

COACHELLA VALLEY WATER DISTRICT

ENGINEERING DEPARTMENT

**COST OF SERVICE STUDY
WATER DEMAND OFFSET FEE**

FINAL – OCTOBER 2021





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1. INTRODUCTION & BACKGROUND

On behalf of the Coachella Valley Water District (CVWD or District), Woodard & Curran has conducted a Cost of Service Study (COSS or Study) of the District's Supplemental Water Supply Charge (SWSC) used as a means of collecting revenues for purchase of supplemental imported water. The SWSC was included in the 2012 *Water System Backup Facilities Charge (WSBFC) Study* as a component of the WSBFC. Based on an evaluation of the SWSC purpose and alternative calculation methodologies, Woodard & Curran recommends re-naming this charge the "Water Demand Offset Fee" (Offset Fee) as a stand-alone charge from the WSBFC. There are three primary objectives for the completion of this Study:

1. Evaluate different methodologies for calculating the charge;
2. Make recommendations on which method is most appropriate for CVWD; and
3. Prepare a financial model which would easily allow CVWD to assess modification of the charges in the future.

The primary source of potable drinking water in the CVWD service area is the Coachella Valley Groundwater Basin, which is comprised of four subbasins: Indio, San Geronio Pass, Mission Creek, and Desert Hot Springs. Groundwater is accessed through production wells to supply local residences and businesses with potable water. Demand on the regional groundwater supply has increased as new land has developed with urban uses. Given that demand for groundwater has exceeded the natural recharge ability of the basin for decades, the District imports water to replenish the groundwater basin. As development within the Coachella Valley continues to expand, new water sources are required to match this increased demand.

The SWSC has been collected since 1992 to fund acquisition of new water entitlements. Historically, new water has been purchased and imported from two primary sources: the State Water Project (SWP) and the Colorado River. CVWD has entitlements to both water supplies, though SWP water is exchanged for Colorado River water due to limitations in the SWP conveyance system. These water supplies are used to replenish the groundwater basin. However, as demand has increased, and California continues to experience record heat and reoccurring drought, these water sources have become increasingly expensive and limited. New water entitlements for groundwater replenishment have become increasingly difficult to secure. SWP reliability has decreased substantially since a series of legal decisions on Sacramento-San Joaquin Delta exports (the source of SWP water), averaging delivery of only 45% of CVWD's entitlement over the last 14 years. Additionally, the Colorado River basin has experienced a 20-year drought and reservoir levels are at all-time lows. Therefore, the District is more aggressively pursuing options to protect the groundwater supply through source substitution (delivering non-potable water to large irrigators in exchange for reduced groundwater pumping) and water conservation.

CVWD seeks to redirect water revenues to support construction of source substitution and conservation programs, rather than continuing to build reserves for limited supplemental water entitlement purchases. The new Offset Fee would have a similar scope to the SWSC, but broadens the potential uses of fee revenues. The SWSC was only used for supplemental imported water purchases. The Offset Fee will fund planned facilities and programs to directly reduce groundwater pumping. The Offset Fee can be used for non-potable water treatment, conveyance, and connections in



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order to utilize more non-potable water, thereby reducing demand on the groundwater basin. Additionally, the Offset Fee can be used for water conservation programs that also directly reduce pumping volumes. These efforts serve the same purpose as the SWSC by offsetting potable demands with other sources (or demand reduction) and allowing the District to continue meeting future demands by leaving potable groundwater in the aquifer.

The objective of this Study was to evaluate the present and future costs for CVWD to invest in groundwater offset programs that support growth. The analysis used data developed with CVWD staff and included gathering and analyzing historical expenses, contractual agreements, growth projections, historic water demands, billing information, future capitals improvements plans, and financing information.

Based on the data, our recommendation is to establish the Water Demand Offset Fee as a stand-alone charge intended to fund construction of facilities and programs that reduce groundwater pumping (either through non-potable deliveries or conservation). The Future Spending method of calculation, which considers the capital improvement program (CIP) for non-potable and conservation programs over the coming 10-years, is the most appropriate for CVWD.

