ERA Economics
1111 Kennedy Place, Suite #4
Davis, CA 95616

Technical Memorandum

Subject: Economic Impacts and Feasibility Analysis for Eliminating the SWP Tax and Covering SWP Costs under the RAC

From: Richard Howitt, Brooks Ronspies, Duncan MacEwan; ERA Economics, LLC

To: Michael Colantuono and Pamela Graham; Colantuono, Highsmith & Whatley, PC

Date: June 23, 2023

Overview, Background, and Summary Conclusions

Colantuono, Highsmith & Whatley, PC (CHW), on behalf of its client Coachella Valley Water District (CVWD or District), requested ERA Economics' (ERA) assistance with analyzing the economic impacts of alternative water rates to agricultural and municipal and industrial (M&I) water customers in the CVWD service area. In 2022, ERA prepared three reports analyzing the economic impacts of changes proposed by Howard Jarvis Taxpayers Association (HJTA) to the District RAC rate, SWP Tax, and Canal Rate. The reports illustrated how alternative rate structures proposed by HJTA in fiscal years (FY) 2020 and 2021 would have shift water costs to different users—focusing specifically on agricultural users—and caused economic impacts in different communities in the Coachella Valley.

CHW asked ERA to complete an economic analysis of the impact of shifting the SWP Tax from an ad valorem property tax to a District water charge and assess the feasibility for District water users. This technical memorandum provides an overview of the District SWP Tax, describes feasibility considerations in setting water rates, and summarizes our economic analysis determining whether shifting the SWP Tax to water charges is practical and feasible.

Background

The Coachella Valley depends on imported water supplies from the State Water Project (SWP) and Colorado River. Without this water the economy of the valley would severely contract, and with it the jobs, income, and opportunities for diverse local communities would be reduced. To meet the water needs for current and future generations, CVWD manages a portfolio of water supplies, transfer agreements, exchanges, and its system of recharge facilities, distribution, and recycled water. It also invests in substantial water conservation practices and programs. The costs of managing this complex system are recovered through a mix of taxes and charges, including the SWP Tax.

The SWP Tax is an ad valorem property tax that covers most of the cost of CVWD SWP supplies. It was challenged by the Howard Jarvis Taxpayers Association (HJTA). As we understand its position, HJTA argued that CVWD either cannot charge any SWP Tax at all or can only set the SWP Tax to recover

direct payments from CVWD to the California Department of Water Resources (DWR) for its SWP water supply contract. Regardless of how CVWD raises revenue, it continues to incur costs to deliver water supply to its customers and without the SWP Tax would need to generate revenues under its alternative funding mechanism: water charges.

NBS prepared a technical memorandum[1] showing the effect of shifting the SWP Tax to water charges. In particular, NBS developed an analysis where the SWP Tax collected for FY 2024 is shifted to the Replenishment Assessment Charge (RAC). NBS allocated the SWP costs to the West Whitewater and Mission Creek AOBs based on its proportional share of groundwater production. The increase in the RAC rate would be approximately $755.79 per acre-foot (AF) in fiscal year (FY) 2024 in Mission Creek and West Whitewater AOB.

The RAC charge is recovered from groundwater pumpers (including agriculture and golf courses) that pump more than 25 AF per year and municipal and industrial (M&I) users (including residences) in domestic water rates. Socioeconomic conditions vary across the valley, with higher income communities in the western and central portions and lower income communities in the eastern valley. Shifting the SWP Tax to the RAC rate would result in additional water charges that vary by AOB, which would result in economic impacts that vary by water user and community in the Coachella Valley. This is important for assessing the economic feasibility of using water rates instead of an ad valorem property tax to pay for CVWD SWP costs.

Several preliminary economic analyses were developed to evaluate if it is feasible to stop charging the SWP Tax and instead cover SWP costs under a variable water charge. We focus on the following:

1. Whether shifting the SWP Tax to the RAC rate would result in water rates that are out of the financial reach of District customers, particularly M&I water users including households. This considers access to clean, safe, and affordable drinking water as addressed under Assembly Bill 685 of 2012 and furthered under Senate Bill 200 of 2019.
2. Whether shifting the SWP Tax to the RAC rate would result in water rates that negatively impact valley businesses including golf courses. These businesses are an important part of the Coachella Valley tourism economy.
3. How agricultural water costs would change and how this affects District growers relative to other domestic agricultural regions that produce similar crops. Agriculture is an important sector of the economy in the eastern Coachella Valley.

[1] NBS Technical Memorandum: SWP 2024 Property Tax Justification. June 22, 2023.

