge will apply only to fixture units associated with the certified dwelling units. The amount of the meter waiver shall be calculated as a percentage of the number of certified dwelling units to the total number of dwelling units in the project. If the annual cap of 500 dwelling units has not been reached and a project is proposed that would qualify for more than the remaining number of dwelling units in that year, the Manager and Chief Engineer has the discretion to increase that year’s limit.

Waiver of Meter Charges for Residential Fire Sprinkler Retrofits

The Board of Water Supply may waive the new meter charges for high rise multi-unit residential fire sprinkler retrofits.

Waiver of Water System Facilities Charge for New Farmers

The Board of Water Supply may waive the Water Systems Facilities Charges and new meter cost for qualified new farmers needing a ¾- or 1-inch water meter and connecting to the BWS system for the first time. A new farmer is defined as any entity starting up a new agricultural enterprise that will be actively growing crops and/or raising livestock for food purposes, or dairy farming on a commercial basis, that does not already have a meter on the BWS system for the purpose of farming. Existing farming operations and expansion of existing operations do not qualify. The BWS will have full discretion whether what is being grown or raised is for food or other purposes. The new water meter serving the agricultural operation shall only serve the farm and up to one residence / dwelling. The entity must be a registered Hawai’i farm business and have GET license. The entity must provide a written farm irrigation plan and install a BWS-approved backflow preventer at its own cost. This program will expire when the waivers granted by BWS have reached \$1 million, unless otherwise extended prior to that time. The waiver will be revoked and the installation fee and Water System Facilities Charge will become immediately due and payable if: (a) commercial agricultural operations are not maintained for at least 5 years, or (b) other violations are identified and not rectified within a specified timeline mandated by the BWS.