2021 COST OF SERVICE RATE STUDY

Pajaro Valley Water Management Agency

February 2021

carollo

Pajaro Valley
Water Management Agency

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Abbreviations

AF	Acre-Feet
AFY	Acre-Feet per Year
Agency Act	Pajaro Valley Water Management Agency Act
AWWA	American Water Works Association
BMP	Basin Management Plan
Carollo	Carollo Engineers
CDS	Coastal Distribution System
DSCR	Debt Service Coverage Ratio
DWR	California Department of Water Resources
DWZ	Delivered Water Zone
ELA	Engineering, Legal, and Acquisition
FYE	Fiscal Year Ending
GIS	Geographic Information System
GSP	Groundwater Sustainability Plan
MEU	Meter Equivalent Unit
O&M	Operations and Maintenance
PAYGO	Pay-as-you-go
Proposition 218	Article XIII D of the California Constitution
Proposition 26	Article XIII C of the California Constitution
PVGB or Pajaro Basin	Pajaro Valley Groundwater Basin
PV Water or Agency	Pajaro Valley Water Management Agency
R&R	repair and replacement
RW	Recycled Water
RWF	Recycled Water Facility
SGMA	Sustainable Groundwater Management Act
SRF	State Revolving Fund
SWRCB	California State Water Resources Control Board
Study	2021 Cost of Service Rate Study

Section 1

INTRODUCTION

1.1 Study Purpose

Pajaro Valley Water Management Agency (PV Water or Agency) retained Carollo Engineers, Inc. ("Carollo") to conduct this 2021 Cost of Service Rate Study (Study). The purpose of this Study is to assess the Agency's current and forecasted augmentation and delivered water charges, financial metrics, water demands, and cost allocations, and provide recommendations to increase each charge starting with Fiscal Year Ending (FYE) 2022 through 2026.[1] Carollo performed the Agency's previous rate study, which was completed in early 2015. The Agency's Board of Directors subsequently adopted Ordinances 2015-01 and 2015-02, which established rates from FYE 2016 through FYE 2020 that were followed by a continuation of FYE 2020 rates in FYE 2021.

The primary purpose of this cost-of-service analysis is to provide a rational basis for distributing service costs (Administration, Operations, Metering, Planning, and Capital) to each customer class in proportion to the demands they place on the system and benefits received from Agency services, consistent with the cost of service and other substantive requirements of California Constitution Article XIII C (referred to in this Report as "Proposition 26") and Article XIII D, Section 6 (referred to in this Report as "Proposition 218"). This Report provides supporting documentation required by Propositions 26 and 218 and other laws. The Report and analysis build off the Agency's 2015 Proposition 218 Service Charge Report and subsequent legal opinions and court decisions that provide a foundation for the augmentation and delivered water charges that fund the Agency's services. The 2015 report[2] is incorporated by reference as part of this 2021 report (except, to the extent there are differences, this 2021 report will govern).

1.2 About Pajaro Valley Water Management Agency

PV Water is a state-chartered water management district, formed in 1984 by the Pajaro Valley Water Management Agency Act (Agency Act) to efficiently and effectively manage existing and supplemental water supplies in the Pajaro Basin. In 2014 the Sustainable Groundwater Management Act (SGMA) became law, and the PV Water Board of Directors in 2015, voted to become the Groundwater Sustainability Agency for the Pajaro Valley Groundwater Basin (PVGB or Pajaro Basin). The PVGB is located along the Central California coast and runs from the Coastal Range to the Monterey Bay. Figure 1 presents a map of the Agency's service area and includes communities located in the Pajaro Valley.

[1] The Agency's fiscal year begins on July 1 and ends on June 30 of the following year.
[2] The 2015 Cost of Service Report is available from the Agency office and at https://www.pvwater.org/ad-hoc-funding-committee.

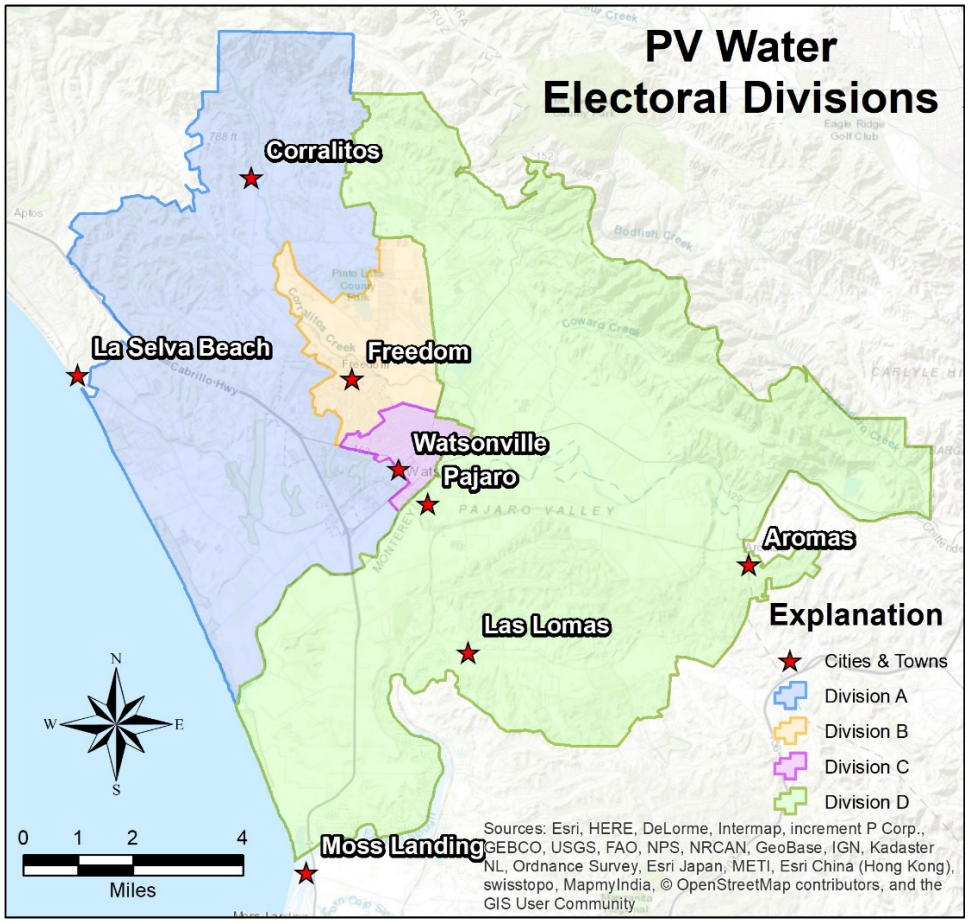

Figure 1 Pajaro Valley Water Management Agency's Service Area

Section 102 of the Agency Act sets forth the following water resource management objectives.

1. Local groundwater resources should be managed toward the avoidance and eventual prevention of conditions of long-term overdraft, land subsidence, and water quality degradation.
2. Local economies should be built and sustained on reliable, long-term supplies and not long-term overdraft as a source of water supply.
3. Water management programs should include reasonable measures to prevent further increases in the amount of long-term overdraft and to accomplish continuing reduction in long-term overdraft, realizing that an immediate reduction in long-term overdraft may cause severe economic loss and hardship.
4. Conservation and economically efficient management of water resources are necessary to meet the needs of agriculture, industry, and urban communities. Economic efficiency requires that water users pay their full proportionate share of the costs of developing and delivering water. Property taxes shall not be used for payment of these costs. Agricultural uses shall have priority over other uses under this act within the constraints of state law.
5. Water conservation programs appropriately include the ability of a water management agency to recognize existing beneficial uses, and to acquire, buy, and transfer water and water rights in the furtherance of its purposes.

6. Efficiently and economically manage existing and supplemental water supplies in order to prevent further increase in, and to accomplish continuing reduction of, long-term overdraft and to provide and ensure sufficient water supplies for present and anticipated needs within the boundaries of the Agency.
7. The water management agency should, in an efficient and economically feasible manner, utilize supplemental water and available underground storage and should manage the groundwater supplies to meet the future needs of the basin.

Historic groundwater use has led to serious overdraft conditions in the Pajaro Basin. Overdrafting depletes the groundwater supply by extracting more water than is replenished or recharged. The continued overdraft has resulted in seawater intrusion. As groundwater is drawn below sea level, seawater flows into the aquifer rendering the groundwater too saline for agricultural or domestic use.

Recent levels of consumption have resulted in groundwater levels below sea level across much of the basin. Table 1 summarizes the historical overdraft and the estimated consumption for agricultural and non-agricultural water uses for the ensuing year. As shown in the table, the Pajaro Basin overdraft is expected to continue.

Table 1 Historical and Estimated Groundwater use in the Pajaro Basin

Estimated annual overdraft(1) for the current water year.(2)	21,600 AF
Estimated annual overdraft for the ensuing water year.	20,000 AF
Average annual overdraft for the immediate past 10 water years.	14,350 AF
Estimated accumulated overdraft(3) as of the last day of the preceding water (estimated since 1964).	704,190 AF
Estimated accumulated overdraft as of the last day of the current water year (estimated since 1964).	718,540 AF
Total production of water from groundwater supplies for the preceding water year.	43,080 AF
Estimated amount of agricultural water to be withdrawn for the ensuing water year.	40,000 AF
Amount of non-agricultural water to be drawn for the ensuing water year.	8,500 AF
Estimated amount of water necessary for surface distribution for the ensuing water year.	7,100 AFY
Amount of water necessary for the replenishment of the ground water supplies.	18,100 AFY
Amount of water the district is obligated by contract to purchase.	0 AFY

Notes:
(1) Defined as the amount by which the production of water from groundwater exceeds the natural replenishment of the groundwater supplies in the water year. The Pajaro Valley Hydrologic Model report (Hanson et al, 2014) provides estimates of long-term average annual overdraft (12,500 AF over the period 1964 – 2009), as well as a range of groundwater inflows and outflows. Model data were used in conjunction with measured production to populate the table. The values are estimates and subject to change pending further improvements to the understanding of the hydrologic system. All values were rounded to the nearest ten acre-feet.
(2) Defined as October 1 of one calendar year to September 30 of the following calendar year.
(3) Defined as the total amount of water necessary to be replaced in the intake areas of the groundwater basin to prevent the landward movement of salt water into the fresh groundwater.

Between 2015 and 2019, total annual water consumption in Pajaro Basin has averaged approximately 51,200 acre-feet (AF). Of this total, over 80 percent of Pajaro Basin groundwater is used for agricultural production. As illustrated in Figure 2, water demands are volatile and closely correlated with annual rainfall.

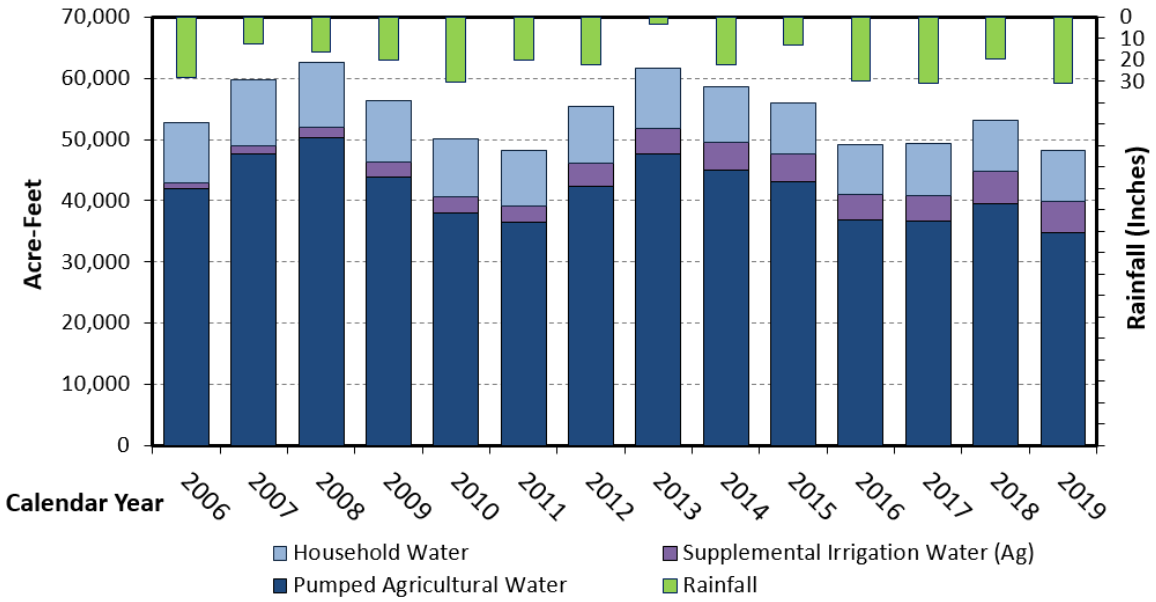

Figure 2 PV Water Consumption and Precipitation Trends, 2006 -2019

1.2.1 Basin Management Plan

The Agency pursues its state law objectives, guided by a Basin Management Plan (BMP) and pursuant to the Agency Act and California's AB 3030 Groundwater Management Act. Originally adopted in 1993, the BMP was revised in 2002 and updated in 2014 (BMP Update). The BMP Update was the product of a two-year process, advised by an Ad-Hoc BMP Committee consisting of three Agency representatives and 18 representatives of diverse customer and community interests. The Agency's Board adopted the BMP Update in April 2014, following a two-year process to complete and certify an accompanying Environmental Impact Report, as required by California law and administrative regulations. In 2014, the PV Water Board directed staff to submit the BMP Update and associated documents to the Department of Water Resources (DWR) as an Alternative to a Groundwater Sustainability Plan (GSP) as provided by SGMA. In 2019, DWR notified PV Water that its GSP-Alternative submittal was approved as a SGMA-compliant plan and functionally equivalent to a SGMA GSP.