Summary Conclusions

Shifting the SWP Tax to the RAC would result in a substantial increase in water cost for municipal and industrial (M&I) water users in CVWD including low-income residents and golf courses. Water costs for agriculture would decrease. Our conclusions from the analysis are as follows:

- Shifting SWP costs to the Mission Creek and West Whitewater AOB RAC would reduce water costs for high income households and homeowners and increase water costs for low-income residents.
- Shifting SWP costs to the RAC would be a regressive policy that disproportionately benefits higher income individuals in the West Whitewater and Mission Creek AOBs.
    - The SWP Tax is assessed in proportion to property value. Higher valued properties that are typically owned by higher income households save more on the SWP Tax than the increase in domestic water rates.
    - Low-income households pay higher domestic water rates, and since these individuals do not typically own homes (or own lower value homes), they realize no, or little SWP Tax savings and their water costs increase.
- The higher cost of water would affect lower-income households' access to safe, reliable, and affordable water.
    - Residential tier water charges would increase by approximately $372 per year for an example single-family customer. This is a 58 percent increase in current water rates.
    - For low-income households, this additional cost is around 28 percent of monthly discretionary income. As such, this raises concerns about whether households—particularly low-income households—would be able to pay for the higher water costs.
- Golf course water costs increase by an average of $900,774 per year. This is an 86 percent increase in estimated golf course maintenance costs. This is likely unaffordable for many golf courses.
    - Golf courses would need to raise rates or reduce services, which would impact Coachella Valley golf tourism and its associated economic activity.
    - Golf courses in the West Whitewater AOB would be at a competitive disadvantage to courses in the East Whitewater AOB that do not pay the higher RAC charge.
    - Annual golf course maintenance costs do not include property tax payments, which would be reduced by the amount of the SWP Tax. This may be evaluated in future studies to calculate the net effect for different courses.
- For agricultural water users in the East Whitewater AOB, the RAC would be unchanged and the SWP Tax would decrease water costs by approximately $1.75 million per year.

- Shifting rates from ad valorem property taxes to a water rate raises other equity considerations.
    - The SWP Tax is currently paid by undeveloped lands. This is justified because these lands are valued based on their ability to develop, and therefore benefit from access to the SWP water supplies that CVWD provides; that is to say these undeveloped lands can be developed because of access to the SWP water supplies. If the SWP Tax is shifted to water rates, these lands would currently pay nothing.
    - If districts are unable to collect ad valorem taxes to pay for existing commitments, this could affect the overall stability of the revenue stream of the district which could affect its interest costs for future capital projects.
    - District costs may increase for additional and more complicated rate studies that would need to justify areas of benefit.
    - Groundwater production for agriculture is variable depending on climate conditions, surface water supplies, and market conditions. Similarly, M&I water demand varies over time with macroeconomic conditions. If SWP payments are covered only by water rate revenue, this variability may affect the District's ability to meet its SWP, and other, payment obligations.

In summary it is not feasible to shift the SWP Tax to the RAC because it would put golf courses at a competitive disadvantage, put undue financial burden on golf courses and low-income residents, disproportionately benefit wealthy residents, and increase CVWD costs by increasing the variability of its revenue stream used to cover its SWP costs.

Feasibility of Water Charges Instead of SWP Tax

Access to clean, safe, and affordable drinking water has been a focus for the United Nations[2] and a key issue in California, as addressed under Assembly Bill 685 of 2012 and furthered under Senate Bill 200 of 2019. HJTA's assertion that SWP costs must be recovered through water rates and not property taxes has important implications for affordable drinking water for communities in the Coachella Valley. And if other districts must follow the same approach, it will have implications for access to affordable drinking water across the state including in many low-income communities.

Water rates also affect agricultural producers and other businesses. Growers operate in a competitive market and changes in the cost of water affect growers' competitive advantage relative to other domestic production regions. Golf courses are a substantial share of the Coachella Valley tourism economy, generating over 14,000 jobs and over $1.4 billion in value annually[3]. Higher water costs would substantially increase golf course operating costs. This would potentially cause some courses to close, green fees would increase, and valley tourism would contract with impacts for all valley businesses.

In short, District water rates directly and indirectly affect individuals, businesses, and the regional economy. Districts can generate revenue using different mechanisms (e.g., taxes, fixed charges, and volumetric charges) to cover water supply costs and avoid putting undue financial burdens on specific sectors of the economy or water users.

The Court[4] recognized the importance of these economic impacts that were broadly referred to as the "feasibility" of recovering costs through water rates instead of ad-valorem property taxes. Judge Reimer succinctly summarized a California Attorney General opinion regarding raising revenues under ad valorem taxes or water charges that *"[T]he local district should rely first on water charges whenever feasible"* (pg. 7). The Court further found that it is only necessary for the district to levy taxes to pay its SWP contract obligations *"when it is not feasible to raise sufficient funds to satisfy those obligations by user charges alone, and (3) that the district exercises its discretion when deciding the issue of feasibility"* (pg. 8).

The Court further expanded on the issue of feasibility stating that *"To justify a practice that relies predominately on taxes to cover SWP expenses rather than user charges, there must be evidence that it is infeasible to impose or to increase user charges in order to reduce or eliminate taxes. For instance, an increase in water rates might be considered infeasible if the increase would put water out of the financial reach of the users, or if the rate being considered would be higher than rates charged elsewhere, putting the users at a competitive disadvantage"* (pg. 10).

---

[2] United Nations Committee on Economic Social and Cultural Rights. General Comment No. 15: The Human Right to Water. 2002.

[3] Economic Impact of the Coachella Valley Golf Industry. 2015. GCSAA Desert Chapter. Values adjusted for inflation using CPI-U.