1.1 AUTHORITY

The District's authority to establish a demand charge is outlined in California Government Code 66000 et. Seq. (the "Mitigation Fee Act") and specifically described in Section 66013. The proposed charge is essentially a "Capacity Charge," which is defined by Government Code Section 66013(b) (3) as "a charge for facilities in existence at the time a charge is imposed or charges for new facilities to be constructed in the future that are of benefit to the person or property being charged." While the Mitigation Fee Act specifically exempts water and sewer capacity charges from the nexus finding required for other types of mitigation fees, it specifically limits capacity charges to "the estimated reasonable cost of providing the service for which the...charge is imposed."

2. HISTORY OF THE DISTRICT

In 1918, CVWD was formed to manage the Coachella Valley's water resources consisting primarily of groundwater supplemented by surface flow. The District's principal responsibility was to provide water to Coachella Valley residents and farmlands. In the late 1940s, the Coachella Branch of the All-American Canal was built to transport water from the Colorado River to the District to further supplement the Valley's water resources.

Over the decades, the Coachella Valley has transformed from a farming community to a destination resort for visitors from all over the world and a year-round home to a substantial and diverse population. In step with the Valley's transformation, the District has grown into a multifaceted agency that delivers irrigation and domestic (drinking) water, collects and recycles wastewater, provides regional storm water protection, replenishes the groundwater basin, and promotes water conservation to customers throughout the Coachella Valley. CVWD's service area covers approximately 1,000 square miles serving a population of 290,000.

The rapid development within the District's domestic water service area has placed increased demands for water and water infrastructure. This increased demand has led CVWD to invest significant resources to build new facilities and to seek and secure new or additional sources of water to keep pace with the area's growth.

CVWD relies on three sources of water to provide service to its customers: groundwater, recycled water, and imported water either through the State Water Project (SWP) or from the Colorado River. SWP supplies are delivered through an exchange agreement with Metropolitan Water District of Southern California via the Colorado River Aqueduct to the Whitewater Groundwater Replenishment Facility (GRF) in the West Valley. Colorado River supplies are generally delivered via the Coachella Canal in the East Valley and conveyed northwest through the agricultural areas, to the Thomas E. Levy GRF and Palm Desert GRF, and to the Mid-Valley Pipeline. Drinking water is sourced from the Indio and Mission Creek Subbasins of the Coachella Valley Groundwater Basin (groundwater), while recycled water and Canal water are typically used for land application and irrigation. The District has encouraged water conservation, by working with farmers and golf courses to convert irrigation sources from potable (groundwater) to non-potable (Canal and recycled water). Canal water conveyed through the Mid-Valley Pipeline is delivered to irrigation customers and blended with recycled water at one of CVWD's three Water Reclamation Plants (WRPs) to meet irrigation demand.

The existing SWSC was originated in 1992 as a funding mechanism to pay the costs to acquire rights for supplemental imported water. The most recent update to the SWSC was passed under Board Resolution No. 2013-08, dated January 22, 2013. This charge is currently based on the findings of the *2012 Water System Backup Facilities Charge Study*.

3. OFFSET FEE CALCULATION

3.1 WATER DEMAND OFFSET METHOD

Due to increased demand in California, as well as drought conditions throughout the Western United States, the ability to secure new water has become increasingly difficult. Going forward, we anticipate that sources for supplemental water purchases will be extremely limited. Therefore, the District needs to transition from its current strategy of water acquisition and look toward new opportunities for source substitution and in lieu replenishment, which includes non-potable water deliveries of Canal and recycled water, along with expansion of water conservation programs. The proposed Offset Fee will help to facilitate this transition from water purchases to source substitution.

As envisioned, the Water Demand Offset Fee method is calculated differently than the current SWSC fee, with three primary differences:

1. First, the Offset Fee is set using a calculation which directly ties the fee calculation to identified source substitution and conservation projects in the District's Capital Improvements Program (CIP). The fee is calculated to provide funding to these projects at a level that ties the cost charged to new customers directly to the unit costs associated with potable demands associated with new development.
2. Second, rather than tying the charge to the acreage of the projects by customer type, the Offset Fee is based upon the expected potable water demand from each new customer. The larger the potable water demand expected to be placed upon the system, the larger the Offset Fee.
3. Finally, the Offset Fee will be charged based only on potable water demand, not total water demand. Therefore, if developers implement a dual pipe system and utilize non-potable water for irrigation and land application, that non-potable water is not included in the fee calculation.