The BMP Update recommends the following projects and programs to supplement existing facilities and services:[3]

- *Conservation:* reduce annual irrigation water use by 5,000 acre-feet per year (AFY) by the end of 2023.
- *Increased Recycled Water Storage:* construct up to 2 million gallons of storage at the recycled water facility (RWF)[4] to increase recycled water deliveries by approximately 750 AFY during peak irrigation season.
- *College Lake Integrated Resources Management Project*[5]*:* during the summer months, send water from College Lake through a new pipeline to (a) the RWF storage tank to supply the Coastal Distribution System (CDS) or (b) directly to the CDS, with provisions to supply inland users along the

[3] These projects and programs are described in more detail in the BMP Update.
[4] In 2009, the Agency partnered with the City of Watsonville to build a RWF that can deliver tertiary treated disinfected, recycled water for irrigation purposes to users in the coastal area.
[5] Known in the BMP as "College Lake with Inland Pipeline to CDS".

new water main pipeline. The water from College Lake can replace potable water currently used for blending[6] and water from the Agency's blend wells in the coastal zone.

- *Watsonville Slough System Managed Aquifer Recharge & Recovery Projects[7]:* install new shallow extraction wells at the Agency's recharge basin, upgrade the pump station and filters at the slough diversion to improve system operation and recharge percolation rates, and construct a new recharge basin; divert water from the Struve Slough to surficial aquifers during winter high flows from December to May.
- *Murphy Crossing with Recharge Basins:* divert water from the Pajaro River between December and May to recharge the basin in the vicinity of Murphy Crossing.

1.2.2 PV Water Services

The Agency's investments in integrated water infrastructure and associated water management programs are intended to protect and enhance the quantity and quality of groundwater resources in the Pajaro Basin by increasing supplemental water supply and water conservation and reducing groundwater pumping. With the completion of several water projects and the planned addition of projects described in the BMP Update, the Agency provides two types of water service: 1) supplemental water service; and 2) delivered water service. Supplemental water service is funded by the Agency augmentation charge while delivered water service is funded through the Agency delivered water charge.

1.2.2.1 Supplemental Water Service

The Agency provides supplemental water service to groundwater users throughout the Pajaro Basin. Supplemental water service includes the purchase/acquisition, capture, storage, and distribution of supplemental water through existing facilities, as well as the implementation of projects identified in the BMP Update to reduce groundwater overdraft and retard seawater intrusion. Existing facilities include the Watsonville RWF, supplemental wells for blending, the Harkins Slough Project, and the CDS. These facilities, and the projects identified in the BMP Update, are intended to advance the following Agency objectives for the benefit of all groundwater users in the Pajaro Basin.

- Protect and maintain the ability of property owners basin-wide to continue ongoing groundwater extraction;
- Secure the basin water supply;
- Retard seawater intrusion;
- Reduce overdraft;
- Promote water conservation; and,
- Avoid harsher and stricter groundwater pumping limits that could be imposed by the Agency, State Water Resource Control Board, or court adjudication and order, and thereby protect and preserve the ability of all groundwater pumpers throughout the groundwater basin to continue relying on groundwater resources without regulatory limits.

[6] The RWF produces recycled water with chloride and sodium concentrations above the desired agronomic objective. In order to reduce these constituents and improve the quality of delivered water for irrigation purposes, the recycled water must be blended with higher-quality (lower salinity) water. Therefore, the recycled water project includes the construction, operation, and maintenance of wells that provide lower salinity water to blend with the recycled water. The wells (or another source of lower salinity water) are an essential component of the recycled water project.

[7] Known in the BMP as two projects: "Harkins Slough Recharge Facilities Upgrades" and "Watsonville Slough with Recharge Basins".

Supplemental water service also includes (a) the design, construction, operation, maintenance, monitoring, management, repair, replacement and improvement of the existing and planned projects and facilities and water meters, (b) ongoing and future debt service related to the design and construction of the projects and facilities, (c) groundwater monitoring and modeling, water quality monitoring, water resources and groundwater basin planning and management, including periodic updates of the Agency's BMP, as appropriate to evaluate the effectiveness of the existing projects, determine improvements and enhancements, and identify future supplemental water projects that will further reduce groundwater overdraft and retard seawater intrusion, and (d) activities and actions to implement the groundwater management program as described in the BMP Update, and (e) activities and actions relating to compliance with and implementation of California Regional Water Quality Control Board permit requirements.

The supplemental water service is funded primarily through an augmentation charge pursuant to Agency Act Section 1001. The augmentation charge is a charge levied on the extraction of groundwater from wells within the Agency. In order to administer the charge, it is necessary for the Agency to know the actual or reasonable estimate of groundwater extraction from each well. The Agency installs meters on all wells capable of extracting 10 or more AFY. There are four well types in the Agency: (1) municipal wells operated by retail water providers; (2) agricultural wells; (3) industrial wells; and (4) small wells that serve rural residential parcels that are not connected to a public or community water system. The municipal, agricultural, and industrial wells are metered and they account for approximately 88 percent of the total PVGB water use. There are approximately 1,100 wells serving the rural residential parcels, which account for approximately 2 percent of the water use, and the remaining 10 percent of water use is by delivered water users. For the numerous rural residential wells, with the relatively small quantity of groundwater extraction, the Agency determined that it would not be cost-effective for the Agency or the landowners to install, read, operate, maintain, and repair the approximate 1,100 meters that would be required. The Agency therefore administers the augmentation charge for the rural residential well owners based on a reasonable estimate of extraction. For any rural residential well owner who prefers to be billed on actual usage, the Agency will authorize the installation of a meter at the well owner's expense.

1.2.2.2 Delivered Water Service

In addition to the supplemental water services provided basin-wide, the Agency supplies delivered water to property owners within the Delivered Water Zone (DWZ) through the CDS. Delivered water is produced by Agency facilities constructed and operated to protect the groundwater basin from overdraft and seawater intrusion. Delivered water service includes the design, construction, operation, maintenance, management, monitoring, repair and replacement of existing facilities, and other facilities identified in the BMP Update that provide irrigation water to delivered water service customers. Existing facilities include the Watsonville RWF, supplemental wells, the Harkins Slough Project, CDS, turnouts, turnout meters, and other facilities that provide for the delivery of water through the CDS at pressure levels appropriate for irrigation.

The DWZ delineates those water users able to receive delivered water directly from the Agency (Figure 3). Delivery and use of delivered water in the DWZ helps to preserve the amount and quality of the groundwater underlying the properties in the DWZ. Because of this, properties in the DWZ are subject to a higher augmentation charge, which reflects the higher level of services provided through the immediate availability of delivered water and the benefits to the underlying groundwater.

Similar to supplemental water service, delivered water service includes basin management planning and implementation activities required to effectively manage water supplies in the Pajaro Basin and management activities required to identify supplemental water sources to provide the required delivered water quantity and quality without adverse impact to the PVGB. This service also includes water quality

monitoring and testing of the recycled water to ensure it meets requirements of the Central Coast Regional Water Quality Control Board and Agency customers (e.g., farmers).

Delivered water service includes processing of water delivery orders, scheduling delivery of water, cross connection analysis and backflow prevention device testing, monitoring and inspection of recycled water use sites, and meter-related activities.

The Agency funds this service through a delivered water charge imposed on users of the delivered water service. The only property owners subject to the delivered water charge are those who apply for and receive delivered water from the Agency through the CDS. The charge is authorized by Sections 501, 704, 711, and 714 of the Agency Act.

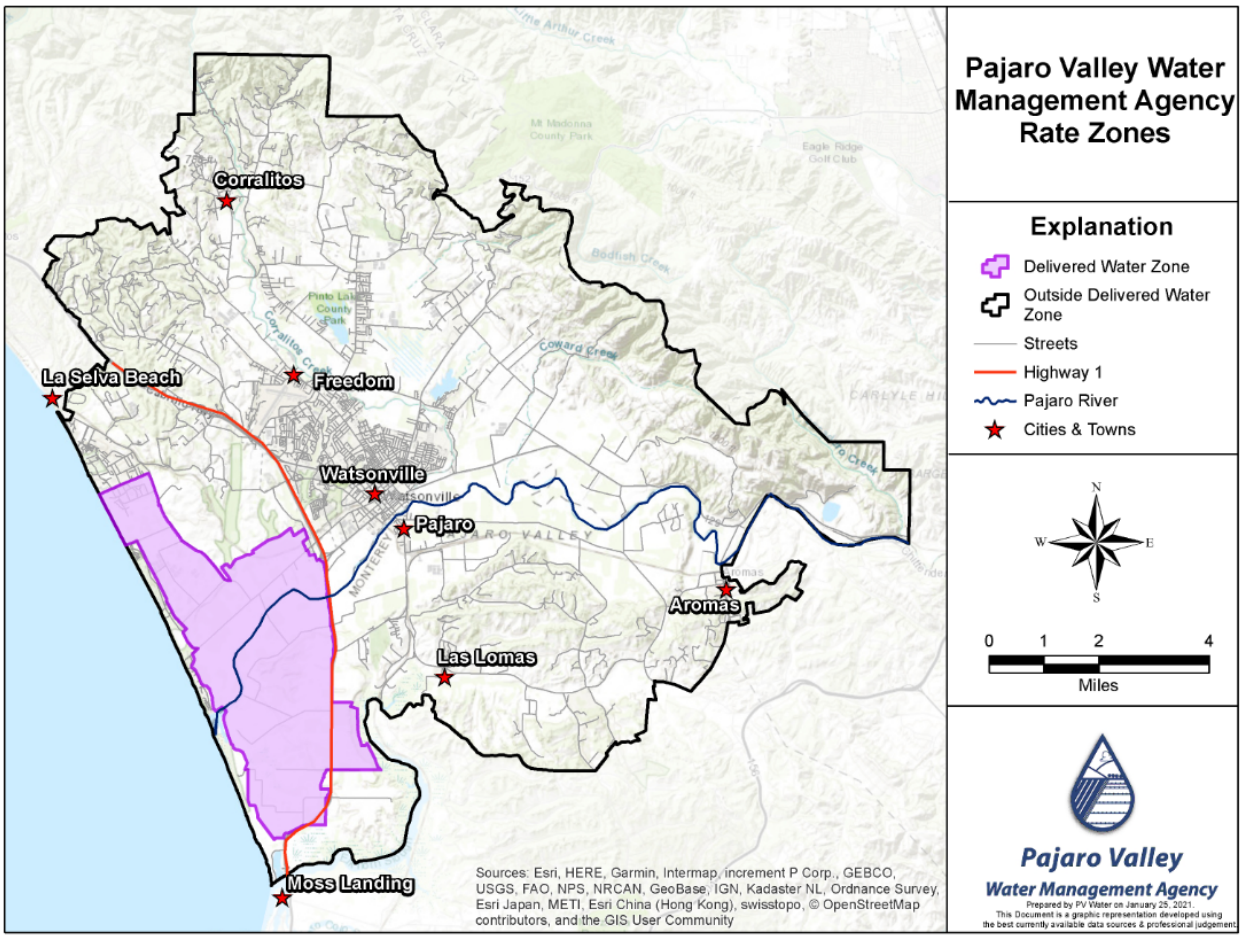

Figure 3 PV Water Rate Zones

1.3 Overview of Rate-Setting Process

Carollo's rate-setting methodology is consistent with California law and industry guidelines established by the M1 Manual, which is published by the American Water Works Association (AWWA), a national industry trade group that makes recommendations on generally accepted practices in the water industry.