[4] Roberts v. Coachella Valley Water District. RIC18253 MF. Riverside County Superior Court. Tentative Decision on Bifurcated Issue. March 14, 2023.

The magnitude of economic impacts, and how those impacts would fall on different water users and socioeconomic groups is critical for determining whether a charge that could be collected through ad valorem property taxes that is instead collected as a water rate is infeasible. We evaluate feasibility as follows:

- M&I: Residential Customers
    - Does the water rate cause water costs to increase to a point that would make water bills unaffordable for some households?
    - Are the impacts concentrated in specific communities in the Coachella Valley?
    - Would economic impacts be greater in low-income areas?
- M&I: Other Businesses
    - Are groundwater users that generate jobs and income for the Coachella Valley tourism industry, such as golf courses, disproportionately impacted by higher water rates?
    - Are businesses able to afford higher water rates?
- Agriculture
    - How do water costs change for the Coachella Valley farming industry?
    - Would the water rate cause economic impacts in local communities?

The following sections summarize the change in the RAC if the District's SWP costs are shifted to the RAC, economic impacts, agricultural feasibility analysis, and M&I feasibility analysis.

Replenishment Assessment Charge

The RAC must increase to cover SWP costs without the SWP Tax. NBS[5] analyzed SWP costs and the increase in the RAC rate. For FY 2024, NBS calculated that SWP costs equal $94 million. The RAC would increase from $135.52 to $891.31 per AF in Mission Creek AOB (around 560% increase). In West Whitewater AOB the RAC would increase from $165.37 to $921.16 per AF (around 458% increase). The East Whitewater RAC is unchanged at $72.27 per AF. Table 1 reproduces Table 3 from the NBS technical memorandum.

Table 1. NBS Summary of RAC Rate Change by AOB

Area of Benefit	Current RAC Rate ($/AF)	Groundwater Production (AF)	Allocated SWP Cost ($)	Increase In RAC ($/AF)	Total RAC ($/AF)
Mission	$135.52	4,390	$3,317,928	$755.79	$891.31
West Whitewater	$165.37	120,000	$90,695,082	$755.79	$921.16
East Whitewater	$72.27	105,000	n/a	n/a	$72.27
Total		**229,390**	**$94,013,010**		

[5] NBS Technical Memorandum: SWP 2024 Property Tax Justification. June 11, 2023.

A higher RAC rate in each AOB will translate to changes in M&I and agricultural water supply costs. These are summarized in the following subsections.

Agricultural Water Supply Costs

District agriculture is predominantly in the East Whitewater AOB. Irrigators currently pay a combination of the SWP Tax, the Canal Rate, and the RAC. Growers that pump from private wells pay the RAC plus an additional energy pumping cost per AF. Growers that receive Canal water pay the Canal Rate (in addition to any RAC charges for supplemental pumping/irrigation). All non-exempt agricultural lands are currently subject to the SWP Tax.

The East Whitewater AOB RAC, effective July 1, 2021, is $72.27 for each acre-foot of water pumped in that AOB (if pumping more than 25 acre-feet (AF) in the year). The current canal rate is $37.95 per AF. Growers also incur additional energy pumping costs, capital recovery on wells and pumps, and operations and maintenance costs for the well, pump, and irrigation system. All non-exempt landowners, including agricultural lands, in the District service area pay the SWP Tax. The SWP Tax is $0.11 per $100 in assessed value. East Whitewater AOB agriculture currently pays approximately $1.75 million[6] in SWP Tax per year. Therefore water costs for agriculture would decrease by $1.75 million per year if the SWP Tax is shifted to the Mission Creek and West Whitewater AOB RAC as proposed by HJTA.

Agricultural Impacts of RAC Change

HJTA's proposal would decrease the total cost of water for most District growers. The RAC charge in the East Whitewater AOB would not change because SWP costs are allocated to the Mission Creek and West Whitewater AOBs. Similarly, the Canal Rate would be unchanged. The SWP Tax would go away and not be charged to grower property tax bills. Therefore, growers would no longer pay the SWP Tax and this would be a direct cost savings of approximately $1.75 million per year that would increase farm profitability.

In short, HTJA's proposal would decrease costs for growers in the East Whitewater AOB by about $1.75 million per year. These costs would be shifted to other water customers in the District.

We note that earlier proposals by HJTA would have increased agricultural water costs in the District by shifting more costs to growers in the East Whitewater AOB. We briefly describe feasibility considerations. Increasing the unit water cost for growers in the Coachella Valley would diminish profitability, growers would cut back on production, and some production would shift to other regions. This would result in economic impacts in Coachella Valley communities. Agricultural producers in the East Whitewater AOB would be at a competitive disadvantage relative to other domestic production regions. This could make it infeasible to continue farming in CVWD. As production decreases in CVWD this causes additional regional economic impacts. Growers purchase less input and employ less

[6] Riverside County Assessor Tax Roll data. 2022. The tax roll shows 99,481 acres of lands classified as agriculture. The assessed value of those lands is approximately $1,594,429,974. This includes some agricultural lands that also have a home on them. The SWP Tax rate is 0.11 percent, so the SWP Tax revenue collected is approximately $1,753,892.

labor. In turn, jobs and income decline across multiple sectors for communities in the Coachella Valley. Economic impacts can be evaluated in future iterations of this analysis if HJTA changes its proposal.

