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Yolo County Flood Control & Water Conservation District

Cost-of-Service Analysis and Agricultural Water Rate Study

PRELIMINARY REPORT

Prepared for: Yolo County Flood Control & Water
Conservation District

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Executive Summary

The Yolo County Flood Control & Water Conservation District's existing revenue structure depends on agricultural water sales, which are unreliable, and the current rate structure is not sustainable. The District needs to update agricultural water rates to meet current and future service levels and prepare reserve funds for use during drought periods and recover from existing District cash deficits. The District manages significant surface water delivery systems, which require regular maintenance, operations, repairs, and replacements. Without sustainable revenues, the District will be required to significantly reduce levels of service and would be unable to advance critical capital projects to ensure system reliability and delivery compliance and service level quality. The District would slowly be unable to meet the needs of the agricultural producing community within the District's boundaries.

Under Proposition 218, the District is required to present its analysis of its costs and align these costs with the District's revenue sources. This report presents this analysis, its findings, and proposes an agricultural water rate increase beginning in Fiscal Year 2023/2024 (FY23/24).

The current agricultural water rate is set on a sliding scale, depending on the total upstream storage available to the District. The current linear rate ranges between \$24 per acre foot (AF) and \$44/AF, dependent on upstream total storage between 50,000 AF and 450,000 AF.

The proposed rate structure found in this report is a flat rate, not dependent on upstream water storage levels. Based on the following cost-of-service study, the proposed rate starting in FY23/24 is **\$56.30/AF**.

This rate is composed of a base rate, predicated on water sales assumptions for non-allocated years, a drought reserve charge for allocated or zero-release years, a short-term capital recovery charge to recover the existing cash balance deficit, and a fund for capital improvements. These components are established under this rate study to meet the District's critical needs of ensuring revenue stability and District sustainability. The Drought Reserve is established to cover revenue shortfalls during periods of sustained drought or low water allocation periods. The Capital Infrastructure Program (CIP) fund is established to account for, plan, and time essential investment into the District's infrastructure for system sustainability. The District further recognizes the recently adopted special benefit assessment for Capital Improvements, which is included as an element of the calculations when establishing updated water rates.

Background

Agency Overview

The Yolo County Flood Control and Water Conservation District (District or YFCF&WCD) was created by the California Legislature as an independent Special District in 1951 to manage regional water resources. The District's mission is "To plan, develop, and manage the conjunctive use of the District's surface and groundwater resources to provide a safe and reliable water supply at a reasonable cost, and to sustain the socioeconomic and environmental well-being of Yolo County."

The District currently manages a small hydroelectric plant, two reservoirs, over 150 miles of canals and laterals, and three dams (Cache Creek Dam [Clear Lake's outfall], Indian Valley Dam, and Capay Diversion Dam). The District boundary covers 195,000 acres of Yolo County, including the cities of Davis, Woodland, and Winters, the towns of Capay, Esparto, and Madison, and other small communities within the Capay Valley.

The District predominantly supplies surface water to approximately 55,000 acres of cropland for agricultural use during the growing months between April and October. Based on existing water supply contracts, the District also supplies a small amount of water to approximately 20 municipal and industrial (M&I) customers around Clear Lake in Lake County. During a normal growing season, the earth-lined canals of the District's irrigation system supply an average of 25,000 acre-feet of passive recharge to the region's groundwater aquifer. During the rainy season, excess, unused water travels through the system and recharges the aquifer. As such, the District recognizes the vital role and connectedness between groundwater and surface water, and thus, the District conjunctively manages its water supplies.

Cost-of-Service Study Purpose

The District's existing revenue structure, which depends primarily on water sales, is not reliable or sustainable in its current form. Thus, the District's current and future ability to deliver surface water supplies are in jeopardy. Without sustainable revenues, the District will be required to significantly reduce levels of service. Further, in order to advance critical initiatives, like on-demand irrigation systems, and ensure reliability in service, the District requires re-tooling its revenue structure and establishing dedicated reserves.

Therefore, The District is embarking on a cost-of-service (COS) study to consider an increase of the agricultural water rates. This is the second phase in a multi-phased approach to stabilize the District's revenue requirements, which include:

- Phase 1: Development of an ongoing fixed assessment for capital improvements with a commensurate reduction of the agricultural water rate, based on the completion of an engineer's report, as adopted during the District's March 7, 2023, Board of Directors Meeting (not the subject of this report).
- Phase 2: Development of a cost-of-service study to propose new agricultural water rates (subject of this report).
- Phase 3: Future evaluation of groundwater-related revenue (not the subject of this report).

This COS Study is a comprehensive analysis of the District's agricultural water rate and revenue structure to ensure that issues of revenue sufficiency and adequate funding of reserves are addressed and resolved. This COS Study is necessary for the District to account for its costs of providing agricultural surface water deliveries, evaluate its current revenues, and determine if additional revenues are required to cover the District's costs for providing these services. These costs include operational and administrative costs, capital improvement costs, funds to establish a drought reserve to assist with ongoing District agricultural water system costs during periods of minimal or no water supply, and a short-term capital recovery charge to address the District's existing cash deficit.

During very dry periods, when reservoir storage is low, the District does not release water for agricultural use. Historically going back to 1975, this has occurred four times (1977, 1990, 2014, and 2022), not counting years of limited water allocations. Minimal to no available water supply places a substantial burden on the District's long-term viability, especially given that agricultural water sales (measured) represent 80% of operational revenue and 57% of overall revenue (*source: Audited financials from FY20/21*).

As mandated by Proposition 218, to implement new rates proposed by this study, the District will issue written notices outlining the proposed rate adjustments to customers. The District Board of Directors will then hold a public hearing to consider adoption of the new agricultural water rate structure.

Agricultural Water Revenue Uses and Needs

The District manages a significant portfolio of water delivery infrastructure and provides services to its customers for the beneficial agricultural production within the District's boundaries. The District recognizes the important role agricultural production plays in the region and is committed to partnering with our customers to ensure its economic vitality. Delivering water services requires dedicated maintenance and operational staff, technical expertise, capital planning, complex regulatory compliance, and many other activities. The District last updated rates in 2015, which have since remained static. Since 2015, costs have increased, and current rates will not sustain the various services provided. Although not a comprehensive list of revenue uses, the following are some of the essential components to meet this need.

- Regular operations and maintenance of canals, sloughs, and turn-outs
- Regular operations and maintenance of reservoirs, dams, outlets, and appurtenant structures
- Regular fixes, improvements, and upgrades to the system during downtime
- Construction of large capital projects to ensure continuous service and/or modernize infrastructure for efficient, effective, and timely delivery into the future, such as: Capay Diversion Dam bladder replacement; flume rehabilitation projects at 5 sites; Capay Diversion Dam headworks upgrades and automation; Indian Valley dam upgrades; etc.
- Water quality management
- Monitoring and reporting to regulatory bodies such as the Federal Energy Regulatory Commission (FERC), California Department of Water Resources Division of Safety of Dams (DSOD), the State Water Resources Control Board, fish and wildlife agencies, and others
- Plan and set-aside funding during times of drought for the continued maintenance and infrastructure investment needs

Without these services, the water delivery system will slowly decline as the District would be forced to defer further regular maintenance and eliminate some essential long-term capital investments to its reservoirs. The reservoirs and canal system would deteriorate without regular maintenance; existing capital assets upstream of the Capay Diversion Dam would reach useful life and become challenging to replace; and regulatory compliance and reporting may suffer, leading to regulatory intervention.

