

**DRAFT**

WESTERN MUNICIPAL  
WATER DISTRICT  
COST OF SERVICE STUDY REPORT  
Gavilan Hills Water Filling Station

Adopted by the Board of Directors and Effective on May 15, 2024  
Version 1 – April 15, 2024

# Water Filling Station

## Overview

Western Municipal Water District (Western Water) installed a potable water filling station in the Gavilan Hills area of its Riverside Service Area near Riverside, California. The water filling station is available to the public, regardless of whether or not the user is a Western Water customer. The filling station is primarily to provide water supply reliability for private well owners during times of low water table due to drought, a non-operating well, etc. The project was fully funded by a grant from the California Department of Water Resources Urban and Multi-Benefit Drought Relief Program. Per the grant agreement, no cost share was required.



Picture of Water Filling Station

## Location of Water Filling Station



Water Filling Station located near the corner of Rolling Meadows Drive and Rocky Bluff Road.

## Rate Model Inputs & Revenue Requirement

The water rate for the Water Filling Station is made up of two major components – a Commodity component and an Annual Fixed Costs component. Properties that are connected to Western’s water system in the Riverside Potable Water Service Area, where the Water Filling Station is located, pay a commodity charge, a pumping charge, a water reliability charge – all three based on the volume of water deliveries – and a fixed system charge and a readiness-to-serve (RTS) charge – the latter two being fixed monthly charges based on meter size.

Users of the Water Filling Station are not customers of Western Water and have not paid a capacity charge that represents a proportionate share of the water system cost. Therefore, the Commodity rate is derived in part from the Tier 3 water budget rate for the Riverside Potable Water Service Area. The Commodity rate is the sum of:

- the Tier 3 supply component rate (\$2.897 per hundred cubic feet or “HCF”);
- the Tier 3 operations & maintenance rate (“O&M”) component (\$1.076 per HCF);
- the pumping charge rate for Power Zone 105 (\$0.756 per HCF), which is where the Water Filling Station is located;
- the water reliability charge rate (\$0.42 per HCF), which is a charge applied to all deliveries in the service area; and
- the fixed system charge and RTS charge rate derived by dividing the revenue requirement for these two charges per the Riverside Potable Water Rate Model (\$13,018,805) by the projected sales in the model (9,234,284 HCF), which equals \$1.4098 per HCF as detailed in Table 2 below.

The total of the above amounts equals \$6.5588 per HCF. When divided by the number of gallons in an HCF (which is 748), the result is a Commodity rate of \$0.0088 per gallon as shown in Table 1 below.

All of the elements that make up the Commodity rate are based on the Riverside Potable Cost of Service Study which produced the water rates and charges adopted by Western Water's Board of Directors on June 2, 2021, applicable to Fiscal Year 2023-2024.

For more information on Western Water's tiered rates and other related charges, please see the full "Cost of Service Study, Riverside Service Area" located on Western Water's website at [www.wmwd.com/556/Rate-Studies-Resources](http://www.wmwd.com/556/Rate-Studies-Resources)

**Table 1 – Commodity Rate per HCF**

|       |                  |  |
|-------|------------------|--|
|       | \$ 2.8970        | FY 23-24 Riverside Potable Tier 3 supply component |
|       | \$ 1.0760        | FY 23-24 Riverside Potable Tier 3 O&M component    |
|       | \$ 0.7560        | FY 23-24 Power Zone 105                            |
|       | \$ 0.4200        | FY 23-24 Water Reliability Charge                  |
| e     | \$ 1.4098        | Fixed System Charge & RTS Charge from Table 2      |
| f     | <b>\$ 6.5588</b> | <b>Total per HCF</b>                               |
| g     | 748              | Gallons in one HCF                                 |
| f/g=h | <b>\$ 0.0088</b> | <b>Total Commodity Rate per Gallon</b>             |