We note again that the impact of the HJTA proposal is to decrease agricultural water costs in CVWD. Impacts from higher water costs could be evaluated in the future if the rate proposal changes. These are important feasibility considerations that the District should consider in setting its agricultural rates, and shifting land assessments to volumetric charges.

M&I Water Supply Costs

Most M&I water supply in the District is groundwater that is either pumped from private wells or by the District. The District also delivers canal water and recycled water for golf courses and landscape irrigation. The District sets M&I water rates in its Domestic Water Cost of Service Rate Study. FY 2024 domestic rates were set at the June 13, 2023 board meeting.

Table 2 summarizes current domestic tier rates for households. The District also has separate rates and charges including fixed connection charges and charges for other users (e.g., construction, industrial, landscaping, etc.).

Table 2. FY 2024 Domestic Tiered Water Rate for Single Family Households

Share of Water Budget (% of baseline water budget)	Tier Name	Share of Total Use by Tier	Rate Per CCF
Up to 8 ccf	Tier 1	25%	$0.99
<100%	Tier 2	54%	$1.23
100%-175%	Tier 3	15%	$3.79
175%-300%	Tier 4	4%	$4.44
>300%	Tier 5	2%	$6.79
Weighted Average			$1.79

Source: Coachella Valley Water District Domestic Water Rates. FY 2024.

Domestic rates are calculated based on revenue requirements allocated to functional cost categories, and then allocated to rate components, and finally allocated to each individual customer class, and then Tiers. We prepared an estimate of the additional domestic rate so that we can assess how the rate increase is likely to affect domestic water users in the Coachella Valley as follows:

- NBS estimated the SWP Tax would cover SWP costs of approximately $94 million in FY 2024[7]. Therefore, the District must increase its rate revenue (across all customers) by $94 million in FY 2024 in order to continue to cover SWP costs.
- A portion of the additional revenue needed would come from increased RAC charges in the West Whitewater and Mission Creek AOBs paid by private pumpers including the cemetery district, golf courses, and similar properties with wells producing more than 25 AF per year. The additional RAC cost per AF is approximately $755.79 (see table 1). Non-District groundwater

[7] Table 3 of NBS Report.

pumping subject to the RAC in 2022 was approximately 1,475 AF in Mission Creek AOB and 52,531 AF in West Whitewater AOB[8]. Therefore, non-District groundwater pumping would generate approximately $40.8 million out of the $94 million needed. The difference in SWP costs equals $53.2 million and would need to be covered by other M&I rates.

- The District estimated domestic rate revenue of about $91.6 million in FY 2024[9]. To cover an additional $53.2 million in costs the District would need to increase domestic rates by about 58 percent. We apply this evenly to all domestic rates.

In summary, domestic water rates would increase by an estimated 58 percent across all domestic rate categories. An updated domestic rate study would review all revenue requirements and appropriately allocate costs to different categories, users, charges, and tiers. Table 3 summarizes the current (FY 2024) domestic tier water rate and the estimated tier rates under HJTA's proposal to shift the SWP Tax to the RAC.

Table 3. Estimated Domestic Rates Under NBS 2024 RAC

	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Current Rate per CCF	$0.99	$1.23	$3.79	$4.44	$6.79
Estimated Rate Increase	58%	58%	58%	58%	58%
Estimated Rate per CCF	**$1.56**	**$1.94**	**$5.99**	**$7.02**	**$10.73**

Golf Course Impacts of RAC Change

Golf courses include resorts, housing, food and beverage, and related attractions for local tourism. This tourism is a substantial contributor to the Coachella Valley economy. In a 2015 study prepared for the Golf Course Superintendents Association of America[10], the economic impact of the Coachella Golf industry was estimated at $1.4 billion per year and more than 14,000 jobs in golf related industries.

Golf courses in the West Whitewater and Mission Creek AOB use a mix of canal water, recycled water, and pumping from non-district wells. Pumping from private wells is subject to the RAC. As summarized in table 1, the RAC would increase by over 500 percent in each AOB, or approximately $755.79 per AF.

A preliminary economic analysis was developed to evaluate the impact of higher water costs on Coachella valley golf courses. The analysis will be refined using more granular industry data in the future.

Recent industry data show that operating and maintenance (O&M) costs for golf courses have increased substantially over the last several years. This is due to multiple macroeconomic trends that have resulted in inflation across the global supply chains. For golf courses this includes higher labor costs and material costs (e.g., fertilizers) that have substantially increased O&M budgets. Golf courses pass on some of

[8] District RAC charges for FY 2022 records.
[9] June 13, 2023. Board Memorandum re: Approval of Ordinance No. 1399.16 Adopting Fiscal Year 2023-24 Domestic Water Rates.
[10] Economic Impact of the Coachella Valley Golf Industry. 2015. Golf Course Superintendents Association of America.

these additional costs to their customers, cut back on services, realize lower profits, and increased risk of bankruptcy.