The methodology used in this calculation is a Future Spending approach, where the developer pays into the fund based on their proportional share of potable water offset that is needed to accommodate anticipated demands. The charge is based on the total capital cost of the proposed non-potable and conservation projects that will directly provide the potable water offset, calculated as a unit cost per acre-foot. Developers then pay the charge based on the potable water demand they require for their project.

3.2 CAPITAL COST ESCALATION

The Offset Fee calculation incorporates a 2% per year escalation rate that best forecasts funding requirements for the non-potable system being estimated. This is a standard annual escalation rate currently used by CVWD's Finance Department.

3.3 CAPITAL IMPROVEMENTS PROGRAM

CVWD has prepared a detailed CIP, which includes \$39.71 million in non-potable water upgrades and conservation programming which are expected to be implemented over the coming ten years. These projects primarily focus on converting golf courses, country clubs, and other customers with heavy outdoor irrigation demands from potable to non-potable water or more efficient water uses. These capital projects include construction of the necessary

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transmission pipelines and booster stations to convey non-potable water to planned rights-of-way; individual customers are responsible for all on-site improvements and retrofit of their irrigation systems to accommodate non-potable supply. These projects will free up potable water capacity by replacing groundwater demands with other, non-potable sources.

Of the District's targeted capital projects, \$35 million is expected to be funded by grants and loans. Several projects on the District's current non-potable CIP have been removed because they have already received funding and, while they are part of the overall CIP, have not been included in the calculation of the proposed Offset Fee. After the Capital Costs are adjusted for inflation, it is anticipated that \$43 million will be spent on cash funded projects over the next ten years. The Offset Fee is designed to contribute funds to cover a portion of the costs of these investments.

A list of the non-potable water and conservation projects in the 10-year CIP, their current construction cost estimates, and each project's expected completion date is shown in Table 1. Overall, the CIP in Table 1 contains 22 projects delivering non-potable water from WRP-7 and WRP-10, along with a turf rebate program, which are projected will conserve a total of 22,430 AFY, freeing up this capacity for other potable needs. Additionally, there are two pump station improvement projects which, while they do not conserve water themselves, are required for the completion of the 22 other projects in the CIP. Once constructed, these facilities comprise a total of 22,430 AFY in source substitution and conservation projects that offset potable groundwater supplies.

Table 1: List of Capital Projects for Coming Ten-Years

<u>Improvements</u>	<u>Total Project Cost</u>	<u>Year Completed</u>	<u>Escalated Total Cost</u>	<u>Estimated Acre-Feet to be Offset</u>
WRP 10 NPW System Expansion Projects				
Emerald Desert Country Club Connection	\$400,000	2024	\$424,483	188
Jack Ivey Ranch NPW Connection	\$2,500,000	2025	\$2,663,840	339
Tri-Palms Country Club NPW Connection	\$2,500,000	2025	\$2,663,840	755
Indian Wells Tennis Garden	\$70,000	2026	\$75,558	359
Palm Royale Country Club	\$2,350,000	2025	\$2,495,108	411
Southwest Community Church/Gerald Ford School	\$2,400,000	2025	\$2,553,433	212
Marriott Desert Springs North Course Connection	\$1,750,000	2025	\$1,888,950	1,383
Marriott Shadow Ridge Connection (including Low Pressure Pipeline)	\$4,000,000	2025	\$4,287,280	2,301
Suncrest Country Club Connection	\$2,400,000	2025	\$2,559,800	410
The Eagle (Crystal Lagoon) NPW Connection	\$550,000	2028	\$623,916	805
Annenberg (aka Sunnylands) Golf Club Connection	\$2,200,000	2025	\$2,343,314	1,262
Desert Island Country Club Connection	\$125,000	2025	\$130,601	979
Rancho Mirage Country Club Connection	\$2,000,000	2025	\$2,126,827	387
Springs Country Club Connection	\$125,000	2025	\$130,601	985
Tamarisk Country Club Connection	\$2,400,000	2025	\$2,553,433	697
Blended Water System Pump Stations	\$2,070,000	2028	\$2,348,843	0
Mission Hills Country Club Connection	\$6,250,000	2028	\$7,098,400	8,140
WRP 7 NPW System Expansion Projects				
Young's Farmland & Garden Fellowship NPW Connection	\$510,000	2025	\$546,314	354
Talavera	\$575,000	2025	\$612,920	107
Shadow Hills High School NPW Connection	\$575,000	2025	\$612,920	40
Shadow Hills Golf Course NPW Conversion	\$2,055,000	2026	\$2,250,504	859
Garden Fellowship Connection	\$200,000	2027	\$223,024	32
Conservation Programs				
Turf Rebate Program	\$1,700,000	2024	\$1,804,054	1,425
TOTAL	\$39,705,000		\$43,017,964	22,430