On March 7, 2023, following landowner approval, the District adopted an assessment which funds capital infrastructure investment in the Capay Diversion Dam and the downstream canal distribution system. As such, this assessment revenue estimate is accounted for in this study.

Further, the District recognizes that, with the adoption of the Special Benefit Assessment, there are now sustainable revenues to ensure the continued improvements of the capital infrastructure system at and downstream of Capay

Diversion Dam. However, water rate revenue is still an essential component to the day-to-day maintenance of the overall system and to the District's sustainable revenue goals for the purposes of supplying surface water to its customers.

Cost-of-Service Study Outline

This cost-of-service study is organized into three sections.

Section 1 of this report will provide an overview of the current agricultural water rate structure, the methodology used in this analysis, and the Proposition 218 requirements to which the District must abide by.

Section 2 of this report details pro-forma expenditures, revenue, and highlights the existing and future revenue requirements for the District.

Section 3 of this report proposes the new agricultural water rates.

Section 1. Methodology

Evaluation Approach

This study evaluates the current water rate on a pro-forma basis, that is a reasonable expectation of revenue and costs in a typical year. To ultimately determine the cost-of-service and revenue requirements for agricultural water deliveries, several steps were employed, as described below.

1. *Establishing a Pro Forma Base Year for Expenses:* Using the data provided by the District, LWA estimated a base-year expenditure schedule (i.e., pro forma base year) and allocated costs across the District's operational service areas.
 - a. The pro forma is utilized as a basis for projecting future year's expenditures. The pro forma uses the FY22/23 budget, which represents the most current FY cost expectations for the District. At the time this report was prepared, neither the actual FY22/23 expenses nor FY23/24 budget figures were available. For some expense line items, adjustments were made by using a five-year average, which represents a more accurate expected cost during a typical water year. The pro forma base year defines the most recent, accurate estimate of District expenditures going forward.
 - b. Each expenditure line item was classified by the service being provided (water, recreation, groundwater, flood control, or those costs that support all service areas). Items that were summarized as an expenditure that supports all service areas are called general and administrative (G&A) for the purposes of this report (note: this differs slightly from how the District defines G&A expenses in its budget and audited financials). This is by design so that expenditures can be apportioned to each service area.
 - c. Water expenditures were further split into agricultural water and non-agricultural water.
 - d. G&A expenses were spread into each service category (agricultural water, non-agricultural water, and non-water [flood, groundwater, recreation]) for the purposes of allocating expenditures. This is used to support the allocation of non-operational revenue to offset agricultural water expenditures in a future step of the analysis.
 - e. The expenditure schedule includes a capital fund to account for the District's expected annualized capital outlays. This capital fund is an annualized value, based on the District's projection of its capital projects, costs, and service life. Note that the assessment revenues for capital improvements are accounted for in subsequent steps.
 - f. The pro forma assumes annual cost escalation of 3% across all cost categories.
2. *Establishing a Pro Forma Base Year for Revenue:* Similar to the expenditures, LWA estimated a base-year revenue schedule (i.e., pro forma base year) under current water rates for the purposes of comparing to the proposed rate.
 - a. LWA calculated the volumetric water sales (AF) and back calculated the expected total reservoir storage and applicable water rate based on the current rate setting process. The water sales estimates for the pro forma are based on the minimum annual volumetric (AF) water sales in recent non-allocated water years.
 - b. For the purposes of this analysis and assumptions, a normal, expected water year is defined as one in which reservoir levels are plentiful and the District can meet agricultural water demand without imposing allocations.

- c. Other revenue was primarily forecasted based on a 10-year average; however, some line items were adjusted down or up based on future expectations. For example, grant revenue lines were reduced to zero in some cases, given the uncertainty of future grant awards.
 - d. This forecast also includes Yolo County General Fund Property Tax apportionments, which are escalated at 2% per year, assumed as the maximum amount under Proposition 13. It is further assumed there are no tax revenue changes due to future development or property reassessment at turnover.
3. *Use of Non-Operating Revenue to Cover Costs:* Non-operating revenue is primarily comprised of Yolo County general fund property taxes. It offsets both non-operating and operating expenses. LWA performed a non-operating revenue allocation across the service areas to determine how much of the non-operating revenue can be used, in a typical pro forma year, to offset agricultural water expenses.
 4. *Estimating Agricultural Water Revenue Gap:* Putting together all previous steps generates the anticipated agricultural water revenue gap, which is one component of the revenue requirements.
 5. *Considering Water Storage Uncertainty:* The analysis completed thus far represents a normal, expected water year but does not account for the fluctuations in upstream water storage, primarily when water is scarce. A normal, expected water year is one in which reservoir levels are plentiful and the District can meet agricultural water demand without imposing allocations. However, to determine a plan for low-water years, a drought reserve evaluation and reserve fund is presented.

Current Agricultural Rate Structure

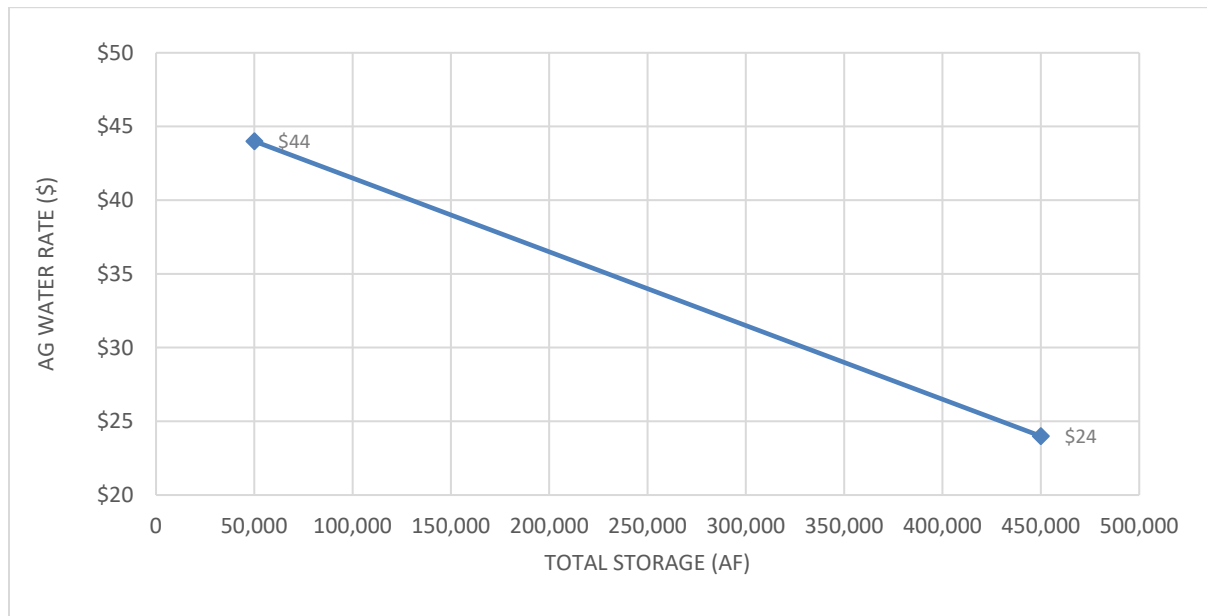
The District charges for agricultural water supplies on a price per acre foot (AF) basis, which is set based on total available reservoir storage as of April 1st of each year. The price is set on a sliding scale: \$44/AF with minimal reservoir storage of 50,000 AF and \$24/AF with full reservoir storage of 450,000 AF (**Chart 1**). From time-to-time, the District issues water supply allocation limits if available water is insufficient to meet grower's demand.