As green fees and golfing costs increase this results in less tourism in the Coachella Valley. This puts more than 14,000 jobs at risk. Similarly, as golf course profitability decrease this puts courses at risk of insolvency and some may close, cut back on services, or leave the valley. This results in additional economic impacts.

An analysis was developed to illustrate the impact of higher water rates on golf course budgets. RAC charges for 18-hole golf courses in the West Whitewater AOB show that the average golf course water demand equals 1,192 AF per year. With a new RAC rate of $755.79, the average Coachella Valley golf course RAC water cost would increase by $900,744 per year.

In 2023, the State of the Industry Survey[11] published by Golf Course Industry reported average non-capital golf course maintenance costs of $1.047 million per year. Around 35 percent of maintenance costs are for equipment, and 55 percent were for seed and fertilizers. Water costs represent about 4 percent of the average maintenance budget reported in the data. Table 4 summarizes nominal golf course maintenance costs over the last 10 years.

Table 4. Average Golf Course Maintenance Costs

Year	Non-Capital Maintenance Budget (nominal $)
2023	$1,047,000
2022	$907,821
2021	$1,044,000
2020	$987,488
2019	$845,705
2018	$911,705
2017	$798,200
2016	$750,000
2015	$697,000
2014	n/a
2013	$622,500
2012	$651,392

For a golf course operating with an annual maintenance budget of $1 million using the average water quantity of 1,192 AF per year, the RAC increase represents an 86 percent increase in industry average operating and maintenance costs. Across the 23 golf courses included in the West Whitewater AOB sample, total water costs would increase by $20.7 million.

[11] 2023. Numbers to Know: The data - Golf Course Industry. Golf Course State of the Industry Survey.

These higher golf course costs would be passed on to consumers, cause courses to cut back on services, cause courses to go out of business, and increase business risk. In short, this is not a feasible water rate. A decrease in golf course tourism would cause additional economic losses in the Coachella Valley for businesses that depend on these visitors. For example, this would affect home values in golf course developments, business at local restaurants, and other food, beverage, and hospitality sales. These impacts can be evaluated as part of future studies.

Annual golf course maintenance costs do not include property tax payments, which would be reduced by the amount of the SWP Tax. This may be evaluated in future studies to calculate the net effect for different courses.

Residential M&I Impacts of RAC Change

Groundwater is the primary source of M&I supply in the CVWD service area. The District also delivers recycled water and canal water as described earlier in this memorandum.

Shifting SWP costs to the RAC will increase M&I water rates in each AOB. M&I rates were established in the 2021 CVWD Domestic Water Cost of Service Rate Study[12] and set for FY 2024 at the June 13, 2023 District Board meeting. Domestic water rates include charges paid by households for water used for health, sanitation, and drinking water.

The estimated effect of the increased RAC on domestic water rates in each AOB (see table 3) was applied to an average customer/household to illustrate the effect of the higher rates on annual household water costs. We focus on low-income households since these are the most vulnerable residents.

Annual water use for a low-income household is around 544 CCF per year[13]. We conservatively set the baseline monthly budget at 50 CCF to account for potential outdoor usage in this initial analysis. The increase in monthly water bill was calculated as the additional cost per CCF by tier (table 3), multiplied by the example monthly use by tier (8 and 37 CCF), multiplied by 12 to get an annual increase.

Table 5 summarizes the estimated increases in annual water bill by rate category. The annual water bill increases by an estimated $372. This is a conservative (low) estimate because it only includes the tier water rate. It does not include additional fixed charges that households would pay on a monthly water bill. This analysis can be extended to include more detail by customer type in the future.

[12] Coachella Valley Water District Domestic Water Cost of Service Rate Study. 2021.
[13] CVWD. Urban Water Management Plan. Table 4-11. 2020. Data show approximately 1.25 AF per household per year.