In California, water rates must adhere to the cost of service and other requirements imposed by Article XIII C (Proposition 26) and Article XIII D (Proposition 218) of the State Constitution. Proposition 218 requires that property-related fees and charges, including the Agency's delivered water charge, do not exceed the proportional cost of providing the service. In the California Supreme Court's 2017 ruling in *City of San Buenaventura,*[8] the court ruled that groundwater pumping charges (such as the Agency's augmentation charge) are not property-related fees subject to Proposition 218.[9] As such, they are subject to Proposition 26, which sets forth substantive standards that apply to charges that are not subject to Proposition 218. Proposition 26 states that a groundwater pumping charge must not exceed the reasonable costs to the local government agency of conferring benefits to the payors, that the charge must not exceed the reasonable costs to the local government agency of providing the service to the payors, and that the local government agency bears the burden of proving that the charge is no more than necessary to cover the reasonable costs of the governmental activity and the manner in which those costs are allocated to a payor bear a fair or reasonable relationship to the payor's burdens on, or benefits received from, the activity.[10] In addition, Article X (2) of the State Constitution establishes the need to preserve the State's water supplies and discourages the wasteful or unreasonable use of water by encouraging conservation.

The cost of service allocations and corresponding rates in this Report were developed using guidelines set forth in the Agency Act, the Agency's 2015 Service Charge Report, and detailed information provided by the Agency. The rates presented in this report adhere to Articles X (2), XIII C, and XIII D of the California Constitution and industry standards for utility rate setting established by the *AWWA M1 Manual*.

1.3.1 Revenue Requirement Analysis

The revenue requirement analysis compares forecasted revenues of the Agency (under existing rates and forecasted water demands) to its forecasted operating, maintenance, and capital costs. This step tests the adequacy of existing rates to recover the Agency's forecasted costs. If there are shortfalls, increases to rate revenue are typically recommended.

1.3.2 Water Demand Analysis

Forecasting water sales and purchases and groundwater pumping rates are a critical component in the rate setting process. As part of the budget process, the Agency forecasts expected water usage based on historical demand, proposed changes to rates, regulatory impacts, weather, water resources and water availability, and other variables. Future demands are based on historic usage and escalated for projected growth (if appropriate) and per capita demand changes. These forecasted water demands are then compared against forecasted revenue requirements, and rates are developed to recover costs.

1.3.3 Cost of Service Analysis

The cost of service analysis builds a link between the Agency's cost of water service and the proposed rates for each water user. After determining the revenue requirement, this step outlines the cost to deliver each unit of water and to serve each water user. This process allocates capital, operating and maintenance costs of providing Agency services to functional cost categories that reflect different service levels attributable to each water user (i.e., metered well, unmetered well, within and outside the DWZ, and delivered water).

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[8] *City of San Buenaventura v. United Water Conservation District* (2017) 3 Cal.5th 1191.

[9] In 2015, because of uncertainty in the law at that time, the Agency conservatively treated the augmentation charge as a property-related service charge subject to Proposition 218. With the Supreme Court clarifying the law in 2017, moving forward the Agency will not treat the augmentation charge as a charge subject to Proposition 218.

[10] California Constitution, Article XIII C, § 1 (e)

Organizing the budget in terms of end function allows the creation of a reasonable relationship between budgeted items and the rate charged to water users. This organization bridges the costs incurred by the Agency and the unique and varied benefits and services delivered to each water user. As in the Agency's 2015 Service Charge Report, PV Water identified five functional cost categories for this Report:

1. Supplemental water service to groundwater users;
2. Delivered water service;
3. Billing;
4. Metering; and
5. Additional services to metered water users within the DWZ.

1.3.4 Rate Design & Calculation

Rate design involves developing service charges (e.g., augmentation and delivered water charges) that equitably and proportionately recover costs from all water users. This rate equity is built upon each water user's relative use of the system.

Rate design requires a fine balance of objectives. Rates should be resilient and flexible enough to withstand changing cost and demand scenarios while maintaining affordability, equity, and ease of understanding. By collecting different cost drivers from different rate components, the Agency can ideally balance these goals.

The rate calculation provides the reasonable relationship between revenue requirements, functional cost allocation, and final rates charged to water users. The process connects planned and forecasted expenditures to the designed rates by establishing rates that match estimated revenue generation with expenditures.

Figure 4 below illustrates the Agency's methodology for conducting this cost of service study and rate-setting process.

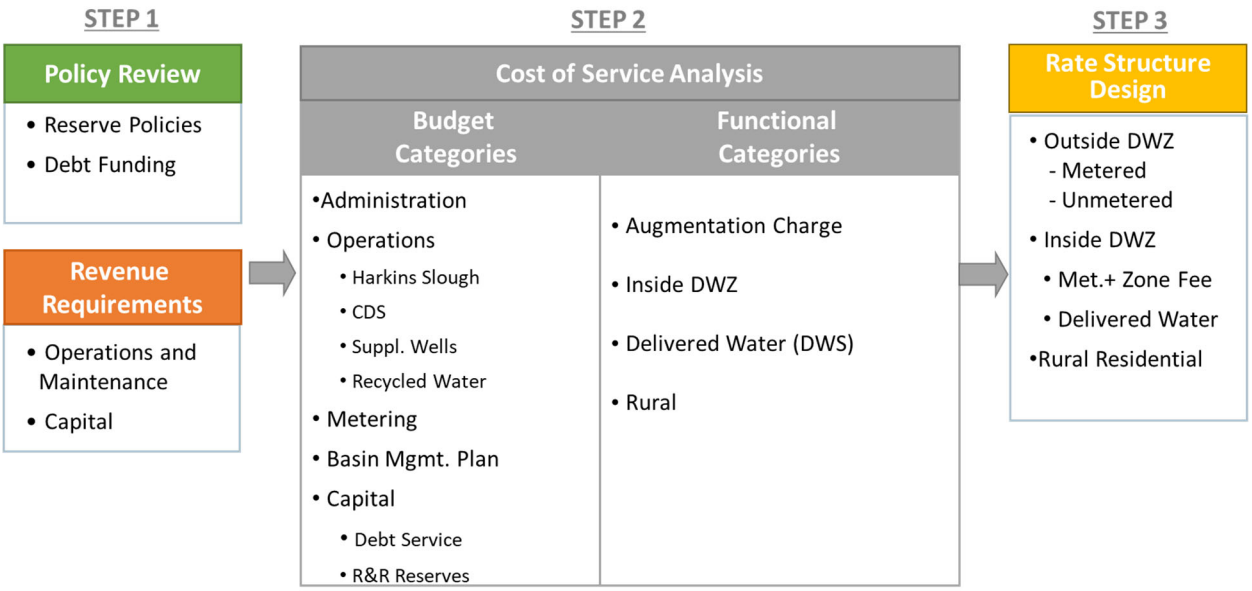

Figure 4 Cost of Service Methodology

1.3.5 Rate Adoption Process

Water agencies in California are required to meet procedural requirements for rate adoption or increase under state law. Proposition 218 governs the process for adjusting the delivered water charge. The Agency must hold a public hearing to consider the proposed rates and provide written notice to affected property owners and tenants at least 45 days in advance of the final rate adoption hearing. During this notice period, any property owner or tenant may protest the proposed rate increases. If less than a majority of customers submit written protests to the proposed rates, the Board of Directors may proceed with a vote on adoption of the proposed rates.

The Agency Act and Government Code section 66018 govern the process for adjusting the augmentation charge. The Agency must hold a public hearing to consider the proposed rates and provide 10-day public hearing notice through publication and posting.

The applicable procedures for both charges are set forth in more detail in the Agency Resolution Adopting Procedures for Public Hearing, Notice, and Protest Concerning Proposed Revisions to Augmentation Charge and Delivered Water Charge.

Section 2

WATER USERS AND DEMANDS

The Agency recovers capital, operating, and other costs of providing supplemental and delivered water services by imposing service charges on users and beneficiaries based on the following user categories.

1. *Metered Water Users – Inside the DWZ.* Includes owners of agricultural wells with meters located within the DWZ. These owners and their tenants have turnouts to the CDS and access to the Agency's supplemental water supply. Well owners are subject to an **augmentation charge** based on pumping. Delivered water users in this category are subject to the **delivered water charge** *(see #3 below).*
2. *Metered Water Users – Outside the DWZ.* Includes owners of wells with meters located outside of the DWZ. Water users in this category are subject to an **augmentation charge**.
3. *Delivered Water Users.* Includes property owners and tenants located within the DWZ who receive recycled water distributed through the CDS. All consumption of delivered water is metered. Water users in this category are subject to a **delivered water charge**.
4. *Unmetered Water Users.* Includes owners of rural residential water wells without meters. Water users in this category are subject to an **augmentation charge**. Unmetered rural water users are currently billed based on estimated use of 0.5 AF of groundwater per residence per year. Larger residential wells, producing at least 10 AF per year or more, and wells serving 15 or more connections, are metered and charged for their consumption as metered water users.

2.1 Historical Consumption

Table 2 presents historical consumption in acre-feet and account data for metered and delivered water users. As seen in the historical data, metered water users account for the majority of water consumption within the Pajaro Basin.

Metered, unmetered, and delivered water users have different service characteristics, and as such, are the defined classes considered in the cost of service analysis and development of rates. Historical consumption patterns and water user accounts were compared for each of the classes over the previous twelve years. Figure 5 presents a comparison of historical consumption by class from 2015 to 2019.

Table 2 Historical Water Consumption & Accounts

Water User	2015 (AF)	2016 (AF)	2017 (AF)	2018 (AF)	2019 (AF)	5-Year Average (2015-19; AF)	Avg. No. of Well Owners / Accounts
Outside DWZ							
Metered Water Usage	44,139	38,512	39,011	41,080	36,374	39,823	829
Unmetered Water Usage	1,471	1,205	1,298	1,235	1,244	1,291	1,133
Subtotal Outside DWZ	**45,610**	**39,717**	**40,309**	**42,315**	**37,618**	**41,114**	**1,962**
Inside DWZ							
Metered Water Usage	5,857	5,117	4,210	5,275	3,818	4,856	79
Delivered Water Usage	4,638	4,139	4,203	5,213	4,617	4,562	59
Subtotal Inside DWZ	**10,495**	**9,256**	**8,413**	**10,488**	**8,435**	**9,417**	**138**
Total	**56,105**	**48,972**	**48,722**	**52,803**	**46,053**	**50,531**	**2,100**

Note:
(1) Totals may not tie due to rounding.