The current sliding rate structure attempts to balance revenue, based on water availability; however, certain critical limitations with this approach result in the District now proposing a flat rate structure as part of this COS Study. These limitations include water availability uncertainty and water demand uncertainty. The total upstream water availability uncertainty is accounted for through the drought reserve, reducing the need to increase rates with lower total upstream storage. Further, these increased rates would have to be astronomic to dwarf the loss in volumetric sales and thus currently do not provide revenue stability.

Additionally, delivery demand has slowed down over the last few decades making total deliveries less, even when water is available, and based on current irrigation practices, total demand in the region is finite. Under the existing rate structure, the lower rates, when total upstream storage was high, result in less revenue than required to cover the District's costs. This has led the District to propose a new rate not dependent on total upstream storage, i.e., a flat rate.

Water availability and quantity of water sold ultimately drive District revenues from year-to-year. And years of limited water availability put a substantial burden on the District. For these reasons, a fixed rate approach is proposed, and the proposed rate changes described in this study are modeled as such.

Chart 1: Current Agricultural Water Rate versus Total Upstream Storage



Authority and Regulatory Limitations

Before developing rate structures and options, it's important to define the District's authority and constitutional and regulatory limitations on implementing various funding options.

Funding Authority

The District was created by special act of the California Legislature (District Act, Water Code App., Sec 65-1). Under the District Act, the District is empowered to:

- Form zones within the district and levy assessments on land within those zones (Water Code App., Sec 65-15-65-15.5).
- Levy taxes on real property within a zone created by the District in order to raise revenue to pay any District obligation (Water Code App. Sec 65-12, 65-13, 65-30.)
- May fix rates and charges "...for water, service and benefit from its operations..." to pay operating expenses, repairs and depreciation, interest on bonded debt, principal on bonded debt, and for constructing, maintaining, operating, and purchasing or leasing works that provide that water service and benefit (Water Code App. Sec 65-27.5, subd. (a)-(e).)
- Impose groundwater charges (Water Code App, Sec 65-4.1 through 65-4.8) and water standby and availability charges (Water Code App, Sec 65-27.6).

The District Act defines the jurisdictional boundaries of the District (Water Code App., Sec 65-1). The District may impose assessments, fees, charges, and special taxes only within its jurisdictional territory (See Water Code App.

- Sec 65-4: groundwater charges may be imposed for groundwater production “on any and all land within the District”
- Sec 65-12-65-13 District may impose a tax “upon the taxable property in [the] [D]istrict”]
- Sec 65-15-65-15.5 assessments may be imposed in a zone or zones within the District
- Sec 65-27.5 rates and charges for water, service and benefit from District operations may be imposed
- Sec 65-27.6 “The board may fix a water standby or availability charge for land within the District to which water is made available...”
- Sec 65-30 the District may levy a tax “...on taxable property in [the] [D]istrict...”

The District may therefore impose assessments, fees, charges, and special taxes only within its territorial jurisdiction, as the territorial jurisdiction is defined in the District Act.

Requirements and Limitations

The District, as with any public agency, is subject to limitations and regulations when imposing fees, assessments and/or taxes. Given the District’s authority to impose fees, charges, assessments, and special taxes, Propositions 13, 26, and 218 provide the framework for which the District must comply when imposing any fees, charges, assessments, and special taxes. Proposition 218 lays out the constitutional limitations and requirements for implementing property-related charges, requiring noticing and protest proceedings or balloting. Aside from Proposition 218, other fees can be adopted by the governing agency, under Proposition 26 given the applicability of certain exemptions. The summaries below highlight general funding options that define the implementation requirements to which the District would have to comply.

Proposition 218 Requirements

Proposition 218 governs charges, assessments, and taxes imposed for property-related services, which are subject to limitations and procedures. These property-related charges and assessments must be proportional to and not exceed the cost of providing services and must only be used for the services identified as the basis for the charge or assessment.

The requirements of **fees or charges** for water-related services under Proposition 218¹ must meet the following requirements:

- Revenues derived from the fee or charge shall not exceed the funds required to provide the property related service.
- Revenues derived from the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed.
- The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.
- No fee or charge may be imposed for a service unless that service is actually used by, or immediately available to, the owner of the property in question.
- No fee or charge may be imposed for general governmental services where the service is available to the public at large in substantially the same manner as it is to property owners.

¹ California Constitution Article XIID, Section 6

A fee or charge requires the following procedures:

- The District shall provide written notice by mail of the proposed fee or charge to the record owner of each identified parcel including the following information: the amount of the fee or charge, the basis upon which the amount of the proposed fee or charge was calculated, the reason for the fee or charge, the date, time, and location of the public hearing at which the District will consider the fee or charge.
- Conduct a public hearing not less than 45 days after mailing the notice of the proposed fee or charge to the record owners of each identified parcel upon which the fee or charge is proposed. At the hearing, the District shall consider all protests of the proposed fee or charge.
- If written protests against the proposed fee or charge are presented by a majority owners of the identified parcels, the agency shall not impose the fee or charge.

Section 2. Finance Plans

Establishing Expenditures Projections

To determine the District's future revenue requirements, an expenditure projection must be created. The following sections describe the basis for the expenditure projections, assumptions associated with capital infrastructure project reserve, and the G&A expense allocation across the District's service areas. This all allows for the identification of agricultural water specific expenditures, which are later used to set the proposed water rate and are compared to projected revenues at current water rates.

Basis for Expense Projections

The District's historical financial line items and anticipated cost growth allow a projection of the District's expenditures over the next five years (FY23/24-FY27/28), as is best practice for cost-of-service studies. An expenditure schedule was created to capture all District obligations (**Table 1**). These include existing District costs using current budget and historical financials and includes and incorporates a capital infrastructure project reserve fund. The expense obligations are then allocated across the applicable operational service areas.

The projections start with the FY22/23 budget, which represents the most recent cost expectations. Some line items were adjusted to use a five-year historical average to better represent expected costs during a typical water year (i.e., sufficient reservoir water supplies to meet water demands) and because the FY22/23 will vary from typical due to the low reservoir levels. It is assumed cost growth will equate to 3% across all line items for the next five years².

The detailed, yearly expense projections are presented in **Appendix A** and are utilized and summarized in subsequent tables.

² US Bureau of Labor Statistics, CPI-U, Western, 10-yr average year-over-year, Aug 2022 - Aug 2012 data

Table 1
YCFCWCD Cost-of-Service Study
Pro Forma Year Expenses

Category Description	Projected FY23/24 Expenses
Source of Supply	\$ 592,620
Hydroelectric Expense	\$ 50,148
Water Resources	\$ 572,270
Environmental Resources	\$ 50,395
Transmission/Distribution	\$ 1,352,561
MERCSA Activities	\$ 48,635
Administrative & General	\$ 1,958,128
General Plant/Facilities Maintenance	\$ 390,442
Other Operating Expenses	\$ 21,460
CIP Expense	\$ 1,955,712
Total Operating Expenses	\$ 6,992,372
Non-Operating Expenses	\$ 385,429
Grand Total	\$ 7,377,801

Capital Infrastructure Project Reserve

The pro forma expenditure schedule removes historical depreciation since it does not represent an actual cash expenditure, nor does it directly impact the fee structure. A category was created to establish a capital infrastructure project (CIP) reserve, which is required for providing water-related services. The CIP reserve is needed to manage the system's water delivery infrastructure or to allow for new infrastructure improvements. The CIP reserve is necessary to provide sustainable water deliveries, and thus is calculated into the operational expenditures under the water category. For the purposes of this assessment, no grant revenue for capital improvements is assumed. The total annual amount required is estimated at approximately **\$1.9M** in FY23/24, based on the District's catalogue of capital improvement projects and associated costs (**Appendix B**). Following a successful special benefit balloting process, the District Board of Directors adopted a special benefit assessment on March 7, 2023, that will generate approximately \$952,000 in its first year (FY23/24); this revenue is accounted for later in the analysis. The District could utilize this funding on a pay-as-you-go basis or to service debt for larger capital investments.