Table 5. Estimated Change in Example Household Tier Water Bill by Rate Category

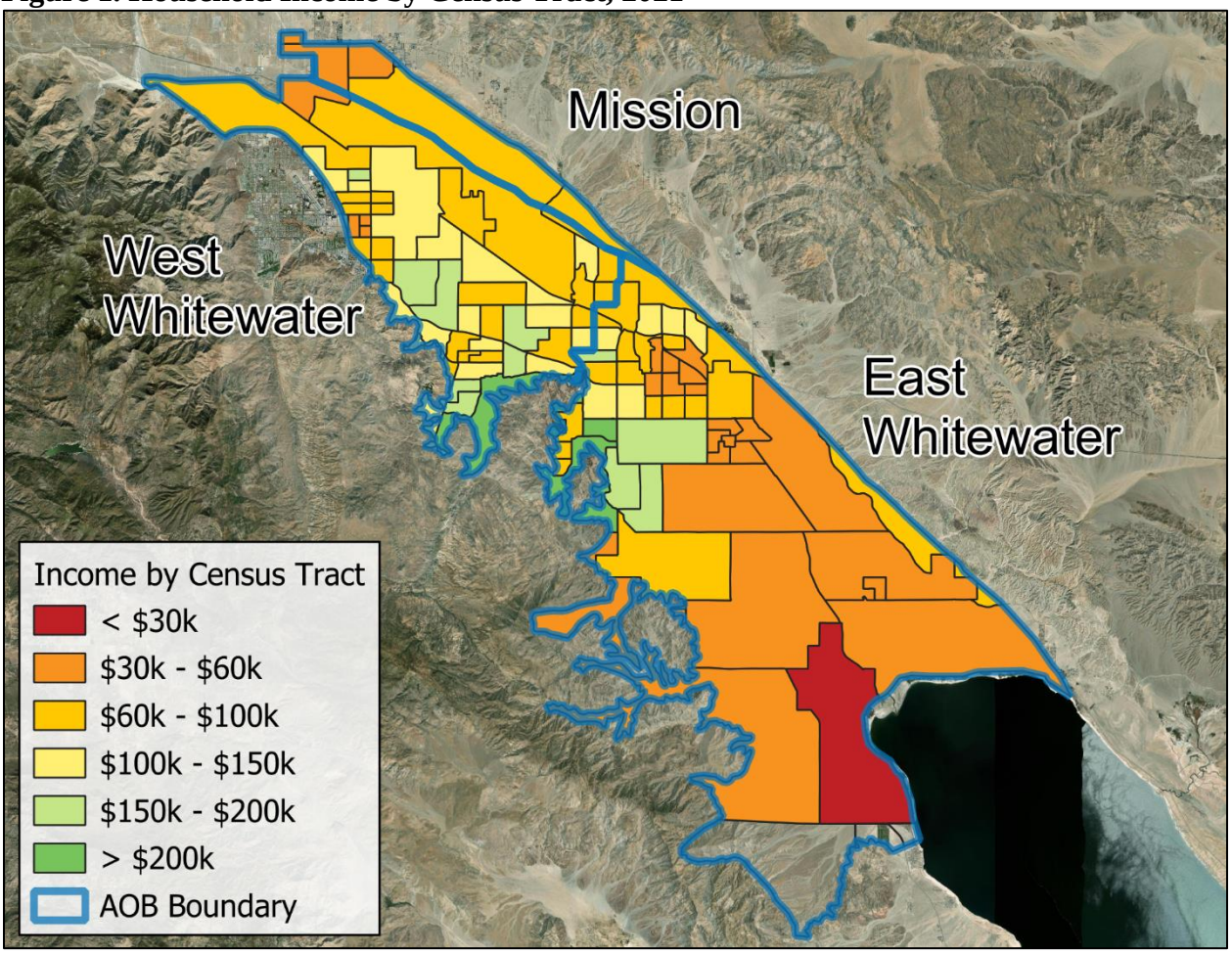
Share of Water Budget (% of baseline water budget)	Example Monthly Use (CCF)	Tier Name	Annual Increase		
			East	West	Mission
Up to 8 ccf	8	Tier 1	$55	$55	$55
<100%	37	Tier 2	$317	$317	$317
100%-175%	0	Tier 3	$0	$0	$0
175%-300%	0	Tier 4	$0	$0	$0
>300%	0	Tier 5	$0	$0	$0
Total			$372	$372	$372

The test for feasibility of higher M&I rates is access to affordable water supplies. We evaluate the share of disposable income spent on water and how it changes under the scenario where the SWP costs are shifted to the RAC. Low-income residents are typically renters. In the short-run they would not directly pay the SWP Tax but would directly pay the RAC charge reflected in higher domestic water rates.

Census data[14] were reviewed to estimate the number of low-income households in the District by census tract. Figure 1 illustrates average census household income by census tract. Average income varies from above $200,000 per year to less than $30,000 per year. Lower-income areas (e.g., census tracts with household income below $30,000 and $30,000 - $60,000) are largely concentrated in the East Whitewater AOB. In particular, the East Whitewater AOB has 85,439 households and 39,608 (46 percent) have a household income of less than $50,000. The West Whitewater AOB has 82,952 households and 31,133 (37 percent) have a household income less than $50,000. Lastly, the Mission Creek AOB has 9,088 households and 4,470 (49 percent) have a household income less than $50,000.

[14] United States Census Bureau American Community Survey. 2021.

Figure 1. Household Income by Census Tract, 2021



Source: US Census Bureau American Community Survey Tables. 2021.

The ability of households to afford higher water rates depends on disposable income, which is a smaller share of total household income. Household income is used to pay for all living expenses and savings. The 2023 cost of basic requirements for a household of 5 persons in Riverside County, the poverty line measure, calculated from HUD statistics is $32,470 per year[15]. Discretionary income is defined by the United States Department of Education[16] as household taxable income minus the poverty line requirement for that county multiplied by 150%. For example, a household earning $50,000 would have a discretionary income of $1,295 per year ($50,000 - $32,470*1.5), or $108 per month.

We applied the higher water rates to calculate a typical increase in the water bill for customers in the District service area. We focus on households earning less than $50,000 with estimated annual discretionary income of $1,295. This encompasses about 75,000 households across all AOBs. The annual cost increase in water bill shown in Table 6 is $372. This represents a 28 percent reduction in

[15] 2022 State Income Limits for Riverside County. Riverside County.
[16] Department of Education Income-Based Repayment Plan. 2021. https://studentaid.gov/help-center/answers/article/discretionary-income

discretionary income[17]. This has a substantial impact on low-income households. Table 6 summarizes the results.