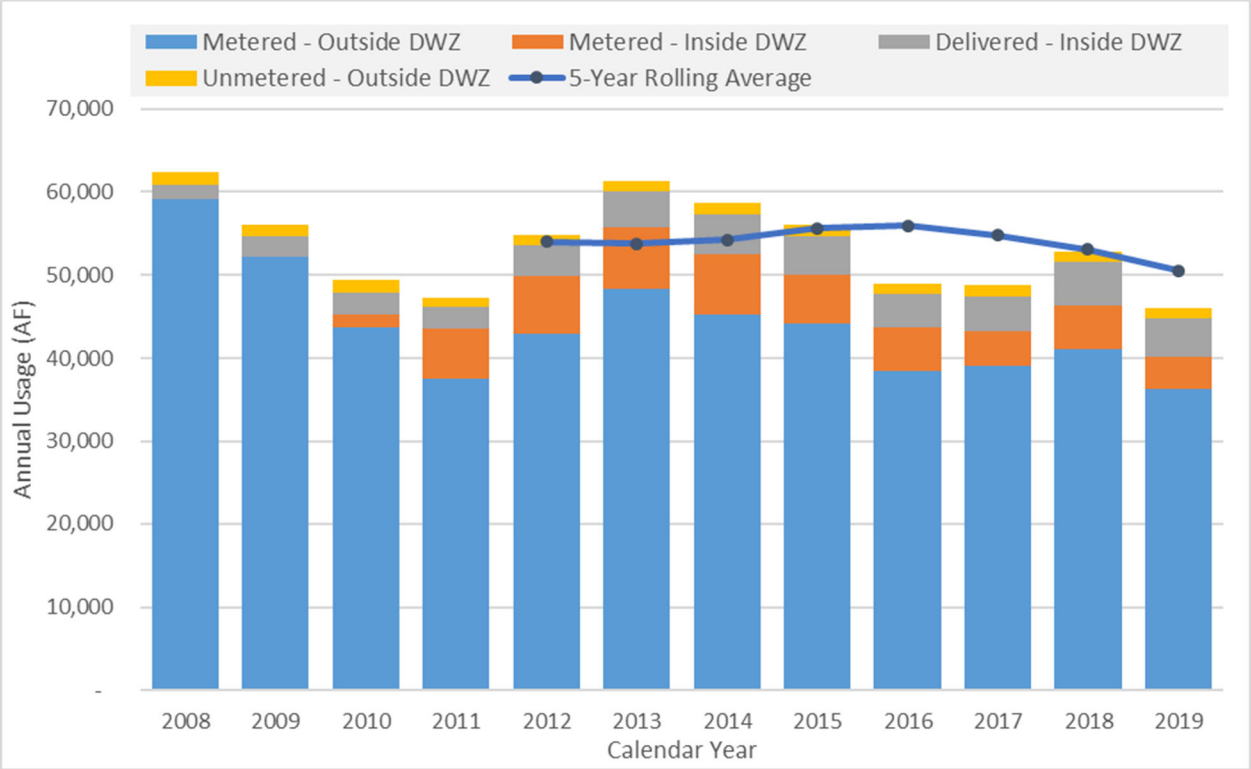

Figure 5 Historical Water Consumption by Calendar Year for All Users

2.2 Metered Water Users

The metered water user category includes municipal, industrial, and agricultural well owners. Municipal water users include the City of Watsonville, Aromas Water District, California Water Service, and the Pajaro/Sunny Mesa Community Services District. The volume of water consumed[11] by all municipal water users is metered.

The Agency requires metering at all agricultural, industrial, and commercial wells producing at least 10 AF per year. A well is required to be metered if it serves 10 acres of orchard, 4 acres of berries or row crops, or 2.5 acres of greenhouse facilities. Metering is optional for all agricultural, industrial, and commercial wells producing less than 10 AF per year.

The Agency tracks and bills metered consumption quarterly for metered water users. The past five years of quarterly consumption patterns are presented in Figure 6.

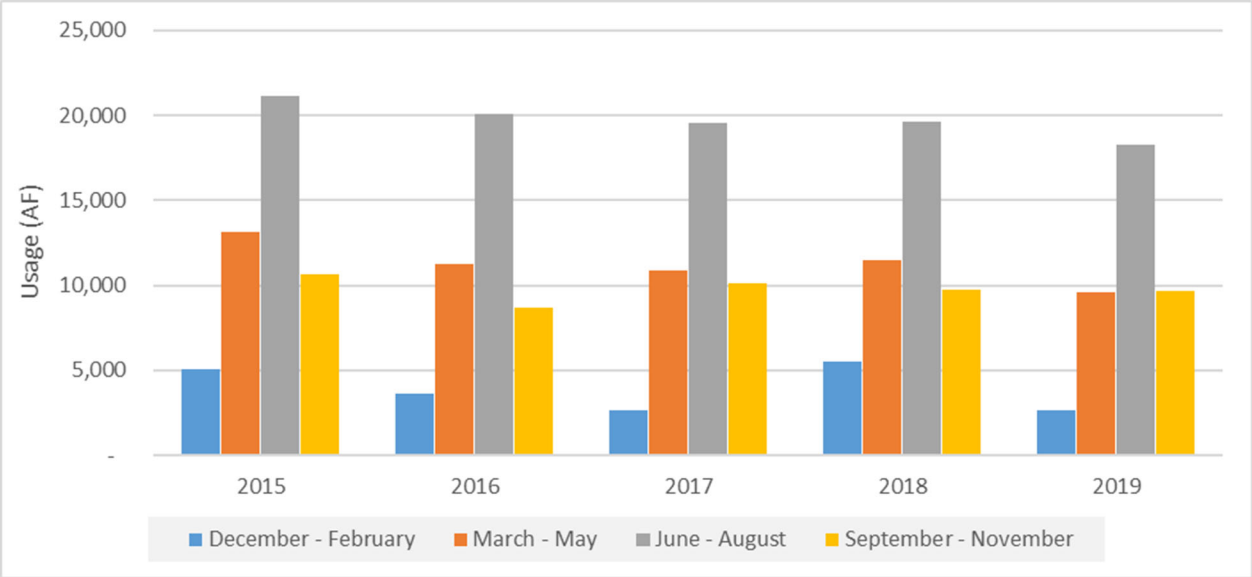

Figure 6 Seasonal Consumption for Metered Users (2015-2019)

2.2.1 Metered Water Users in the Delivered Water Zone

Metered water users located within the DWZ use turnouts to access the Agency's supplemental supply of high-pressure delivered water. Some property owners with wells in the DWZ are not currently connected but have the ability to connect to the CDS to access the Agency's delivered water. This immediate access to the delivered water supply represents a higher level of supplemental water service for well users located inside the DWZ when compared to property owners with wells outside the DWZ. Therefore, well owners located inside the DWZ constitute a distinct class and pay a higher augmentation charge to reflect the higher level of service.

Water quality regulations prohibit connection of a domestic water supply to the delivered water system. Therefore, unmetered rural residential water users in the DWZ are excluded from water users receiving access to an alternate water supply.

[11] This report uses "consumption" to refer to both water extracted by groundwater wells (for purposes of the augmentation charge), as well as Agency recycled water delivered to customers from the CDS (for purposes of the delivered water charge).

Table 2 presents the consumption and number of metered and delivered water users in the DWZ. These metered water users have access to services of the CDS and are charged for their share of the additional cost of service, based on available capacity of the system, provided to metered water users subject to the augmentation charge in the DWZ.

2.3 Delivered Water Users

Delivered water users receive a blend of well water, tertiary treated recycled water from the Watsonville RWF, and eventually water from the College Lake project. Table 2 presents water consumption and account data for delivered water users.

The Agency tracks delivered water consumption on a quarterly basis for delivered water users. The past five-years of seasonal consumption patterns are presented in Figure 7 below.

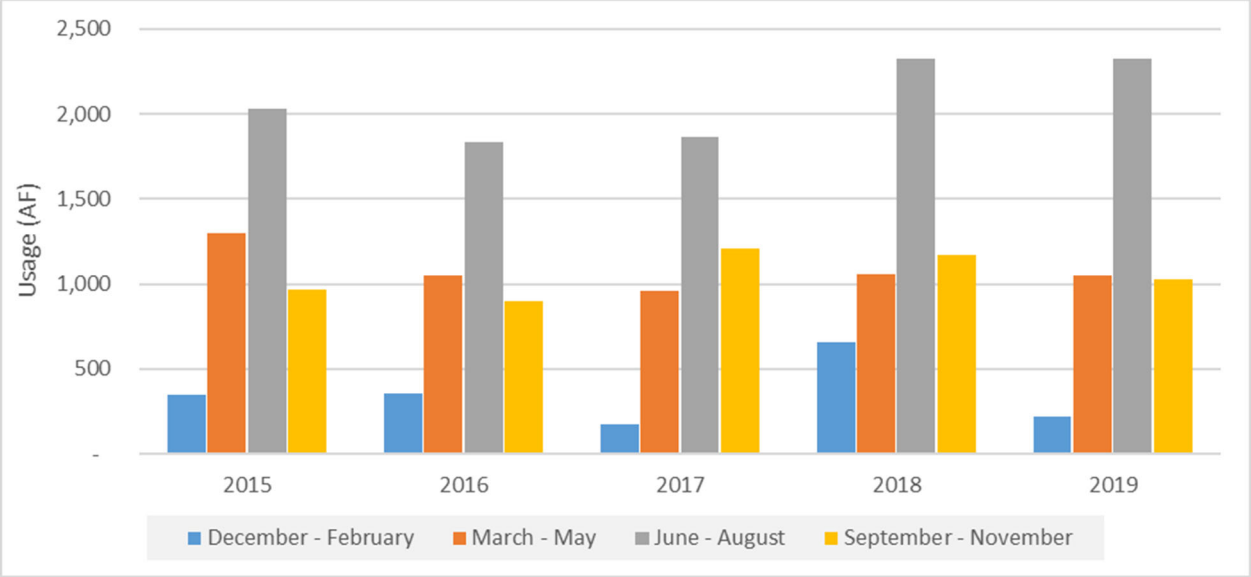

Figure 7 Delivered Water Seasonal Consumption (2015-2019)

A customer who has applied for and receives delivered water is subject to the delivered water charge. All consumption of delivered water is metered. Some properties within the DWZ use a combination of delivered water and groundwater. These properties are subject to both the delivered water charge for water delivery to the property and the augmentation charge at the higher DWZ rate for groundwater extracted by the parcel owner.

2.4 Unmetered Water Users

Unmetered water users include most rural residential users within the Agency's service area. Historically, unmetered water users have been billed for estimated annual water consumption of 0.5 AF per residence connected to a well.[12] Larger residential wells producing at least 10 AF per year (or more) and wells serving 15 or more connections are metered and are charged based on their metered consumption. In addition, unmetered water users are billed annually for their consumption unlike metered and delivered water users who are billed quarterly.

[12] The rationale and basis for this calculation are set forth in the 2015 Agency Proposition 218 Service Charge Report.

2.5 Forecasted Consumption

The Agency forecasted service demands in order to develop projected rates over the next five fiscal years. Its review of historical consumption demonstrated the natural variability of water demands within the Pajaro Valley due to a combination of dry and wet years, crop rotations, and the economy. While historical demands were analyzed, they do not serve well as a basis to forecast future water demands. Additionally, as the Pajaro Basin is currently experiencing overdraft conditions which have caused seawater intrusion and other problems, existing demand cannot be sustained without continued BMP improvements to the Basin.

Given the consumption analysis and targeted demand levels within the basin, the Agency forecasted 2020 water demands based on a 2-year average of 2018 and 2019 demands (see Table 3). The Agency assumes no annual growth in groundwater pumping rates in light of the completion of the CDS F-Line and BMP projects and a shift in demands between customer classes is forecasted as summarized in Table 3.

Table 3 Forecasted Water Consumption by Water User

Water User	2020(1)	2021(2)	2022	2023	2024	2025(3)	2026
Outside DWZ							
Metered Water Usage	38,727	37,727	37,727	37,727	37,727	37,727	37,727
Unmetered Water Usage	1,240	1,240	1,240	1,240	1,240	1,240	1,240
Subtotal Outside DWZ (AF)	**39,966**	**38,966**	**38,966**	**38,966**	**38,966**	**38,966**	**38,966**
Inside DWZ							
Metered Water Usage	4,547	5,247	5,247	5,247	5,247	4,947	3,547
Delivered Water Usage	4,915	5,215	5,215	5,215	5,215	5,515	6,915
Subtotal Inside DWZ (AF)	**9,461**	**10,461**	**10,461**	**10,461**	**10,461**	**10,461**	**10,461**
Total (AF)	**49,428**	**49,428**	**49,428**	**49,428**	**49,428**	**49,428**	**49,428**

Notes:
(1) Projection is based on the 2-year average of 2018 and 2019 actual demands.
(2) Accounts for CDS F-Line project completion and additional inside DWZ supply.
(3) Accounts for additional Delivered Water supply as BMP projects become operational in FYE 2025.
(4) Totals may not tie due to rounding.