The District has plans over the next five years to invest in capital infrastructure projects to sustain its water delivery system. Examples of capital projects over the next five years include:

- **Capay Diversion Dam – Bladder Replacement**
Critical infrastructure for diverting flows off Cache Creek into the 160-mile canal system
- **Flume Rehabilitation Projects (at 5 sites)**
Critical infrastructure within the canal system for ensuring continuous services
- **Capay Diversion Dam – Headworks Upgrades and Automation**
Extend culverts, install trash racks, replace gates and incorporate within SCADA for automated water deliveries
- **Indian Valley Hydroelectric Upgrade**
Upgrade facility to SCADA for automation, flow modulation, and monitoring; could help optimize peak power production revenues.
- **Indian Valley Reservoir Penstock and Spillway Gates Recoating Project**
Recoat deteriorating protective coatings – regulatory compliance issue
- **Indian Valley Dam Seepage Monitoring**
Monitor seepage from main section of the dam – regulatory compliance issue
- **Indian Valley Reservoir Spillway Repairs**
Repair spillway floor negative offsets, cracks, and spalling issues – regulatory compliance issue
- **Indian Valley Reservoir 60” HJV Rehabilitation**
Complete rebuild of valve necessary due to water ingress in gear case and bearings; infrastructure is indispensable to the District’s needs for irrigation and flood control water releases

Cost of Services

Each operating and non-operating expenditure line item was further broken up into categories:

- **General & Administrative (G&A):** these are costs that are borne by the District that support all operations; these are already categorized in the current budget; however, some costs can be directly attributable to one service area (e.g., FERC regulatory costs can be attributed to water-related costs). In those cases, the applicable line item was recategorized. In other cases, general costs borne by the District that are not in the current G&A expense, such as environmental costs were reclassified as G&A for the purposes of this analysis. This allows for attribution of all District costs to service areas.
- **Water Expenses:** Similar to G&A, all water-related expenses were itemized in the expenditure schedule. Water system-related costs are then split into Agricultural Water and Non-Agricultural Water based on the five-year average acre-foot of water deliveries.
- **All Other Services:** Each of the remaining line-item expenses were classified as flood, groundwater, or recreation, and grouped as non-water expenses.

Once itemized, the cost categories are summarized by service area (**Table 2**).

Table 2
YCFCWCD Cost-of-Service Study
Projected Expenses - Pro Forma - 5 Year - Summary by Service Area

Projected Expenses Summary	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Total G&A	\$ 2,347,601	\$ 2,418,029	\$ 2,490,570	\$ 2,565,287	\$ 2,642,245
Total Ag Water Direct	\$ 4,031,295	\$ 4,152,234	\$ 4,276,801	\$ 4,405,105	\$ 4,537,258
Total Non-Ag Water Direct	\$ 207,336	\$ 213,556	\$ 219,962	\$ 226,561	\$ 233,358
Total Non-Water Operating Direct	\$ 492,606	\$ 507,384	\$ 522,606	\$ 538,284	\$ 554,432
Total Non-Operating Direct	\$ 298,963	\$ 307,932	\$ 317,170	\$ 326,685	\$ 336,486
Total	\$ 7,377,801	\$ 7,599,135	\$ 7,827,109	\$ 8,061,922	\$ 8,303,780

[1] G&A expense include G&A items found within project expense tables from YCFCWCD and removes some items which are water related (e.g. FERC) and adds in other costs that are shared across all expense categories (e.g. environmental)

G&A Expense Allocation

G&A expenses are attributed to the District's service areas (Agricultural Water, Non-Agricultural Water, and Other Services) to align all costs with the specific services provided. For this study, G&A expenses within the operational expenses are attributed to the District's operational service areas according to the following methodology and are summarized in **Table 3**.

- A percentage split for all Water Services versus all Other Services was based on a percent of total direct operational expenses (89% all water; 11% all other services).
- Of all water-related operational G&A expenses, Agricultural Water and Non-Agricultural Water are further split according to the historical average proportional water sales. (93% ag water; 7% non-ag water)
- Non-operating G&A expenses are already accounted for separately in the District's finances and the pro forma statements.

Table 3
YFCWCD Cost-of-Service Study
Projected Expenses - Pro Forma - 5 Year

Projected Expenses	% of Total	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Ag Water Operations	31%	\$ 2,316,311	\$ 2,385,800	\$ 2,457,374	\$ 2,531,096	\$ 2,607,029
Ag Water G&A Allocation	26%	\$ 1,887,028	\$ 1,943,639	\$ 2,001,948	\$ 2,062,006	\$ 2,123,867
Ag Water Capital	23%	\$ 1,714,984	\$ 1,766,434	\$ 1,819,427	\$ 1,874,009	\$ 1,930,230
Non-Ag Water Operations	2%	\$ 164,245	\$ 169,172	\$ 174,247	\$ 179,475	\$ 184,859
Non-Ag Water G&A Allocation	2%	\$ 133,805	\$ 137,819	\$ 141,954	\$ 146,212	\$ 150,599
Non-Ag Water Capital	1%	\$ 43,091	\$ 44,384	\$ 45,715	\$ 47,087	\$ 48,499
Non-Water Operations	4%	\$ 294,969	\$ 303,818	\$ 312,933	\$ 322,321	\$ 331,990
Non-Water G&A Allocation	3%	\$ 240,302	\$ 247,511	\$ 254,937	\$ 262,585	\$ 270,462
Non-Water Capital	3%	\$ 197,637	\$ 203,566	\$ 209,673	\$ 215,963	\$ 222,442
Total Projected Annual Op Ex	95%	\$ 6,992,372	\$ 7,202,143	\$ 7,418,208	\$ 7,640,754	\$ 7,869,976
Non-Operating Expenses						
Non-Operating Expenses	4%	\$ 298,963	\$ 307,932	\$ 317,170	\$ 326,685	\$ 336,486
Non-Operating G&A Allocation	1%	\$ 86,465	\$ 89,059	\$ 91,731	\$ 94,483	\$ 97,318
Total Projected Annual Non-Operating Expenses	5%	\$ 385,429	\$ 396,991	\$ 408,901	\$ 421,168	\$ 433,803
Grand Total	100%	\$ 7,377,801	\$ 7,599,135	\$ 7,827,109	\$ 8,061,922	\$ 8,303,780

[1] G&A expense include G&A items found within project expense tables from YFCWCD and removes some items which are water related (e.g. FERC) and adds in other costs that are shared across all expense categories (e.g. environmental)

Establishing Projected Revenues

The projected revenue must be estimated across the District's service areas. As was the case with expenditures, the revenue projections are provided over a five-year horizon (FY23/24-FY27/28). After accounting for non-operational expenditures, the remaining non-operational revenue can be used to offset various operational costs and associated components of G&A. This approach is further explained below and segregates the agricultural water revenue and expenditures.