Table 6. RAC Rate Impact on Discretionary Income by AOB

AOB	Total Households	Households < $50,000	Adjusted Poverty Line Riverside	Discretionary Income	Annual Cost Increase	Discretionary Income Reduction
East	85,439	39,608	$48,705	$1,295	$372	28%
Mission	9,088	4,470	$48,705	$1,295	$372	28%
West	82,952	31,133	$48,705	$1,295	$372	28%

As summarized earlier, the Court stated *"an increase in water rates might be considered infeasible if the increase would put water out of the financial reach of the users."* In our view, this interpretation of feasibility is consistent with access to safe, affordable drinking water for residents in the District. Around 75,000 households (around 40 percent of the Coachella Valley total) have household income less than $50,000 per year. Under the higher RAC required to cover the SWP costs, these households would see disposable income fall by an estimated 17 - 30 percent (point estimate of 28 percent). These are households at or below the poverty line. In our opinion this meets the definition of an infeasible rate increase that puts water out of financial reach for many of the households affected by higher rates.

The impacts to households are most substantial in the East Whitewater AOB and Mission Creek AOB. The impacts are proportionally less in the West Whitewater AOB because this region has more higher income residents.

Incidence of the SWP Tax

Evidence is mixed on whether property taxes are progressive or regressive, with the categorization dependent on local conditions. This is important because the SWP tax is an ad valorem property tax (directly paid by the landowner) whereas the RAC charge is effectively a volumetric water charge paid by the user (e.g., farmer or household).

The SWP Tax is $0.11 per $100 in assessed value. All non-exempt landowners in the CVWD service area pay the SWP Tax. Property values vary substantially across the Coachella Valley. We reviewed assessed property value data from the Riverside County Tax Roll and calculated the distribution of value by AOB[18].

Table 7 summarizes the distribution of assessed property value for single-family dwellings by AOB. Across the entire valley, approximately 22 percent of single-family dwellings have an assessed value below $200,000 and around 9 percent have an assessed value greater than $1 million.

[17] If we apply a reasonable sensitivity range by considering lower average household use of 0.75 AF per year (around 28 ccf per month) the percent decrease in disposable income would equal 17%. Therefore, we consider a reasonable range to be between 17 and 30 percent.

[18] RivCoView. Riverside County Assessor-County Clerk-Recorder. Accessed May 2023.

Table 7. Single Family Dwelling Property Value Distribution by AOB, Riverside Assessor

2022 Assessed Property Value	East Whitewater		West Whitewater		Mission Whitewater	
	Count	Share	Count	Share	Count	Share
<$50k	1,039	2%	234	1%	19	4%
$50k - $200k	13,184	28%	6,673	17%	266	59%
$200k - $400k	18,411	39%	14,535	36%	134	30%
$400k - $600k	7,004	15%	8,303	21%	23	5%
$600k - $800k	3,038	6%	3,821	9%	8	2%
$800k - $1M	1,519	3%	1,881	5%	-	0%
>$1M	3,153	7%	4,933	12%	2	0%

Source: Riverside County Assessor. Accessed May 2023.

Table 8 summarizes the distribution of assessed property value for apartments for the East and West Whitewater AOBs. There are no apartments listed in the Mission Creek AOB data. Values are per unit (e.g., total property value divided by number of units). More than half of apartments have an assessed value below $200,000 and only 1 percent have an assessed value greater than $1 million.

Table 8. Estimated per Apartment Unit Property Value Distribution, Riverside Assessor

2022 Roll Value	East Whitewater		West Whitewater	
	Count	Share	Count	Share
<$50k	1,028	16%	733	15%
$50k - $75k	978	15%	660	13%
$75k - $100k	1,204	19%	432	9%
$100k - $150k	1,668	26%	1,364	27%
$150k - $200k	460	7%	987	20%
$800k - $1M	1,008	16%	775	16%
>$1M	8	0%	50	1%

Source: Riverside County Assessor. 2022.

If SWP costs are shifted from an ad-valorem tax to the RAC water charge the effect on individual homeowners and renters is somewhat offset by the property tax reduction. That is, the total cost of water includes the property tax and volumetric water charge. Individuals with the lowest valued properties may see a net increase in total water costs. Individuals with high value properties would see a reduction in water costs. The impact of higher water rates and lower property tax will be immediate for residents in owner-occupied dwellings. The impact of higher water rates will be immediate for renters but any adjustment in rental rates would take longer to occur.

We calculated the total change in water cost by different property value tiers[19]. We applied the SWP Tax rate to the example property values. The net change shows water costs a customer might incur if the SWP Tax is shifted to a water charge. For example, a customer with a property value of $50,000 would see their annual property tax fall by $55, which is less than the increase in average annual water costs of

[19] In this preliminary analysis we do not vary water use by property value. In practice, higher-value properties tend to use more water for landscaping and similar needs. This can be refined in future analyses.

$372 per customer. The net effect of these two changes is a total increase in water cost of $317 per year. Table 9 summarizes these additional costs (or cost savings) by example property value.