**Table 2 – Conversion of Fixed System Charge & RTS Charge to a Per-HCF Rate**

|       |                  |   |
|-------|------------------|---|
| a     | 21,199           | Projected Sales in Acre-Feet (AF) from FY 2023-24 Riverside Potable Rate Model  |
| b     | 435.6            | HCF in one AF   |
| axb=c | 9,234,284        | Projected Sales in HCF  |
| d     | \$ 13,018,805    | FY 23-24 Rate Model revenue requirement for Fixed System Charge and MWD Readiness-to-Serve Charge minus Private Fire Services revenue requirement |
| d/c=e | <b>\$ 1.4098</b> | <b>Total Fixed System Charge and RTS Charge Revenue Requirement per HCF</b>   |

The second major component of the water rate for the Water Filling Station is the Annual Fixed Costs component. This component is based on annual fixed costs to operate the Water Filling Station and is separate from the cost of the water itself (Commodity Rate) presented in Table 1 above. Annual fixed costs include a software subscription used by the Water Filling Station, a portion of the future cost to replace the station, a portion of the future cost to replace the programmable logic controller ("PLC") hardware in the filling station, an annual data subscription with cellular service provider AT&T, and the payment processor's fixed account fee. These annual fixed costs are shown in Table 3 below.

**Table 3 – Annual Fixed Costs**

|         |                 |  |
|---------|-----------------|--|
|         | \$ 1,100        | Portal Logic - SAS Software Water Station Software Subscription Cost |
| Table 4 | \$ 3,361        | Water Filling Station Replacement Cost (replace every 20 Years)      |
| Table 6 | \$ 597          | PLC hardware (replace every 10 Years)                                |
|         | \$ 480          | AT&T First Net - Annual Data Subscription (\$40/month)               |
|         | \$ 119          | Payment processor account fee (\$9.95 per month)                     |
| j       | <b>\$ 5,657</b> | <b>Total Annual Fixed Costs</b>                                      |

Table 4 below presents the calculation to determine the amount of funds to set aside in the first year to replace the Water Filling Station after 20 years. An assumed 3.35% annual escalator to accommodate inflation has been applied to the annual replacement cost funding and to the current Water Filling Station cost shown in Table 5.

**Table 4 – Annual Funding to Replace the Water Filling Station**

|                         |                             |                       |
|-------------------------|-----------------------------|-----------------------|
|                         | <b>3.35% Historical CPI</b> |                       |
|                         | <b>\$48,425.00</b>          | <b>Initial Cost</b>   |
|                         |                             |                       |
| <b>End of Year #</b>    | <b>Replace-ment Cost</b>    | <b>Annual Funding</b> |
| 1                       | \$ 50,047.24                | <b>\$ 3,361.15</b>    |
| 2                       | \$ 51,723.82                | \$ 3,473.75           |
| 3                       | \$ 53,456.57                | \$ 3,590.12           |
| 4                       | \$ 55,247.36                | \$ 3,710.39           |
| 5                       | \$ 57,098.15                | \$ 3,834.69           |
| 6                       | \$ 59,010.94                | \$ 3,963.15           |
| 7                       | \$ 60,987.80                | \$ 4,095.92           |
| 8                       | \$ 63,030.90                | \$ 4,233.13           |
| 9                       | \$ 65,142.43                | \$ 4,374.94           |
| 10                      | \$ 67,324.70                | \$ 4,521.50           |
| 11                      | \$ 69,580.08                | \$ 4,672.97           |
| 12                      | \$ 71,911.01                | \$ 4,829.52           |
| 13                      | \$ 74,320.03                | \$ 4,991.31           |
| 14                      | \$ 76,809.75                | \$ 5,158.52           |
| 15                      | \$ 79,382.88                | \$ 5,331.33           |
| 16                      | \$ 82,042.21                | \$ 5,509.92           |
| 17                      | \$ 84,790.62                | \$ 5,694.51           |
| 18                      | \$ 87,631.10                | \$ 5,885.27           |
| 19                      | \$ 90,566.75                | \$ 6,082.43           |
| 20                      | <b>\$ 93,600.73</b>         | \$ 6,286.19           |
| <b>Total Years 1-20</b> |                             | <b>\$ 93,600.73</b>   |

**Table 5 – Current Water Filling Station Cost**

|               |                    |
|---------------|--------------------|
| Water Station | \$45,675.00        |
| Crating       | \$2,000.00         |
| Card Reader   | \$750.00           |
| <b>Total</b>  | <b>\$48,425.00</b> |

Table 6 below presents the calculation to determine the amount of funds to set aside in the first year to replace the PLC hardware after 10 years. An assumed 3.35% annual escalator to accommodate inflation has been applied to the annual replacement cost funding and to the current PLC cost of \$5,000.