Projected Revenue by Service Area

Calculating revenue estimates for water rates require estimating volumetric sales and its associated rate from the sliding scale (as is the case for the existing rate structure). Revenue estimates at current water rates are predicated on two assumptions: 1) the minimum volumetric sales in recent, historical non-allocated periods (since 2016) and 2) a water rate is set based on the 10-year average historical reservoir levels. When used for future rate setting, the volumetric sales assumptions allow the District to determine a maximum water rate based on reasonable expected minimum sales, during periods where there is sufficient upstream storage (no water sales allocations).

The District's current rate structure is dependent on the total available storage capacity on April 1st in both Clear Lake and Indian Valley Reservoir. The rate is factored from an existing linear relationship to determine the annual agricultural water rate, as discussed earlier in this study. Assumptions include minimum, recent historical water volumetric sales (AF) during recent non-allocated periods (2017 and 2019) of 110,000 AF; 10-year historical average of the total available upstream storage on April 1st (2013 – 2022) of 207,000 AF. For the projected revenue, it is assumed that property tax revenues increase by 2% annually³. Additionally, the revenue from the recently passed special benefit assessment is projected and utilized later in this COS Study. A summary of the projected revenue can be found in **Table 4**.

Table 4
YCFCWCD Cost-of-Service Study
Revenue Projections, Average Water Year at Existing Rates

Revenue Summary	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Operating Ag Water Sales	\$ 3,976,500	\$ 3,976,500	\$ 3,976,500	\$ 3,976,500	\$ 3,976,500
Special Benefit Assessment for CIP [1]	\$ 952,135	\$ 980,699	\$ 1,010,120	\$ 1,040,424	\$ 1,071,636
Operating Non-Ag Water Sales	\$ 269,012	\$ 269,012	\$ 269,012	\$ 269,012	\$ 269,012
Other Operating Revenues	\$ 302,052	\$ 302,052	\$ 302,052	\$ 302,052	\$ 302,052
Non-Operating Revenues - Prop Taxes [2]	\$ 1,612,620	\$ 1,644,872	\$ 1,677,770	\$ 1,711,325	\$ 1,745,552
Non-Operating Revenues - Misc	\$ 302,569	\$ 302,569	\$ 302,569	\$ 302,569	\$ 302,569
Total	\$ 7,414,887	\$ 7,475,704	\$ 7,538,022	\$ 7,601,881	\$ 7,667,320

[1] Special Benefit Assessment revenue is based on recently adopted property based assessment for capital improvements at and downstream of the Capay Diversion Dam, which includes an escalation provision. Projected revenue from the assessment is escalated at 3% commensurate with cost escalation assumptions.

[2] Property tax apportionment allotted to YCFC&WCD, escalated at 2%.

³ Maximum increase afforded under Proposition 13, not accounting for new development or transactional updates.

Non-Operating Revenue Allocation

Non-operating revenue is projected to be \$1.91M in FY 23/24. The property tax allotment accounts for a large portion of non-operating revenue, estimated at \$1.61M and projected to grow at 2% annually over the five-year timeframe. Miscellaneous non-operating revenue comes from a variety of sources, such as shared services, rental income, interest revenues, and service area taxes. Tax revenue can be allocated to District expenses as required by the District. For this analysis, non-operating revenue is allocated to expenses in the following order:

- Non-Operating Expenses
- Other Operating Expenses
- Non-Agricultural Water Expenses
- Agricultural Water Expenses

The balance of the non-operating revenue is used to offset agricultural water expenses. **Table 5** provides the five-year estimate of the non-operating revenues that are available to offset Agricultural Water Operating Expenses and are used in the subsequent revenue needs analysis.

Table 5
YCFCWCD Cost-of-Service Study
Non-Operating Revenue Allocation to Offset Ag Water Expenses

Non-Operating Revenue Allocation	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Non-Operating Revenue - Taxes	\$ 1,612,620	\$ 1,644,872	\$ 1,677,770	\$ 1,711,325	\$ 1,745,552
Non-Operating Revenue - Misc	\$ 302,569	\$ 302,569	\$ 302,569	\$ 302,569	\$ 302,569
Non-Operating Expenses	\$ 385,429	\$ 396,991	\$ 408,901	\$ 421,168	\$ 433,803
Total Net Non-Operating Revenues	\$ 1,529,760	\$ 1,550,450	\$ 1,571,438	\$ 1,592,726	\$ 1,614,317
Non-Ag Water Operations					
Non-Ag Water Operating Expenses	\$ 341,141	\$ 351,375	\$ 361,916	\$ 372,774	\$ 383,957
Non-Ag Water Rate Revenue	\$ 269,012	\$ 269,012	\$ 269,012	\$ 269,012	\$ 269,012
Net Non-Ag Water Expense	\$ 72,129	\$ 82,363	\$ 92,905	\$ 103,762	\$ 114,945
Other Operations					
Other Operating Expenses	\$ 732,908	\$ 754,896	\$ 777,542	\$ 800,869	\$ 824,895
Other Operating Revenue	\$ 302,052	\$ 302,052	\$ 302,052	\$ 302,052	\$ 302,052
Net Other Operating Expense	\$ 430,857	\$ 452,844	\$ 475,491	\$ 498,817	\$ 522,843
Total Non-Operating Rev Avail to					
Offset Ag Water Expenses:	\$ 1,026,775	\$ 1,015,243	\$ 1,003,042	\$ 990,147	\$ 976,529

Identifying Revenue Requirements

Water Sales Fluctuations and Drought Reserve

Agricultural water sales fluctuate based on the upstream reservoir supply. In most years, supply is plentiful, and the District can meet grower demand. In other years water availability is much more constrained, forcing the District to impose water delivery allocations or to eliminate agricultural water deliveries altogether. As previously discussed, the water sales component of the District's budget is significant and can adversely affect its long-term ability to provide services to its customers. As such, this section presents an analysis of revenue shortfall during periods of low water supply. This provides a basis for a drought reserve that can be built up during years where water sales are maximized and can be tapped when water sales result in a revenue deficit.

Over the last twenty years, the District has experienced less than full water supply six times (4 allocated years and 2 zero-release years). This rate of limited availability is similar throughout the entire 48-year record but has worsened in the recent past. In fact, over the last seven years, the District has had a zero and a near zero water allocation years; and the preceding seven-year period experienced a zero and two near zero water allocation years. Based on these historical records, the basis for the drought reserve is that the District expects to experience two out of seven years of zero water allocation. This drought reserve would allow for on-going, unrestricted operations in years with zero allocation (i.e., drought years) or across consecutive allocated years. Reserving revenue in non-allocated years allows the District to build the drought reserve fund over the expected cycle of water supply availability. However, even with the inclusion of a drought reserve, not all risks associated with limited water supply/sales can be mitigated, such as:

- Future changes in frequency, or multi-year duration, of allocated/zero-release years may increase demand on the drought reserve fund that outpaces these drought reserve assumptions; and
- The initial time required to fully fund the drought reserve prior to the next period of allocated/zero-release years may not be sufficient, resulting in a shortfall in the drought reserve fund.

Despite the remaining risks, a drought reserve provides an effective means to offset limited revenue in allocated/zero-release years. The following assumptions were made to determining the drought reserve fund target and supplemental charge:

- The drought reserve fund target used for this cost-of-service study was set equal to two times the total revenue required to cover the net agricultural water expenses for FY23/24.