Section 3

REVENUE REQUIREMENT ANALYSIS

The revenue requirement analysis evaluates PV Water's fiscal health, scrutinizing the adequacy of current revenues under existing rates against forecasted funding needs. This evaluation involves a series of tests as the basis for rate planning and reviews the viability of the Agency's revenues against expenses, debts, and reserve policies. Where cash flows and balances are insufficient, the revenue requirement analysis recommends additional cash flows through service charge increases to meet all funding goals.

Carollo compiled the Agency's projected FYE 2021 budget expenses as the base year for operations and maintenance (O&M) costs. Carollo collected actual and budgeted revenues and expenditures, reserve fund balances and policies, budgeted capital expenditures, current and future annual debt service, current and future grant funding, and other relevant financial data to forecast funding needs. Once this forecast is established, three tests define the annual revenues necessary.

1. The **Cash Flow Sufficiency Test** looks for a net positive cash flow at the end of each fiscal year. This test looks at whether revenues exceed expenses. When they do not, this test recommends additional revenue.
2. The **Debt Service Coverage Test** assesses the ability of the utility to cover debt service payments. Utility bond issuances regularly include a stipulation that the agency maintain enough cash flows to cover planned debt service plus an additional percent of that debt service. The Agency's legally required ratio from its bond issuances is 1.15x. If net revenues fall below this ratio, this test recommends additional revenue.
3. The **Reserves Target Test** considers PV Water's reserve balances and looks at operations and maintenance, repair and replacement, debt service, and rate stabilization funds' performance against the Agency's policy minimums. When the reserves targets are not met, this test recommends additional revenue.

Carollo looks at each test over the project time horizon to identify years where a revenue adjustment may be needed to meet forecasted Agency expenses.

3.1 Projected Revenues

This Study presents a five-year financial forecast of projected revenues from FYE 2022 through FYE 2026, using the FYE 2021 budget and current augmentation and deliver water charge rates as a baseline for projecting revenue requirements (see Table 4).

PV Water collects most of its revenues through augmentation and delivered water charges. These items made up 90 percent of revenues in FYE 2020 and are projected to produce 82 percent of revenues in FYE 2021. The Agency's other revenues include management fees, grants, State Revolving Fund (SRF) financial agreements, interest income, and other miscellaneous revenues. Each revenue item was projected based on an assumed inflationary factor as outlined in Appendix A.

Table 4 Projected Revenues

Revenue Item	FYE 2021[1]	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Augmentation Charge	$11.50	$11.50	$11.50	$11.50	$11.50	$11.50
Delivered Water Charge	2.10	2.10	2.10	2.10	2.10	2.10
Management Fees	0.39	0.39	0.39	0.39	0.39	0.39
Grants	3.70	1.52	0.70	–	–	–
SRF Financial Agreement	1.50	0.19	1.46	–	–	–
Interest Income	0.25	0.26	0.26	0.27	0.27	0.28
Other Revenues	0.04	0.04	0.04	0.04	0.04	0.04
Total Revenues	**$19.47**	**$15.99**	**$16.44**	**$14.29**	**$14.29**	**$14.30**

Notes:
(1) Based on FYE 2021 budget.
(2) All values are in millions of dollars.
(3) Totals may not tie due to rounding.

3.2 Projected Expenditures

The Agency prepares an annual budget organized into six main expense groups:

1. *Agency Administration:* Includes expenses associated with the daily administration of the Agency including general Agency management, Board services, support services, and public outreach related expenses (as described in the BMP Update).
2. *Special Fund General Administration:* Includes expenses associated with grant administration, outreach, water conservation programs, and management of the supplemental water and delivered water services.
3. *Facility Operations:* Includes O&M of the supplemental and delivered water services, including the operation of the CDS, Harkins Slough facilities, the Watsonville RWF (including supplemental wells), and metering program.
4. *Basin Management Planning:* Includes expenses associated with groundwater modeling, water quality monitoring, water resources planning, and management of the groundwater basin. Basin management planning activities allow the Agency to determine groundwater conditions within the Pajaro Basin and to manage and identify supplemental water needs, sources, and financial resources for supplemental water.
5. *Capital Projects:* Includes expenses related to planned capital projects and the adaptive management plan. Future capital projects were identified as part of the BMP Update.
6. *Debt Service:* Includes costs associated with payment of outstanding debt on the facilities described in Chapter 1. These obligations were incurred to enable the Agency to provide the supplemental water service and delivered water service in furtherance of the objectives identified under the Agency Act.

The Agency's FYE 2021 operating budget served as the foundation for forecasting future operating expenses. Staff also reviewed the preliminary expenditure forecasts to identify costs that may need to be adjusted due to future operational changes (e.g., additional staffing). Future expenditures were projected using escalation factors that were reviewed with Agency staff. Most costs were escalated at 3 percent annually to account for general inflation. To refine this broad assumption, individual line item costs were assigned one of the escalation factors shown in Appendix A. These escalation factors were then applied to the appropriate categories of expenditures to forecast costs incurred by the Agency.

PV Water anticipates additional O&M costs associated with new capital assets from the BMP Update. These additional O&M costs are forecasted to begin as each capital project completes construction, the earliest of which is forecasted to come online in FYE 2023. In addition, the Agency has included funding for three additional staff to further support the operations of the new BMP facilities.

Table 5 shows forecasted expenses for the rate study period. These totals include additional O&M and staffing positions as previously mentioned.

Table 5 Projected O&M Expenses

Expense Item	FYE 2021[1]	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Personnel	$2.17	$2.26	$2.35	$2.45	$2.54	$2.64
New BMP Staff	–	0.20	0.44	0.70	0.72	0.75
New BMP O&M	–	–	0.23	0.83	0.85	0.87
Maintenance & Equipment	5.53	5.63	5.80	5.97	6.15	6.33
Total Expenses	**$7.71**	**$8.09**	**$8.82**	**$9.94**	**$10.26**	**$10.60**

Notes:
(1) Based on FYE 2021 budget.
(2) All values are in millions of dollars.
(3) Totals may not tie due to rounding.

3.2.1 Debt Service

The Agency currently has three outstanding debt service obligations. Existing debt service includes a California Department of Water Resources Note Payable to be retired in FYE 2028, a 2015 Water Revenue Refunding Bond to be retired in FYE 2029, and a 2016 Water Revenue Refunding Bond to be retired in FYE 2036. The Agency is projecting a RWF Disk Filter Project (Phase II) Clean Water SRF Loan to begin in FYE 2022 and an RWF UV Expansion Project (Phase III) Clean Water SRF Loan to begin in FYE 2023. Both SRF loans would be retired 30 years thereafter. Table 6 provides a summary of existing debt service through the five-year rate setting period.

Table 6 Existing Debt Service

Expense Item	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
DWR Note Payable	$0.25	$0.25	$0.25	$0.23	$0.23	$0.23
2015 Refunding Bond	2.31	2.30	2.29	1.55	1.14	1.14
2016 Refunding Bond	0.80	0.81	0.80	0.80	0.80	0.80
RWF Disk Filter SRF Loan	–	0.07	0.07	0.07	0.07	0.07
RWF UV Expansion SRF Loan	–	–	0.06	0.06	0.06	0.06
Total:	**$3.36**	**$3.42**	**$3.47**	**$2.70**	**$2.29**	**$2.29**

Notes:
(1) All values are in millions of dollars.
(2) Totals may not tie due to rounding.

3.2.2 Debt Coverage Requirements

The Agency is currently required to legally maintain an annual debt service coverage ratio (DSCR) of at least 1.10x, however the Agency targets at least 1.15x coverage. This coverage is calculated as the ratio of net revenues available to total annual debt service requirements. The actual DSCR is expected to be 1.96x for FYE 2021.

While no additional revenue must be collected to meet existing debt coverage requirements in FYE 2021, as the Agency plans to issue new debt, increases are necessary to meet future coverage requirements.

3.2.3 Forecasted Capital Funding

The BMP Update is envisioned as a 30-year plan to be implemented in three phases. Phase 1 projects are scheduled to be completed and operational by FYE 2024. Phase 2 is scheduled to begin in FYE 2025 and continue through FYE 2034. If required, Phase 3will begin in FYE 2035 and go through FYE 2044. The service charge calculations in this report include capital funding for Phase 1 and Phase 2 projects.

PV Water and Carollo continue to work together to estimate costs for the capital improvement plan for the study period, which includes all capital project expenditures related to the BMP Update, Conservation, and the Adaptive Management Plan, and other miscellaneous activities. Table 7 provides the most up to date capital project cost estimates.

Table 7 Projected Capital Expenditures

Capital Project	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Total Harkins Slough Recharge Facilities Upgrades	$-	$1.53	$1.85	$1.93	$4.10	$-
Total Struve Slough with Recharge Basins	0.22	1.08	-	11.80	-	-
Total College Lake	3.67	13.13	33.56	13.99	-	-
Basin Monitoring Improvements	-	-	1.50	-	-	-
RW Facility Disk Filter Upgrade – Phase II	0.10	-	-	-	-	-
0.5MG Storage Tank/UV Expansion – Phase III	0.25	2.00	-	-	-	-
CDS F-Line Expansion	1.50	-	-	-	-	-
BMP Update	0.25	0.15	-	-	-	-
Conservation	0.40	0.40	0.40	0.40	0.40	0.40
Adaptive Management Plan (AMP)	0.10	0.10	0.10	0.10	0.10	0.10
Total Capital Needs	**$6.49**	**$18.39**	**$37.41**	**$28.22**	**$4.60**	**$0.50**

Notes:
(1) All values are in millions of dollars.
(2) Totals may not tie due to rounding.

Capital projects can be funded through various sources, including grants, bonds, capital reserves, cash on hand, and rate funded pay-as-you-go (PAYGO) capital. Table 8 below summarizes the currently available and anticipated capital funding that is used to offset the remaining capital funding need.

Table 8 Projected Capital Funds Available

Capital Funding Source	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
CDS F-Line Grant (Prop 84)	$ 2.08	$ 0.91	$ -	$ -	$ -	$ -
RWF Disk Filter (Phase II) – Grant (Prop 1)	1.43	0.21	-	-	-	-
Groundwater Sustainability Grant (Prop 68)	0.18	0.32	-	-	-	-
RWF UV Expansion (Phase III) – Grant	-	0.09	0.70	-	-	-
Cash on Hand(2)	9.34	-	-	-	-	-
Total Capital Funding	**$13.04**	**$1.52**	**$0.70**	**$-**	**$-**	**$-**

Notes:
(1) Excludes restricted reserves. Cash on hand can be used in a fiscal year as needed.
(2) All values are in millions of dollars.
(3) Totals may not tie due to rounding.

3.2.4 Reserve Policy

The Agency's reserves are a combination of restricted and unrestricted funds. Currently, the Agency has an operating reserve, a capital fund, a debt service fund, and a rate stabilization fund. As of the beginning of FYE 2021, the Agency's total of these funds was an estimated $5.5 million[13]. The reserves have been funded in large part through a combination of cost savings and increased pumping (demand) throughout the basin. The Agency targets a minimum of 180 days of operating expenses for its operating reserve. Excess operating reserves above this target are available to fund engineering, legal, and acquisition (ELA) costs, additional capital and repair and replacement (R&R) activities, and act as a rate stabilization fund to mitigate the need for larger rate increases in the short term.

3.3 Baseline Revenue Requirements

The cash flow sufficiency test evaluates revenues received by the Agency and ensures they meet both operating and non-operating expenses. Over the next five years, without additional grant revenue, additional bonds, or revenue increases, the Agency will not meet its cash flow requirements beginning in FYE 2022 though FYE 2025, as shown in Table 9 below.

Table 9 Cash Flow Sufficiency Test – Baseline Scenario, Revenue

Revenue Item	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Augmentation Charge	$11.50	$11.50	$11.50	$11.50	$11.50	$11.50
Delivered Water Charge	2.10	2.10	2.10	2.10	2.10	2.10
Management Fees	0.39	0.39	0.39	0.39	0.39	0.39
Total Operating Revenues	**$13.99**	**$13.99**	**$13.99**	**$13.99**	**$13.99**	**$13.99**
Interest Income	0.25	0.26	0.26	0.27	0.27	0.28
Other Revenues	0.04	0.04	0.04	0.04	0.04	0.04
Total Non-Operating Revenues (1)	**$0.29**	**$0.29**	**$0.30**	**$0.30**	**$0.31**	**$0.31**
Total Revenues	**$14.27**	**$14.28**	**$14.28**	**$14.29**	**$14.29**	**$14.30**

[13] This excludes the $7.45 million in cash on hand as shown in Table 8.