3.4 CALCULATION OF OFFSET FEE

3.4.1 Offset Fee Unit Cost

Using the list of CIP projects in Table 1, their construction cost estimates and their total offset volume, a calculation of the cost per acre-foot of potable water offset was calculated. The calculation was made on the construction cost estimates (CCE) escalated to each project's year of construction using a cost escalation rate of 2% per year. After escalation to the expected year of construction for each project, the overall program value is expected to be approximately \$43.02 million. Dividing these costs by the projected conservation savings of 22,430 AFY results in a \$/AFY cost of \$1,918. This calculation is shown below.

$$\begin{aligned} \text{Offset Fee Unit Cost} &= \text{CCE of WRP 7 and WRP 10 NPW Program} / \text{Expected AFY Savings} \\ &= \$43,017,963 / 22,430 = \mathbf{\$1,918/AFY} \end{aligned}$$

3.4.2 Offset Fee for ¾-inch Equivalent Meter

As proposed, the Offset Fee is intended to ensure that new customers are contributing to the utility commensurate with the cost to the utility of ensuring their expected potable demands. Under CVWD's updated design standards, residential customers (users of a ¾-inch meter) are expected to use 0.45 gallons per minute (gpm) as an average daily demand (ADD); 0.45 gpm is equal to an ADD of 0.7259 AFY.

To calculate the value of the Offset Fee, the escalated Cost per AFY of \$1,918 is multiplied by the ADD of 0.7259 AFY, resulting in a proposed Offset Fee for ¾-inch customers of \$1,392. This calculation is shown below.

$$\begin{aligned} \text{Offset Fee for } \frac{3}{4}\text{-inch Equivalent Meter (Residential Customers)} &= \text{Cost per AFY} \times \text{ADD} \\ &= \$1,918 \times 0.7259 \text{ AFY} = \mathbf{\$1,392} \end{aligned}$$

3.4.3 Offset Fee for All Meter Sizes

Offset Fees for larger connections (higher expected potable water usage) are shown in Table 2. The values for larger meters are calculated using meter size capacity factors from the American Water Works Association (AWWA) M6 Manual of Practice on the sizing of meters.

Table 2: Offset Fee for All Meter Sizes

Meter Size	Maximum Capacity (gpm)	Capacity Ratio*	Proposed Offset Fee
¾-inch	30	1.00	\$1,392
1-inch	50	1.67	\$2,320
1½-inch	100	3.33	\$4,640
2-inch	160	5.33	\$7,425
3-inch	350	11.67	\$16,241
4-inch	600	20.00	\$27,842
6-inch	1250	41.67	\$58,004
8-inch	1800	60.00	\$83,526

3.4.4 Offset Fee for All Other Uses

The Offset Fee only applies to potable water demand.

$$\text{Offset Fee} = \text{Potable Water Demand (AFY)} \times \text{Offset Fee Unit Cost (\$/AFY)}$$

3.4.5 Offset Fee Reduction for Non-potable Water Use

CVWD seeks to encourage non-potable water use (Canal and/or recycled water) for non-domestic water purposes, such as outdoor irrigation. If a new development were to use non-potable water for a portion of its non-domestic water demands, that developer would see a corresponding reduction in its Offset Fee charge, up to a maximum reduction of 60%. The Offset Fee is calculated solely on the projected potable water demands in a development because use of non-potable water relieves pressure on the District's potable groundwater supply. In the case of a residential dwelling unit with a dual plumbing system that meets a percentage of its total water demands with non-potable water, the Offset Fee would only be based on the potable water demands.