<u>Projected Ag Water Expenses for FY23/24 (Table 3)</u>	
Ag Water Operating Expenses	\$2,316,311
Ag Water G&A Allocation	\$1,887,028
Ag Water Capital	<u>\$1,714,984</u>
Total Projected Ag Water Expenses	\$5,918,323
Less Available Non-Operating Revenue (Table 5)	\$1,026,775
<u>Less Special Benefit Assessment for CIP (Table 4)</u>	<u>\$952,135</u>
Net Ag Water Expenses (FY23/24)	\$3,939,413
	<u> x2.0</u>
Drought Reserve Fund Target (rounded)	\$7,900,000

- Revenue from the drought reserve charge can only be set aside in non-allocated water years which, based on historical records, is assumed to occur for five consecutive years, preceding the two consecutive years of zero-allocation water years:

<u>Drought Reserve Charge on Ag Water Rates</u>	
Drought Reserve Fund Target	\$7,900,000
Minimum Annual Expected Sales	110 TAF
Assumed consecutive non-allocated years	<u>5 Years</u>
<u>Total expected sales</u>	<u>550 TAF</u>
Drought Reserve Charge FY23/24 (Target ÷ Sales)	\$14.36 / AF

- For the purposes of this COS Study, the drought reserve fund target for FY23/24 is set at \$7.9M. The Board could choose to increase this target in future years, commensurate with the projected escalation of expenditures.

In preparing the drought reserve fund for this study, the District's Board of Director's has indicated they will be considering a Drought Reserve Policy to establish guidelines for:

- Managing the use of the drought reserve fund,
- Allocating excess revenue from Ag Water sales or other revenue sources (e.g., increased property revenue) to the drought reserve fund,
- Evaluating the adequacy of reserve funds during the annual budgeting process, and
- Evaluating the drought reserve charge during the annual water rate setting process.

As suggested by multiple Board members, this policy is intended to preserve the drought reserve approach utilized within this report while guarding against over-charging customers once the drought reserve fund is determined to be adequate.

Existing District Cash Balance and Short-term Capital Recovery

Given the last several years of drought and revenue shortfalls, the District has accumulated a negative cash balance of \$1.0M⁴. This puts substantial pressure on the District's cash flow, its ability to finance future debt, and its ability to maintain on-going levels of service. Therefore, as part of this rate setting process, a supplemental Short-term Capital Recovery charge is added as an additional expense to the District's budget in order to recover its cash balance shortfall. This will be imposed over a five-year period, assuming water is sufficiently available for sale. After the cash deficit has been recouped, this component of the rate will be removed. The estimated cost per year is \$200,000 (\$1.0M / 5 years).

Agricultural Water Rate Analysis

A flow of funds combines the five-year projected revenue and expenses, the non-operating revenue available to offset agricultural water costs, the drought reserve, and the Short-term Capital Recovery charge. For this cost-of-service study, the District will change its rate structure to one that is flat across all upstream storage levels. Further, although the required rates are projected to increase each year, a single average rate has been established for the 5-year term, starting in FY23/24. This approach is reasonable because revenues are predicated on assumptions that the District recognizes will fluctuate from year-to-year, and because establishing a flat rate across all years provides the District's customers

⁴ Estimated based on the District's end of FY 22/23 cash balance less loan debt principle and interest.

with more stable expectations associated with its water costs into the future. **Table 6** summarizes the water rate analysis and its three primary components: base rate, drought reserve, and short-term capital recovery charge.

Table 6
YFCWCD Cost-of-Service Study
Agricultural Water Sales Rate Setting

Flow of Funds - Ag Water	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28
Ag Water Operating Expenses	\$ (5,918,323)	\$ (6,095,873)	\$ (6,278,749)	\$ (6,467,111)	\$ (6,661,125)
Ag Water Special Benefit Assessment [1]	\$ 952,135	\$ 980,699	\$ 1,010,120	\$ 1,040,424	\$ 1,071,636
Total Non-Operating Rev Avail to Offset Ag Water Expenses - from Table 5	\$ 1,026,775	\$ 1,015,243	\$ 1,003,042	\$ 990,147	\$ 976,529
Net Ag Water Expense	\$ (3,939,413)	\$ (4,099,931)	\$ (4,265,587)	\$ (4,436,541)	\$ (4,612,959)
Assumed Annual Water Sales (AF) [2]	110,000	110,000	110,000	110,000	110,000
Base Water Rate (per AF)	\$ 35.8	\$ 37.3	\$ 38.8	\$ 40.3	\$ 41.9
Base Water Rate, averaged (per AF) [3]	\$ 39.0				
<i>Drought Reserve</i>					
Drought Reserve Expense [4]	\$ (1,575,765)	\$ (1,639,972)	\$ (1,706,235)	\$ (1,774,616)	\$ (1,845,184)
Drought Reserve Rate (per AF)	\$ (14.3)	\$ (14.9)	\$ (15.5)	\$ (16.1)	\$ (16.8)
Drought Reserve Rate, averaged (per AF) [3]	\$ 15.5				
<i>Short-Term Capital Recovery Charge</i>					
STCR Expense [5]	\$ (200,000)	\$ (200,000)	\$ (200,000)	\$ (200,000)	\$ (200,000)
STCR Expense Rate (per AF)	\$ (1.8)	\$ (1.8)	\$ (1.8)	\$ (1.8)	\$ (1.8)
STCR Rate, averaged (per AF) [3]	\$ 1.8				
Total Water Rate (per AF) [3]	\$ 56.30				

[1] Special Benefit Assessment revenues is for capital improvements as adopted by the Board of Directors at the March 7, 2023 Meeting.

[2] Based on minimum quantity of water sold in unallocated years: 110,000 AF.

[3] To avoid rates changing each year, assume a rate change in year 1 only based on a five-year average; base rate rounded up to nearest dollar.

[4] Drought Reserve Expense based on collecting revenue to cover two years of net ag water expenses; collected over an assumed 5-years of unallocated sales (i.e. for FY23/24 \$4Mx2/5 years); Expenses reserved in each year increases per escalation assumptions.

[5] Short term capital recovery charge is based on the Districts current cash balance of (\$1.0M) based on estimated FY22/23 year end cash less loan debt, with recovery through rate revenue over five years (i.e. \$1.0M/5 years)

Section 3. Proposed Rate Structure

Proposed Rate Change

The proposed agricultural water rate structure would change from the current sliding scale methodology as outlined above to a **flat rate** structure. As previously described, the current sliding scale leaves the District revenue starved on both ends of the scale. The proposed flat rate structure provides the District and its customers with more certainty around the rates and allows the District flexibility to lower rates in the future should its revenue and cash position exceed water sales expectations.

The flat rate is comprised of three components: base rate, drought reserve and short-term capital recovery. **The total rate is \$56.30/AF** and breaks down as follows:

- Base rate: \$39.00/AF
- Drought reserve: \$15.50/AF
- Short-term Capital Recovery: \$1.80/AF

The District may elect to charge lower rates each year, assuming the resultant revenue would be sufficient to cover costs. As the end of the five-year planning horizon approaches, rates will be reassessed and either remain the same or updated through a rate study.