Table 10 Cash Flow Sufficiency Test – Baseline Scenario Expenditures

Expenditure Item	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Total Operating Expenditures	$7.71	$8.09	$8.59	$9.94	$10.26	$10.60
Debt Service	3.36	3.42	3.47	2.70	2.29	2.29
Rate Funded Capital (PAYGO)	–	5.51	35.25	28.22	4.60	0.50
Use of Funds / (Transfer) to Meet Min. Fund Balance	–	(1.81)	1.04	34.39	61.20	–
Total Non-Operating Expenditures	**$3.36**	**$7.12**	**$39.76**	**$65.31**	**$68.09**	**$2.79**
Total Expenditures	**$11.07**	**$15.21**	**$48.35**	**$75.25**	**$78.35**	**$13.39**
Cash Flow Surplus/(Deficit)	**$3.20**	**$(0.94)**	**$(34.07)**	**$(60.96)**	**$(64.06)**	**$0.91**

Notes:
(1) Grant and SRF financial agreement revenues are not included in the revenue requirement as they are accounted for in the capital funding plan and reserves.
(2) All values are in millions of dollars.
(3) Totals may not tie due to rounding.

Under the baseline scenario, the Agency's DSCR remains above the 1.15x coverage requirement due to no additional debt issuances and the retirement of debt service as shown in Table 11.

Table 11 Debt Coverage Test – Baseline Scenario

Revenue Item	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Operating Revenues	$13.99	$13.99	$13.99	$13.99	$13.99	$13.99
Non-Operating Revenues[(1)]	$0.29	$0.29	$0.30	$0.30	$0.31	$0.31
Total Revenues for Debt Service	**$14.27**	**$14.28**	**$14.28**	**$14.29**	**$14.29**	**$14.30**
Expenditure Item	**FYE 2021**	**FYE 2022**	**FYE 2023**	**FYE 2024**	**FYE 2025**	**FYE 2026**
Operating Expenditures	$7.71	$8.09	$8.59	$9.94	$10.26	$10.60
Debt Service	3.36	3.42	3.47	2.70	2.29	2.29
Coverage Requirement	0.50	0.51	0.52	0.41	0.34	0.34
Total Expenditures	$11.57	$12.03	$12.58	$13.04	$12.90	$13.23
Debt Coverage Surplus/(Deficit)	**$2.70**	**$2.25**	**$1.70**	**$1.25**	**$1.40**	**$1.07**
DSCR	**1.96 x**	**1.81 x**	**1.65 x**	**1.62 x**	**1.76 x**	**1.62 x**

Notes:
(1) Excludes all grant revenue.
(2) All values are in millions of dollars.
(3) Totals may not tie due to rounding.

The Agency maintains four reserve funds. Each fund was created with its own unique set of funding and expense criteria and as such each fund has varying target fund balances based on that defined criteria.

For example, the O&M reserve fund target is 180 days of O&M expenses while the minimum repair and replacement reserves fund target is set at 25 percent of fixed assets annual depreciation. Similarly, the debt service reserve fund target is based on existing debt covenants and the rate stabilization fund target is $500,000 as directed by Agency management.

Under the baseline scenario, the Agency's total reserve fund balance drops below the total target fund balance beginning in FYE 2022.

Table 12 Reserve Target Test – Baseline Scenario

Reserves Target/Balance	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Total Reserve Funds Target (All Funds)	$5.60	$5.81	$6.08	$6.78	$6.96	$7.16
Total Reserve Funds Balance at Year End	8.73	2.90	(30.11)	(56.83)	(59.97)	(59.36)
Reserve Funds Surplus/(Deficit)	**$3.13**	**($2.91)**	**($36.20)**	**($63.60)**	**($66.94)**	**($66.52)**
Days of O&M in Operations and Maintenance Reserve	**180 days**	**49 days**	**-1,358 days**	**-2,155 days**	**-2,199 days**	**-2,109 days**

Notes:
(1) All values are in millions of dollars.
(2) Totals may not tie due to rounding.

3.4 Recommended Revenue Requirements

Carollo recommends that PV Water adopt a 5.2 percent revenue increase in FYE 2022 followed by annual 6.8 percent revenue increases in FYE 2023 through FYE 2026. In addition, Carollo recommends that the Agency issue bonds in FYE 2022 and FYE 2024. Such revenue increases and debt issues are projected to keep PV Water's revenues in line with cost inflation while additionally supporting healthy minimum reserve balances and meeting required debt service coverage ratios. These recommended revenue increases and debt issues are summarized in Table 13.

If the Agency opts to forgo the recommended increases, expenses will exceed revenues. This could jeopardize PV Water's ability to sufficiently fund reserves targets, debt service coverage, and the BMP Update. The updated cash flow and debt coverage tests are outlined below including projected reserve fund balances.

Table 13 Recommended Revenue Increases & Resulting Cash Flows

Revenue Item	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Total Revenues	$14.28	$14.99	$15.97	$17.01	$18.13
Total Expenditures	12.32	13.67	14.74	15.15	15.48
Cash Flow Surplus/(Deficit)	**$1.96**	**$1.32**	**$1.23**	**$1.86**	**$2.65**
Recommended Revenue Bond Issuance	**$46.50**	**$-**	**$25.50**	**$-**	**$-**
Recommended Rate Revenue Increase	**5.2%**	**6.8%**	**6.8%**	**6.8%**	**6.8%**
Revenues from Increase	$0.71	$0.97	$1.04	$1.11	$1.19
Resulting Cash Flows	**$2.67**	**$2.29**	**$2.27**	**$2.97**	**$3.83**
Resulting DSCR	**1.64 x**	**1.46 x**	**1.48 x**	**1.61 x**	**1.79 x**
Resulting days of O&M in Operations & Maintenance Reserve	**180 days**	**180 days**	**180 days**	**180 days**	**180 days**

Notes:
(1) All values are in millions of dollars.
(2) Totals may not tie due to rounding.

Section 4

COST OF SERVICE ANALYSIS

The principal purpose of a cost-of-service analysis is to fairly allocate the full costs of the Agency's services to each customer class in proportion to the water users' benefits received from and burdens or demands they place on the system. Carollo developed a detailed cost allocation that serves as the basis for the proposed rate adjustments. This analysis yields an appropriate method for allocating costs, which could be sustained unless substantial changes in cost drivers or customer consumption patterns occur.

To conduct the cost of service analysis presented in this report, Carollo relies on the unique service functions provided by the Agency to its water users as was previously developed and adopted by the Agency's Ad Hoc Funding Committee during the preparation of the 2015 Service Charge Report. PV Water's budget was analyzed line-item by line-item, and expenditures were allocated between functional categories to reflect the different service levels attributable to the water user groups (i.e., metered water users, unmetered water users, within or outside DWZ, and delivered water users). Five functional categories were identified as shown in Table 14 along with a description of the water users receiving those services.

Table 14 Functional Categories

FUNCTIONAL CATEGORY	WATER USERS RECEIVING SERVICE
Billing	Metered Water Users on a Quarterly Cycle and Unmetered Users on an Annual Cycle
Metering	All Water Users Except for Property Owners with Unmetered Wells
Groundwater	Property Owners with Metered and Unmetered Wells
Delivered Water	Delivered Water Users
Additional Service for Users within DWZ	Property Owners within the DWZ and Served by or with Ability to Immediately Connect to the CDS

Notes:
(1) Functional categories are the services provided by the Agency to its user classes.
(2) Cost associated with the higher level of service for metered water users in the DWZ apply to metered Augmentation Charges for water users in the DWZ.

While the Agency provides two distinct services—supplemental and delivered water service – there is only one set of common project facilities that are and will be utilized to provide those services. As in the 2015 Service Charge Report, the costs associated with the Agency's existing and planned water services are attributable to both groundwater users and delivered water service users.

In allocating shared costs between the two services and the delivered water charge and augmentation charge, the Agency has balanced several regulatory objectives.

1. The property owners outside the DWZ receive an important service from the supplemental water projects. By installing, operating, and maintaining the supplemental water project facilities, the Agency protects the entire groundwater basin supply, replaces some of the groundwater pumped by extractors, retards seawater intrusion, reduces overdraft, and avoids more strict groundwater regulation by pumping limits – all of which serve the long-term water supply needs of the well owners throughout the basin, including those inside and outside the DWZ. As such, it is appropriate

that the well owners throughout the basin pay for their equitable share of the cost of the Agency's supplemental water service for groundwater users.

2. Payment of an augmentation charge on a per acre-foot basis provides an incentive, relative to the consumption of groundwater, for well users to carefully and efficiently manage their use of groundwater. This also furthers the Agency's water conservation efforts, which is the Agency's most economical program of stretching the limited water supply.
3. Water users in the DWZ who have access to and use delivered water should pay an equitable proportionate share of the costs of this service.
4. There is a strong basin-wide interest in maximizing delivered water use (in the DWZ) because greater delivered water use minimizes pumping in that area, enhances groundwater recharge, and retards seawater intrusion, which helps to protect groundwater resource further inland and maintain local management and control of groundwater resources in general.
5. Groundwater pumpers within the DWZ also have improved water reliability. As pumpers within the DWZ have access to delivered water service, there is a distinct service that is immediately available to those users when compared to groundwater users outside the DWZ. As such, and to encourage full use of delivered water, the rate differential between the augmentation rate inside the DWZ and delivered water charge should encourage delivered water usage and not provide a fiscal incentive to pump groundwater instead of using the available delivered water.

Throughout the cost of service analysis, the Agency equitably balanced the allocation of costs in consideration of these factors – recognizing that maximizing the purchase and use of delivered water protects the overall groundwater basin in furtherance of the Agency's supplemental water objectives, and serves all groundwater users in the basin.

4.1 Allocation of Costs to Functional Components

The Agency's water system comprises both supplemental and delivered water facilities, which are both necessary to sustain the basin. A detailed functional allocation analysis was prepared by separately identifying the Agency's budget categories (Agency Administration, Special Fund General Administration, Facility Operations, Basin Management Planning, Capital Projects, and Debt Service) and allocating each item to the appropriate functional components based on the specific function provided. This allocation is derived from the Agency's existing factors that were the foundation of the 2015 Service Charge Report.

4.1.1 General and Special Fund Administration

Administration expenditures are largely comprised of salaries, wages, and benefits which were allocated directly to the functional categories based upon estimated percent of time the position spent on that function. For example, billing received a percent allocation from the following positions: Finance & Administrative Services Manager, Financial Analyst, Administrative Analyst, Customer Services Representative, and Accounting Clerk. Metering received a percent allocation from some of the same positions, but also from the Water Meter Program Coordinator and Water Systems Operator positions.

4.1.2 Facility Operations

Well owners throughout the basin, including those outside the DWZ, receive an important service from the supplemental water projects. By constructing, operating, and maintaining the supplemental water project facilities, the Agency protects the groundwater basin water supply, replaces some of the groundwater pumped by extractors, retards seawater intrusion, reduces overdraft, and avoids more strict groundwater regulation by pumping limits – all of which serve the long-term water supply needs of the basin.

In order to allocate Facility Operations costs to groundwater and delivered water users, the Agency analyzed Facility Operations services in terms of providing supplemental supply, reducing groundwater overdraft, and providing delivered water at pressure for irrigation in the DWZ. Facilities Operations costs associated with the delivery of higher pressure water appropriate for irrigation are allocated directly to the delivered water users as the sole recipients of this service. The remaining costs of operating these facilities are allocated on the ratio of the groundwater and delivered water consumption to total consumption in the Pajaro Basin. Groundwater consumption accounts for 89 percent of the total consumption in the Basin and delivered water accounts for 11 percent of Basin consumption. While the same methodology from the 2015 study was utilized, changes to the Agency's budget and water demands caused minor and expected shifts in the overall cost allocation.