3.4.6 Evaluation of Equivalent Meter Counts

Although it does not play into the Offset Fee calculations, having a well-grounded estimate of the number of "charges" which the utility should expect to levy is an important part in projecting the performance of both the charge and the fund to which the charges are credited. To estimate how much the District might collect annually from this fee, the five-year record of the assessment of WSBFC charges was evaluated. This metric was used as it is a good corollary for the "equivalence" based method in which the proposed Offset Fee will be implemented. Below is the straightforward method by which this calculation was completed, yielding an annual equivalence count of 979 meters per year.

$$\begin{aligned} \text{Equivalents per Year} &= (\text{FY17-21 WSBFC Net Revenues} / \text{WSBFC Charge}) / \# \text{ Years} \\ &= (\$18,141,344 / \$3,707) / 5 = 979 \end{aligned}$$

Based on the calculations above, a projection of the fiscal performance of the Offset Fee was prepared. Assuming each of the 979 equivalent 3/4-inch meters uses 0.7259 AFY, the estimated amount that might be collected from this fee would be approximately \$1,360,000 annually. The amount of funds collected from the Offset Fee is dependent on development and the issuance of new meters.

The use of debt financing for a substantial portion of the non-potable CIP will result in steadily increasing fund balances. Woodard & Curran recommends that, assuming adoption of the proposed Offset Fee, CVWD consider transitioning some portion of the CIP into cash financing to reduce borrowing needs, while also maintaining adequate fund balances to ensure long-term stability. Since the proposed Offset Fee is calculated off of construction costs rather than financing costs, the use of a portion of these funds for projects on the CIP will not impact the calculation determining the proposed Offset Fee.

3.5 RECOMMENDED METHOD OF CALCULATION

Woodard & Curran recommends adoption of an Offset Fee using the proposed calculation described above, rather than maintaining the existing SWSC, based on the following factors:

- 1 It is considered unlikely, given the reliability of SWP deliveries in recent years and ongoing Colorado River drought conditions, that additional water entitlements will become available for long-term, reliable contracting;
- 2 The transition of demands which can be supplied with non-potable water is the most assured way of freeing up limited potable water capacity, while continuing to support CVWD customers;
- 3 The current financing of non-potable water projects through the Sanitation Fund assigns the costs of completing the non-potable water CIP onto many sewer customers and this fee will relieve pressure on the Sanitation Fund;
- 4 Offsetting groundwater pumping with non-potable deliveries and conservation achieves the goal of groundwater basin sustainability; and
- 5 The Offset Fee is easier to implement and provides greater flexibility as it is based on potable water demand rather than acreage.

Adoption of the Water Demand Offset Fee will address all of these factors, increasing the long-term availability of potable water for potable uses while simultaneously ensuring new customers, who receive the benefit of these investments, contribute towards the needed investments.

3.6 ADDITIONAL CONSIDERATIONS

During implementation of the proposed Offset Fee, the District shall consider the following items noted below.

3.6.1 Transfer of Remaining SWSC Balances

The District shall consider utilizing the SWSC Reserves to either offset borrowing or accelerate the roll-out schedules for the non-potable CIP projects list included in Table 1.

3.6.2 Schedule for Recalculation

The calculation included in this Study was completed assuming a five-year period for the recommended charge before reconsideration by CVWD. As the capital program is based upon a ten-year planning period, reassessing ten-year capital needs five years from now and re-running the calculation should both maintain a level of stability in the proposed Offset Fee, while also ensuring the long-term sustainability of the non-potable water program.

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3.7 CONCLUSIONS

Implementation of the Water Demand Offset Fee will mitigate impacts due to new developments by funding source substitution and conservation projects, thereby reducing demand for potable groundwater. Establishment of a new stand-alone Offset Fee relieves some pressure on the Sanitation Fund for construction of the non-potable water system. The proposed approach, based on projected potable demands, encourages dual-plumbed systems and the use of non-potable water. With these efforts, CVWD will be better able to achieve the goal of groundwater basin sustainability.



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4. SUMMARY OF CHARGES

Woodard & Curran recommends the adoption of the Offset Fee Unit Fee of \$1,918/AFY, with a ¾-inch meter residential Offset Fee starting at \$1,392/residential customer as shown in Table 2 of this Study. The Offset Fee may be reduced up to 60% for non-potable water use for a residential dwelling unit.