Chart 2: Agricultural Water Rates vs. Total Upstream Storage

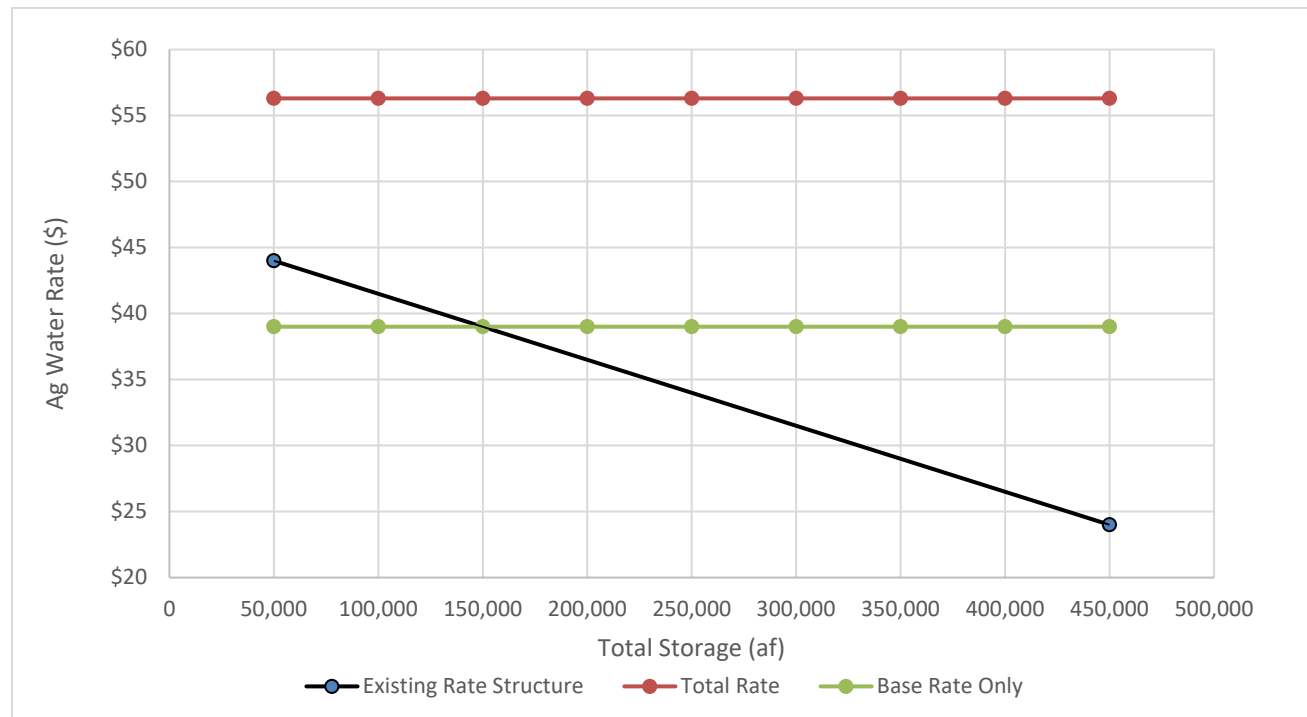
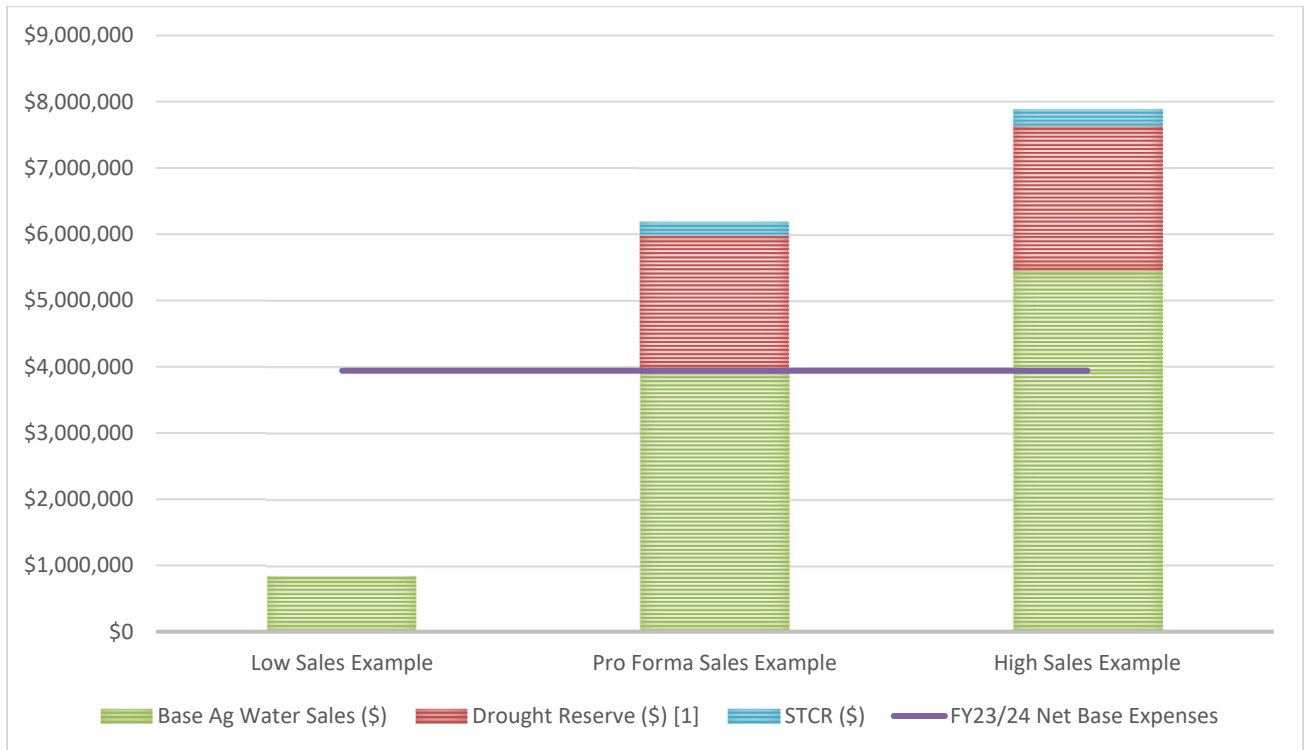


Chart 3 displays the revenue generated with the new rates compared to the net expenses (FY23/24) for three different hypothetical cases (low sales year, pro-forma year, and high sales year). The drought reserve amounts are shown in each hypothetical case. The low storage example is based on a hypothetical 15k AF of sales; base-case storage example is based on the previously described assumptions of 110k AF sales; and a high volumetric sales example is based on a hypothetical 140k AF of sales.

Chart 3: Revenue versus Water Sales Scenarios



[1] Rates are based on five-year averages, but expenses shown are for FY23/24 resulting in higher FY23/24 hypothetical drought reserve amount.

Below is an example customer cost under the existing agricultural water rate structure versus the proposed total agricultural water rates.