Facility Operations also includes expenses to operate the Metering Program. These expenses are allocated directly to Metering and, along with allocations for Salaries and Wages and Administration, are recovered from the metered water customers and delivered water customers.

4.1.3 Basin Management Planning

Expenses associated with Basin Management Planning—modeling and monitoring, basin management, and funding—are allocated to supplemental and delivered water service based on the ratio of supplemental and delivered water consumption to total consumption in the Pajaro Basin.

4.1.4 Capital Projects

The Agency has identified nearly $96 million in projects to be constructed over the next 6 years. As these projects are all designed to address the Agency's groundwater management concerns, these projects are allocated based on the same methodology of existing capital projects (See Debt Service).

4.1.5 Debt Service

Debt service payments for existing facilities are allocated to supplemental water and delivered water service based on the ratio of groundwater, delivered water, and available capacity inside the DWZ. The addition of available capacity inside the DWZ reflects costs associated with providing excess (available) capacity to groundwater pumpers inside the DWZ. Well owners in the DWZ have immediate access to an alternate delivered water supply. As a result, DWZ well owners receive a higher level of service and therefore are allocated an additional equitable share of the costs of the service, as well as their proportionate share of existing debt service related to remaining capacity in the Delivered Water system. Debt service is allocated 79 percent to groundwater, 14 percent to delivered water service, and 7 percent to groundwater pumpers within the DWZ.

Table 15 details the resulting cost of service allocation percentages for each functional category by each budget item. These functional allocations are described in more detail in Appendix B.

Table 15 Allocation to Functional Categories

BUDGET ITEM	Billing	Metering	Groundwater	Delivered Water	Additional DWZ Services
Agency Administration	15%	18%	28%	38%	2%
General Administration	15%	18%	28%	38%	2%
Facility Operations					
Harkins Slough	0%	0%	60%	40%	0%
Coastal Distribution	0%	0%	86%	14%	0%
Supplemental Water (In-Basin)	0%	0%	56%	44%	0%
Recycled Water	0%	0%	86%	14%	0%
Metering Program	0%	100%	0%	0%	0%
Basin Management Planning					
Basin Modeling	0%	0%	86%	14%	0%
Basin Monitoring	0%	0%	86%	14%	0%
In-Basin Management	0%	0%	86%	14%	0%
Regional Water Management	0%	0%	86%	14%	0%
Out-of-Basin Funding	0%	0%	86%	14%	0%
In-Basin Funding	0%	0%	86%	14%	0%
Capital Projects					
Basin Monitoring Improvements	0%	0%	79%	14%	7%
Harkins Slough Facility Upgrades	0%	0%	79%	14%	7%
College Lake IRWP	0%	0%	79%	14%	7%
Watsonville Slough Diversion	0%	0%	79%	14%	7%
RW Facility Disk Filter Upgrade	0%	0%	79%	14%	7%
RW Storage Project	0%	0%	79%	14%	7%
CDS F-Line Expansion	0%	0%	79%	14%	7%
BMP Update	0%	0%	79%	14%	7%
Debt Service					
DWR Note Payable	0%	0%	79%	14%	7%
2015 Revenue Refunding Bonds	0%	0%	79%	14%	7%
2016 Revenue Refunding Bonds	0%	0%	79%	14%	7%
Future Debt Service	0%	0%	79%	14%	7%
Resulting Allocation	2.4%	6.6%	68.9%	19.0%	3.1%

Note:
(1) Additional details provided in Appendix B.

As the resulting allocation between each functional category differs from the 2015 Cost of Service results, a phase-in of the new allocation was implemented over the five-year study period.

Table 16 summarizes the allocation of net revenue requirements to each functional category for FYE 2022 through FYE 2026.

Table 16 Net Revenue Requirements Allocated to Functional Categories

Functional Category	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Billing	$0.17	$0.23	$0.29	$0.37	$0.39
Metering	0.54	0.68	0.84	1.02	1.09
Groundwater	10.89	11.35	11.83	12.32	13.16
Delivered Water	2.39	2.64	2.91	3.21	3.43
Additional DWZ Services	0.32	0.38	0.44	0.51	0.54
Total Revenue Requirement	**$14.31**	**$15.28**	**$16.32**	**$17.43**	**$18.61**

Notes:
(1) All values in millions of dollars.
(2) Totals may not tie due to rounding.

4.1.6 Calculation of Units and Unit Costs

The water users from whom these net revenue requirements are recovered include the metered, unmetered, and delivered water users. Table 17 presents a projected FYE 2026 number of service units (acre-feet of water service) associated with the following functional categories:

- **Supplemental Water Service to Groundwater Users** – Metered and unmetered use excluding delivered water use.
- **Delivered Water Service** – Total delivered water use.
- **Billing** – Total water consumption in the basin (groundwater and delivered water use).
- **Metering** – Total number of equivalent meters.
- **Additional Service to Metered Users in DWZ** – Metered water use in DWZ.

Table 17 Units Associated with Each Functional Category

WATER USER	Billing (AF/year)	Metering (MEUs)(4)	Groundwater (AF/year)	Delivered Water (AF/year)	Additional DWZ Services (AF/year)
Metered(1)	41,274	12,300	41,274	–	3,547
Unmetered(1,2)	1,240	–	1,240	–	–
Delivered Water(1,3)	6,915	1,500	–	6,915	–
Total	**49,428**	**13,800**	**42,513**	**6,915**	**3,547**

Notes:
(1) Excludes users east of the San Andreas Fault that are not hydrologically connected to the Pajaro Basin.
(2) The number of accounts billed equals the number of rural residential well owners within the Agency.
(3) The delivered water consumption is based on Agency projections.
(4) Metering units are the number of equivalent meters based on the cost of a 1-inch meter as shown Appendix C.

Billing costs are typically allocated to user classes by number of bills. Following the methodology of the 2015 Service Charge Report, the Agency determined that an allocation based on total annual water consumption in the basin was more fair and accurate. Unmetered water users represent approximately 2 percent of the water consumption in the basin and are only billed once per year based on estimated consumption. A greater level of billing service is provided to metered and delivered water customers whose bills are prepared using actual consumption data and who are billed quarterly. The larger monetary value of the metered and delivered water user bills also results in increased customer service needs. Therefore, total water consumption was used as the unit of measure for allocating billing costs.

The number of units of consumption shown in Table 18 for the DWZ reflects consumption by metered water users within the DWZ with the ability to immediately connect to the delivered water system as identified through the Agency's Geographic Information System (GIS) database.

Unit costs for each of these functional categories were developed by dividing the total cost allocated to functional category by the total number of units for that category, including those for metered, unmetered, and delivered water users. The unit costs for each functional category and water user category are presented in Table 18.

Table 18 Unit Cost of Service, FYE 2026

	FYE 2026 Revenue Requirement	Billing (AF/year)	Metering (MEUs)	Groundwater (AF/year)	Delivered Water (AF/year)	Additional DWZ Services (AF/year)
Total Allocated Costs	**$18.61**	**$0.39**	**$1.09**	**$13.16**	**$3.43**	**$0.54**
Units of Service		**49,428**	**13,800**	**42,513**	**6,915**	**3,547**
Metered						
Units of Service		41,274	12,300	41,274	-	-
Allocated Cost	**$14.08**	$0.33	$0.98	$12.77	$-	$-
Additional Services in DWZ						
Units of Service		-	-	-	-	3,547
Allocated Cost	**$0.54**	$-	$-	$-	$-	$0.54
Unmetered						
Units of Service[(1)]		1,240	-	1,240	-	-
Allocated Cost	**$0.39**	$0.01	$-	$0.38	$-	$-
Delivered Water						
Units of Service[(2)]		6,915	1,500	-	6,915	-
Allocated Cost	**$3.60**	$0.06	$0.12	$-	$3.43	$-

Notes:
(1) The number of accounts billed equals the number of rural residential well owners within the Agency boundary.
(2) The delivered water consumption and number of accounts based on projected FYE 2026 figures.
(3) All values in millions of dollars.

Section 5

PROPOSED RATES AND CHARGES

5.1 Rate Design

The water rate design analysis determined how the costs are recovered from each customer class through specified water rates. The focus of this process was to achieve full cost recovery and substantiate that water users are paying their fair and proportionate share of system costs. The Agency's existing rate structure, as developed in the 2015 Cost of Service Study, was unaltered in this Study as directed by the PV Water Board of Directors.

Carollo calculated the cost-based rates for FYE 2026, the last year of the study period. To avoid significant rate adjustments year-over-year, the rates for FYE 2022 through FYE 2025 are recommended to create a smooth transition from current rates to the calculated FYE 2026 rates. This rate smoothing is in line with Proposition 218 and Proposition 26 legal requirements.

5.1.1 Augmentation Charges

The Agency developed rate revenue estimates based on the proposed rates for metered and unmetered groundwater users, and total consumption by each water user group.

The augmentation charge for the metered water users outside the DWZ was calculated by dividing the cost of service by the estimated consumption for metered water users. Appendix D presents detailed calculations.

The augmentation charge for the metered water users inside the DWZ was calculated by adding the charge associated with additional service to metered groundwater users in the DWZ. The metered groundwater users within the DWZ will be levied an additional charge for the availability of the alternate delivered water supply and the increased availability of groundwater resulting from groundwater offsets in the zone that result from the use of delivered water. The cost for the availability of an alternate water supply was developed by dividing the cost of service for the DWZ by the consumption of metered groundwater in the DWZ.

The augmentation charge for the unmetered groundwater extractors (rural residential users) was calculated by dividing the cost of service by the estimated consumption for unmetered water users for the test year. Rural residential users are billed at 0.5 AF per year, per residence.[14]

Table 19 summarizes the proposed augmentation charges for the rate study period.

[14] The Rural Residential consumption estimate analysis was developed in the 2015 Cost of Service Report, which is available from the Agency office and at https://www.pvwater.org/ad-hoc-funding-committee

Table 19 Proposed Augmentation Charges

Augmentation Charge	Existing Rate FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Augmentation Charge – Outsize DWZ	$246 /AF	$263 /AF	$282 /AF	$302 /AF	$323 /AF	$346 /AF
Augmentation Charge – Inside DWZ	$338	$363	$391	$420	$452	$486
Augmentation Charge – Rural Residential[3]	$230	$246	$264	$283	$303	$325

Notes:
(1) All charges are on a per acre-foot basis.
(2) Rural Residential customers are billed at 0.5 AF per year, per residence.

5.1.2 Delivered Water Charges

Using the cost of service for delivered water users and the total forecast consumption by this water user group, the cost of service per acre-foot was developed. Appendix D presents detailed calculations.

Table 20 summarizes the proposed delivered water charges for the rate study period.

Table 20 Proposed Delivered Water Charges

Delivered Water Charge	Existing Rate FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026
Delivered Water Charge	$392 /AF	$412 /AF	$432 /AF	$454 /AF	$477 /AF	$501 /AF

Note:
(1) All charges are on a per acre-foot basis.

5.1.3 Rate Summary

The Agency revenues and expenses were evaluated to determine the net revenue requirements to be recovered from rates. A cost of service analysis was conducted to allocate revenue requirements to the Agency's functional cost categories to reflect the different service levels received by the water user groups (i.e., metered, unmetered, and delivered water). Finally, the functional unit costs developed within the analysis were used to calculate updated augmentation and delivered water charges.

Table 21 summarizes the existing and calculated cost of service rates (with rate smoothing), the average annual percent increase, and the total six-year rate increase. While a rate per acre-foot is calculated, note that unmetered water users (rural residential) are charged for an estimated annual consumption of 0.5 AF for each parcel connected to an unmetered well.

Table 21 Proposed Rates Summary

Charge	Existing Rate FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025	FYE 2026	6-Year Total	6-Year Avg.
Augmentation Charge – Outsize DWZ	$246 /AF	$263 /AF	$282 /AF	$302 /AF	$323 /AF	$346 /AF	35.3%	5.9%
Augmentation Charge – Inside DWZ	$338	$363	$391	$420	$452	$486	37.7%	6.3%
Augmentation Charge – Rural Residential(3)	$230	$246	$264	$283	$303	$325	35.8%	6.0%
Delivered Water Charge	$392	$412	$432	$454	$477	$501	25.1%	4.2%

Notes:
(1) All charges are on a per acre-foot basis.
(2) Rural Residential customers are billed at 0.5 AF per year, per residence.