Table 9. Net Change of RAC Related Payments by Property Value

Property Value	Property SWP Tax Reduction	Example Domestic Tier Rate Increase	Net Change
$50,000	$55	$372	-$317
$100,000	$110	$372	-$262
$150,000	$165	$372	-$207
$200,000	$220	$372	-$152
$400,000	$440	$372	$68
$600,000	$660	$372	$288
$800,000	$880	$372	$508
$1,000,000	$1,100	$372	$728
$1,500,000	$1,650	$372	$1,278

Given an average annual water cost increase of $372 per customer, households living in properties valued greater than $268,000 would see a net benefit, and households valued less than $268,000 would see a net loss. To the extent that properties with higher assessed value use more water on average (for example, to irrigate more landscaped area), the net change in cost would be lower for those properties.

In summary individuals living in the lowest 53 percent of properties by value will see the least relief from the tax change and will likely see an increase in their total water-related expenses. In contrast, individuals living in the highest 47 percent of properties by value will see the greatest relief from the tax change and will likely see a decrease in water related spending. In this way, the shift in the SWP Tax favors wealthy homeowners.

District Revenue Stability with SWP Tax and Water Charges

SWP Tax is fixed and known, and the County can enforce collection. It is a very stable revenue source for the District.

Water rate revenue varies with weather and market conditions. In addition, water users respond to price signals. Rates are typically set based on historical water use. Historical water use is a poor indicator for future water use when the cost of water will increase substantially. That is, if the RAC increases by 500 percent, we expect users to cut back on water use in response to higher costs. This makes it hard to predict revenue streams. This may cause the following impacts:

- District costs increase because rate studies become more complex and must include a forecast for uncertain revenue streams. This can also be accomplished by increasing reserves. This increases costs for District customers.
- Revenue instability can affect bond issuance and District creditworthiness.

In summary, variable rates tied to water use are less predictable than ad valorem property taxes. This increases costs and risk for the District, which in turn would be passed on to the District customers in the form of higher water rates.

Summary

Shifting the SWP Tax to the RAC would result in a substantial increase in water cost for municipal and industrial (M&I) water users in CVWD including low-income residents and golf courses. Water costs for agriculture would decrease. Our conclusions from the analysis are as follows:

- Shifting SWP costs to the Mission Creek and West Whitewater AOB RAC would reduce water costs for high income households and homeowners and increase water costs for low-income residents.
- Shifting SWP costs to the RAC would be a regressive policy that disproportionately benefits higher income individuals in the West Whitewater and Mission Creek AOBs.
    - The SWP Tax is assessed in proportion to property value. Higher valued properties that are typically owned by higher income households save more on the SWP Tax than the increase in domestic water rates.
    - Low-income households pay higher domestic water rates, and since these individuals do not typically own homes (or own lower value homes), they realize no, or little SWP Tax savings and their water costs increase.
- The higher cost of water would affect lower-income households' access to safe, reliable, and affordable water.
    - Residential tier water charges would increase by approximately $372 per year for an example single-family customer. This is a 58 percent increase in current water rates.
    - For low-income households, this additional cost is around 28 percent of monthly discretionary income. As such, this raises concerns about whether households—particularly low-income households—would be able to pay for the higher water costs.
- Golf course water costs increase by an average of $900,774 per year. This is an 86 percent increase in estimated golf course maintenance costs. This is likely unaffordable for many golf courses.
    - Golf courses would need to raise rates or reduce services, which would impact Coachella Valley golf tourism and its associated economic activity.
    - Golf courses in the West Whitewater AOB would be at a competitive disadvantage to courses in the East Whitewater AOB that do not pay the higher RAC charge.
    - Annual golf course maintenance costs do not include property tax payments, which would be reduced by the amount of the SWP Tax. This may be evaluated in future studies to calculate the net effect for different courses.

- For agricultural water users in the East Whitewater AOB, the RAC would be unchanged and the SWP Tax would decrease water costs by approximately $1.75 million per year.
- Shifting rates from ad valorem property taxes to a water rate raises other equity considerations.
    - The SWP Tax is currently paid by undeveloped lands. This is justified because these lands are valued based on their ability to develop, and therefore benefit from access to the SWP water supplies that CVWD provides; that is to say these undeveloped lands can be developed because of access to the SWP water supplies. If the SWP Tax is shifted to water rates, these lands would currently pay nothing.
    - If districts are unable to collect ad valorem taxes to pay for existing commitments, this could affect the overall stability of the revenue stream of the district which could affect its interest costs for future capital projects.
    - District costs may increase for additional and more complicated rate studies that would need to justify areas of benefit.
    - Groundwater production for agriculture is variable depending on climate conditions, surface water supplies, and market conditions. Similarly, M&I water demand varies over time with macroeconomic conditions. If SWP payments are covered only by water rate revenue, this variability may affect the District's ability to meet its SWP, and other, payment obligations.

In summary, based on the Court's concerns and our economic definition of infeasibility, it is not feasible to shift the SWP Tax to the RAC. This would put golf courses at a competitive disadvantage, put undue financial burden on courses and low-income residents, disproportionately benefit wealthy residents, and increase CVWD costs by increasing the variability of its revenue stream used to cover its SWP costs.