**Table 6 – Annual Funding to Replace the PLC Hardware**

|                         |                             |                       |
|-------------------------|-----------------------------|-----------------------|
|                         | <b>3.35% Historical CPI</b> |                       |
|                         | <b>\$5,000.00</b>           | <b>Initial Cost</b>   |
|                         |                             |                       |
| <b>End of Year #</b>    | <b>Replace-ment Cost</b>    | <b>Annual Funding</b> |
| 1                       | \$ 5,167.50                 | <b>\$ 596.67</b>      |
| 2                       | \$ 5,340.61                 | \$ 616.66             |
| 3                       | \$ 5,519.52                 | \$ 637.32             |
| 4                       | \$ 5,704.43                 | \$ 658.67             |
| 5                       | \$ 5,895.52                 | \$ 680.73             |
| 6                       | \$ 6,093.02                 | \$ 703.54             |
| 7                       | \$ 6,297.14                 | \$ 727.10             |
| 8                       | \$ 6,508.09                 | \$ 751.46             |
| 9                       | \$ 6,726.12                 | \$ 776.64             |
| 10                      | <b>\$ 6,951.44</b>          | \$ 802.65             |
| <b>Total Years 1-10</b> |                             | <b>\$ 6,951.44</b>    |

To convert the annual fixed costs into a per-gallon rate, the estimated gallons used by non-customers from hydrant meters in the Gavilan Hills area during 2023 was used. This amount was 1,035,530 gallons. Assuming 7.5% (or 77,665 gallons) of the water used from the hydrants is instead paid for by users of the Water Filling Station, the annual fixed costs of \$5,657 divided by 77,665 gallons equals \$0.0728 per gallon. The quantity of gallons expected to be purchased from the Water Filling Station is a significant unknown and will be revised based on actual usage in future Cost of Service Study reports. The above calculation is shown in Table 7 below.

**Table 7 – Annual Fixed Costs per Gallon**

|                    |                  |   |
|--------------------|------------------|---|
| k                  | 1,035,530        | CY 2023 gallons from hydrant meters per Operations Report for Gavilan Hills   |
| l                  | 7.5%             | Estimated percent of Gavilan Hills hydrant water switching to filling station |
| kx <sub>l</sub> =m | 77,665           | Estimated annual sales in gallons   |
| j (Table 3)        | \$ 5,657         | Total Annual Fixed Costs  |
| j/m=n              | <b>\$ 0.0728</b> | <b>Total Annual Fixed Costs per Gallon</b>                                    |

Adding the Commodity rate per gallon from Table 1 (\$0.0088) to the Annual Fixed Costs rate per gallon in Table 7 (\$0.0728) equals \$0.0816 per gallon. Since the payment processor charges a fee of 5.95% of the sale, the \$0.0816 amount per gallon is multiplied by 5.95% to arrive at a fee of \$0.0049 per gallon. \$0.0816 plus \$0.0049 equals a final rate of \$0.0865 per gallon, rounded to \$0.09 per gallon as shown in Table 8 below. This is the water rate for the Water Filling Station.

**Table 8 – Total Water Rate per Gallon**

|           |           |             |  |
|-----------|-----------|-------------|--|
| h         | \$        | 0.0088      | Commodity Rate   |
| n         | \$        | 0.0728      | Annual Fixed Costs   |
| o         | \$        | 0.0816      | Sub-Total  |
| ox5.95%=p | \$        | 0.0049      | Transaction Fee from payment processor (5.95% of the sale) |
| o+p=q     | \$        | 0.0865      | Water Rate per Gallon                                      |
|           | <b>\$</b> | <b>0.09</b> | <b>Water Rate per Gallon - rounded</b>                     |

**Effective Date of Water Filling Station Rate**

The rate of \$0.09 per gallon is effective upon adoption of the associated Resolution by Western Municipal Water District's Board of Directors on May 15, 2024.