The calculated rates reflect the revenue requirements (with rate smoothing), cost of service analysis, and assumptions detailed throughout this report. The proposed rates will recover the forecasted revenue requirements associated with providing supplemental water to help reduce and prevent long-term over-draft and water quality degradation.

Appendix A

O&M ESCALATORS

Table A.1 O&M Cost Escalators

Cost Escalator	Annual Increase
General Inflation	3.0%
Labor Inflation	4.0%
Utilities Inflation	5.0%
Construction Inflation	3.0%
Interest Income	0.5%
Customer Growth	0.0%
Metered Water Demand	0.0%
Delivered Water Demand	0.0%

Appendix B

FUNCTIONAL ALLOCATION

Pajaro Valley Water Management Agency

Cost of Service Study

Functional Allocation

Cost Allocation Basis 5-Year Average

Allocation Index	Notes	"Customer" Billing	"Capacity" Metering	Groundwater	Delivered Water	Additional DWZ Services	As All Others
Billing Only	*Costs allocated to customer (or billing) purpuses only.*	100%	0%	0%	0%	0%	0%
Metering Only	*Costs allocated to capacity (or metering) purposes only.*	0%	100%	0%	0%	0%	0%
Groundwater Only	*Costs allocated to groundwater users only.*	0%	0%	100%	0%	0%	0%
Delivered Water Only	*Costs allocated to Delivered Water Users only.*	0%	0%	0%	100%	0%	0%
Additional DWZ Services Only	*Costs allocated to additional DWZ only.*	0%	0%	0%	0%	100%	0%
Salaries & Wages	*Based on average salary and benefits allocation. See "Salaries & Benefits Allocation" tab.*	15%	18%	28%	38%	2%	0%
Basin Consumption	*Based on the ratio of consumption within the basin.*	0%	0%	86%	14%	0%	0%
Harkins Slough	*Based on the cost to pump pressured water to Delivered Water users.*	0%	0%	60%	40%	0%	0%
Coastal Distribution	*Costs associated with the CDS.*	0%	0%	86%	14%	0%	0%
Supplemental Wells	*Costs associated with supplemental wells.*	0%	0%	56%	44%	0%	0%
Recycled Water Facility	*Cost to pump water at pressure is 100% allocated to Delivered Water Users.*	0%	0%	86%	14%	0%	0%
Facility Operations	*Weighted average of facility operations.*	0%	0%	81%	19%	0%	0%
Existing Debt	*Weighted average of existing debt.*	0%	0%	79%	14%	7%	0%
Prop 13 Debt	*Costs allocated based on ratio of delivered & metered water user consumption in DWZ.*	0%	0%	0%	66%	34%	0%
Capital & Capacity	*Based on the share of capital between groundwater, deliveredwater, and within DWZ.*	0%	0%	79%	14%	7%	0%
As All Others	*Weighted average of all other allocated expenditures.*	0%	0%	0%	0%	0%	100%
AS O&M	*Weighted average of all O&M expenditures.*	4%	11%	62%	22%	1%	0%
Resulting Allocation		**2.4%**	**6.6%**	**68.8%**	**19.0%**	**3.1%**	

Operating Expenditures	5-Year Average	Allocation Basis	Billing	Metering	Groundwater	Delivered Water	Additional DWZ Services	As All Others
Agency Administration	*2022-2026*							
Office Administration	$ 251,248	Salaries & Wages	$ 36,655	$ 45,206	$ 69,670	$ 94,998	$ 4,718	$ -
Board Support	116,294	Salaries & Wages	16,967	20,924	32,248	43,971	2,184	-
Public Education & Outreach	34,777	Salaries & Wages	5,074	6,257	9,644	13,150	653	-
Total Agency Administration	**$ 402,319**		**$ 58,696**	**$ 72,387**	**$ 111,562**	**$ 152,119**	**$ 7,554**	**$ -**
General Administration								
Special Fund General Admin	$ 1,166,039	Salaries & Wages	$ 170,118	$ 209,800	$ 323,339	$ 440,887	$ 21,895	$ -
Grant Admin	152,506	Salaries & Wages	22,250	27,440	42,289	57,664	2,864	-
Conservation	411,156	Salaries & Wages	59,985	73,977	114,012	155,461	7,720	-
Public Ed & Outreach	195,092	Salaries & Wages	28,463	35,102	54,099	73,766	3,663	-
Total General Administration	**$ 1,924,793**		**$ 280,815**	**$ 346,320**	**$ 533,739**	**$ 727,777**	**$ 36,142**	**$ -**
Facility Operations								
Harkins Slough	$ 274,374	Harkins Slough	$ -	$ -	$ 164,800	$ 109,574	$ -	$ -
Coastal Distribution	1,097,919	Coastal Distribution	-	-	942,423	155,496	-	-
Supplemental Water (In-Basin)	472,852	Supplemental Wells	-	-	265,313	207,539	-	-
Recycled Water	2,342,296	Recycled Water Facility	-	-	2,014,623	327,673	-	-
Metering Program	504,532	Metering Only	-	504,532	-	-	-	-
Total Facility Operations	**$ 4,691,972**		**$ -**	**$ 504,532**	**$ 3,387,159**	**$ 800,281**	**$ -**	**$ -**
Basin Management Planning								
Basin Modeling	$ 311,482	Basin Consumption	$ -	$ -	$ 267,908	$ 43,574	$ -	$ -
Basin Monitoring	283,872	Basin Consumption	-	-	244,160	39,712	-	-
In-Basin Management	617,207	Basin Consumption	-	-	530,864	86,343	-	-
Regional Water Management	37,959	Basin Consumption	-	-	32,649	5,310	-	-
Out-of-Basin Funding	53,283	Basin Consumption	-	-	45,829	7,454	-	-
In-Basin Funding	165,386	Basin Consumption	-	-	142,249	23,136	-	-
Total Basin Management Planning	**$ 1,469,189**		**$ -**	**$ -**	**$ 1,263,659**	**$ 205,530**	**$ -**	**$ -**
Total Operating Expenditures	$ 8,488,273		$ 339,511	$ 923,239	$ 5,296,119	$ 1,885,709	$ 43,697	$ -
As All Others Reallocation			-	-	-	-	-	
Total Operating Expenditures	**$ 8,488,273**		**$ 339,511**	**$ 923,239**	**$ 5,296,119**	**$ 1,885,709**	**$ 43,697**	

Non-Operating Expenses

	5-Year Average	Allocation Basis						
Capital Projects								
Basin Monitoring Improvements	$ 300,000	Capital & Capacity	$ -	$ -	$ 236,505	$ 41,968	$ 21,527	$ -
Harkins Slough Facility Upgrades	1,882,000	Capital & Capacity	-	-	1,483,674	263,280	135,046	-
College Lake IRWP	12,871,100	Capital & Capacity	-	-	10,146,928	1,800,586	923,586	-
Watsonville Slough Diversion	2,620,000	Capital & Capacity	-	-	2,065,476	366,522	188,002	-
RW Facility Disk Filter Upgrade	20,000	Capital & Capacity	-	-	15,767	2,798	1,435	-
RW Storage Project	450,000	Capital & Capacity	-	-	354,757	62,952	32,290	-
CDS F-Line Expansion	300,000	Capital & Capacity	-	-	236,505	41,968	21,527	-
BMP Update	80,000	Capital & Capacity	-	-	63,068	11,191	5,741	-
Total Capital Projects	**$ 18,523,100**		**$ -**	**$ -**	**$ 14,602,681**	**$ 2,591,266**	**$ 1,329,154**	**$ -**
Debt Service								
Department of Water Resources (DWR) Note Payab	$ 241,359	Capital & Capacity	$ -	$ -	$ 190,275	$ 33,765	$ 17,319	$ -
2015 Water Revenue Refunding Bonds	1,138,350	Capital & Capacity	-	-	897,418	159,248	81,684	-
2016 Water Revenue Refunding Bonds	804,734	Capital & Capacity	-	-	634,411	112,577	57,745	-
Future Debt Service	1,423,840	Capital & Capacity	-	-	1,122,484	199,186	102,170	-
Total Debt Service	**$ 3,608,283**		**$ -**	**$ -**	**$ 2,844,589**	**$ 504,776**	**$ 258,918**	**$ -**

Rate Revenue Requirement

	5-Year Average							
Operating Expenses	8,488,273	*As O&M*	$ 339,511	$ 923,239	$ 5,296,119	$ 1,885,709	$ 43,697	$ -
Debt Service	3,608,283	*As Debt Service*	-	-	2,844,589	504,776	258,918	-
Rate Funded Capital (PAYGO)	-	Capital & Capacity	-	-	-	-	-	-
Replacement Funding	-	Capital & Capacity						
Transfer to Capital Reserve	-	Capital & Capacity	-	-	-	-	-	-
Coverage Driven Increase	-	Capital & Capacity	-	-	-	-	-	-
Reserves Driven Increase	-	Capital & Capacity	-	-	-	-	-	-
Total Policy Expenditures	-	As All Others	-	-	-	-	-	-
Total Expenses	**$ 12,096,556**		**$ 339,511**	**$ 923,239**	**$ 8,140,707**	**$ 2,390,485**	**$ 302,615**	**$ -**
(Less) Offsetting Revenues								
Cashflow (Surplus) / Deficit	$ 1,913,991	Capital & Capacity	$ -	$ -	$ 1,508,894	$ 267,755	$ 137,341	$ -
Management Fees	(387,000)	As All Others	-	-	-	-	-	(387,000)
Interest Income	(260,202)	As All Others	-	-	-	-	-	(260,202)
Other Revenues	(35,000)	As All Others	-	-	-	-	-	(35,000)
Total Offsetting Revenues	**$ 1,231,789**		**$ -**	**$ -**	**$ 1,508,894**	**$ 267,755**	**$ 137,341**	**$ (682,202)**
Total Rate Revenues to be Collected	$ 13,328,345		$ 339,511	$ 923,239	$ 9,649,602	$ 2,658,240	$ 439,956	$ (682,202)
As All Others Reallocation			*(16,531)*	*(44,954)*	*(469,859)*	*(129,435)*	*(21,422)*	
Total Allocation	**$ 13,328,345**		**$ 322,979**	**$ 878,285**	**$ 9,179,743**	**$ 2,528,805**	**$ 418,534**	
			2.4%	*6.6%*	*68.9%*	*19.0%*	*3.1%*	

Appendix C

MEU RATIOS

Table C.1 O&M Cost Escalators

Meter Size	Meter Equivalent Unit, 1" Meter Basis
5/8"	0.71
3/4"	0.79
1"	1.00
1.5"	1.29
2"	2.07
3"	7.86
4"	10.00
6"	15.00
8"	20.71
10"	35.23
14"	62.93

Appendix D

RATE CALCULATION

Table D.1 Augmentation Charge, Outsize DWZ FYE 2026 Rate Calculation

Augmentation Charge – Outsize DWZ	FYE 2026
Metered Water Users Revenue to Recover	$14,251,648
All Metered Water Consumption	41,274 AF
Augmentation Charge – Outside DWZ	**$346 / AF**

Table D.2 Augmentation Charge, Rural Residential FYE 2026 Rate Calculation

Augmentation Charge – Rural Residential	FYE 2026
Unmetered Water Users Service Revenue to Recover	$402,658
Unmetered Consumption	1,240 AF
Augmentation Charge – Rural Residential	**$325 / AF**

Table D.3 Augmentation Charge, Inside DWZ FYE 2026 Rate Calculation

Augmentation Charge – Inside DWZ	FYE 2026
Additional DWZ Metered Service Revenue to Recover	$496,634
Metered Water Consumption – Inside DWZ	3,547 AF
Additional Supplemental Service	**$140 / AF**
Augmentation Charge – Outside DWZ Charge	**+ $346 / AF**
Total Augmentation Charge – Inside DWZ	**$486 / AF**

Table D.4 Delivered Water Charge FYE 2026 Rate Calculation

Delivered Water Charge	FYE 2026
Delivered Water Service Revenue to Recover	$3,463,058
Delivered Water Consumption	6,915 AF
Delivered Water Charge	**$501 / AF**