Total Available Upstream Storage on April 1, 2023:	200,000 AF
Current Agricultural Water Rate:	\$36.5/AF
Proposed Total Agricultural Water Rate:	\$56.3/AF
Customer Estimated Water Usage:	300 AF
Estimated Bill Under Current Rates:	\$10,950
Estimated Bill Under Proposed FY23/24 Rates:	\$16,890
Difference:	\$5,940



Appendix A – Expense Detail

No.	Description	Category [1]	Pro Forma Year	2023	2024	2025	2026	2027
OPERATING EXPENSES								
<u>SOURCE OF SUPPLY</u>								
51100	SOS - CACHE CREEK DAM	W	\$ 91,091	\$ 93,824	\$ 96,639	\$ 99,538	\$ 102,524	\$ 105,600
51200	SOS - INDIAN VALLEY DAM & RESERVOIR	W	\$ 455,641	\$ 469,310	\$ 483,390	\$ 497,891	\$ 512,828	\$ 528,213
51300	SOS - I.V. WATER TREATMENT PLANT	W	\$ 14,104	\$ 14,527	\$ 14,963	\$ 15,412	\$ 15,874	\$ 16,350
51400	SOS - I.V. RECREATION	R	\$ 14,523	\$ 14,959	\$ 15,407	\$ 15,870	\$ 16,346	\$ 16,836
51500	SOS - GROUND WATER REPLENISHMENT	W	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Total		\$ 575,359	\$ 592,620	\$ 610,399	\$ 628,711	\$ 647,572	\$ 666,999
<u>HYDROELECTRIC EXPENSE</u>								
52100	CACHE CREEK DAM HYDRO EXPENSES	W	\$ 5,668	\$ 5,838	\$ 6,013	\$ 6,194	\$ 6,380	\$ 6,571
52200	INDIAN VALLEY HYDRO EXPENSES	W	\$ 43,019	\$ 44,310	\$ 45,639	\$ 47,008	\$ 48,418	\$ 49,871
	Total		\$ 48,687	\$ 50,148	\$ 51,652	\$ 53,202	\$ 54,798	\$ 56,442
<u>WATER RESOURCES</u>								
53100	GROUNDWATER LEVEL MONITORING	G	\$ 10,350	\$ 10,661	\$ 10,980	\$ 11,310	\$ 11,649	\$ 11,998
53200	GROUNDWATER QUALITY MONITORING	G	\$ 438	\$ 451	\$ 464	\$ 478	\$ 493	\$ 507
53300	WATER FLOW MEASUREMENTS	W	\$ 56,893	\$ 58,600	\$ 60,358	\$ 62,169	\$ 64,034	\$ 65,955
53400	SURFACE WTR QUALITY MONITORING	W	\$ 10,780	\$ 11,103	\$ 11,437	\$ 11,780	\$ 12,133	\$ 12,497
53500	STORM WATER MANAGEMENT PLAN	F	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
56970	SGMA (SUSTAINABLE GROUNDWATER MANAGEMENT ACT)	G	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
56971	YSGA (YOLO SUBBASIN GROUNDWATER AGENCY)	G	\$ 261,067	\$ 268,899	\$ 276,966	\$ 285,275	\$ 293,833	\$ 302,648
56713	SCADA	W	\$ 216,074	\$ 222,556	\$ 229,233	\$ 236,110	\$ 243,193	\$ 250,489
	Total		\$ 555,602	\$ 572,270	\$ 589,438	\$ 607,122	\$ 625,335	\$ 644,095
55000	<u>ENVIRONMENTAL RESOURCES</u>	A	\$ 48,927	\$ 50,395	\$ 51,907	\$ 53,464	\$ 55,068	\$ 56,720
	Total		\$ 48,927	\$ 50,395	\$ 51,907	\$ 53,464	\$ 55,068	\$ 56,720
<u>TRANSMISSION / DISTRIBUTION</u>								
54100	T & D OPERATIONS	W	\$ 356,368	\$ 367,059	\$ 378,071	\$ 389,413	\$ 401,096	\$ 413,129
54200	T & D MAINTENANCE	W	\$ 956,798	\$ 985,502	\$ 1,015,067	\$ 1,045,519	\$ 1,076,885	\$ 1,109,191
54260	T & D FLOODING / STORM EVENTS	F	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Total		\$ 1,313,166	\$ 1,352,561	\$ 1,393,138	\$ 1,434,932	\$ 1,477,980	\$ 1,522,320
54500	<u>MERCESA ACTIVITIES</u>	W	\$ 47,218	\$ 48,635	\$ 50,094	\$ 51,596	\$ 53,144	\$ 54,739
	Total		\$ 47,218	\$ 48,635	\$ 50,094	\$ 51,596	\$ 53,144	\$ 54,739
54470	<u>FLOODSAFE YOLO 2.0 ACTIVITIES & FLOOD CONTROL</u>	F	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Total		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>ADMINISTRATIVE & GENERAL</u>								
56100	ADMINISTRATIVE SALARIES & BENEFITS	A	\$ 568,626	\$ 585,685	\$ 603,255	\$ 621,353	\$ 639,994	\$ 659,193
56200	OFFICE EXPENSE	A	\$ 13,000	\$ 13,390	\$ 13,792	\$ 14,205	\$ 14,632	\$ 15,071
56300	INSURANCE EXPENSE	A	\$ 83,410	\$ 85,912	\$ 88,490	\$ 91,144	\$ 93,879	\$ 96,695
56410	EMPLOYEE BENEFITS	A	\$ 603,329	\$ 621,429	\$ 640,072	\$ 659,274	\$ 679,052	\$ 699,424
56600	INFORMATION TECHNOLOGY SYSTEMS	A	\$ 87,167	\$ 89,782	\$ 92,475	\$ 95,249	\$ 98,107	\$ 101,050
56720	COMMUNICATIONS & UTILITIES	A	\$ 52,000	\$ 53,560	\$ 55,167	\$ 56,822	\$ 58,526	\$ 60,282
56810	ACCOUNTING AND AUDIT	A	\$ 16,500	\$ 16,995	\$ 17,505	\$ 18,030	\$ 18,571	\$ 19,128
56820	LEGAL EXPENSE	A	\$ 55,000	\$ 56,650	\$ 58,350	\$ 60,100	\$ 61,903	\$ 63,760

No.	Description	Category [1]	Pro Forma Year	2023	2024	2025	2026	2027
56830	ENGINEERING	A	\$ 88,192	\$ 90,837	\$ 93,562	\$ 96,369	\$ 99,260	\$ 102,238
56920	BAD DEBT EXPENSE	W	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
56840	FERC	W	\$ 24,346	\$ 25,076	\$ 25,829	\$ 26,604	\$ 27,402	\$ 28,224
56910	RENTALS AND LEASES	A	\$ 47,000	\$ 48,410	\$ 49,862	\$ 51,358	\$ 52,899	\$ 54,486
56950	PUBLIC EDUCATION	A	\$ 2,000	\$ 2,060	\$ 2,122	\$ 2,185	\$ 2,251	\$ 2,319
56960	MEMBERSHIPS & DUES	A	\$ 241,000	\$ 248,230	\$ 255,677	\$ 263,347	\$ 271,248	\$ 279,385
56980	SYSTEM PLANNING & ADMIN	A	\$ 7,000	\$ 7,210	\$ 7,426	\$ 7,649	\$ 7,879	\$ 8,115
56990	OTHER GENERAL & ADMIN EXPENSE	A	\$ 12,526	\$ 12,902	\$ 13,289	\$ 13,688	\$ 14,099	\$ 14,521
	Total		\$ 1,901,096	\$ 1,958,128	\$ 2,016,872	\$ 2,077,378	\$ 2,139,700	\$ 2,203,891
	<u>GENERAL PLANT / FACILITIES MAINTENANCE</u>		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
56730	GP - TRANSPORTATION EQUIPMENT	W	\$ 135,616	\$ 139,684	\$ 143,875	\$ 148,191	\$ 152,637	\$ 157,216
56740	GP - CONSTRUCTION EQUIPMENT	W	\$ 92,019	\$ 94,780	\$ 97,623	\$ 100,552	\$ 103,568	\$ 106,675
56750	GP - SHOP / YARD / BUILDING MAINTENANCE	W	\$ 151,435	\$ 155,978	\$ 160,657	\$ 165,477	\$ 170,441	\$ 175,555
	Total		\$ 379,070	\$ 390,442	\$ 402,155	\$ 414,220	\$ 426,647	\$ 439,446
	<u>OTHER OPERATING EXPENSES</u>		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
59100	DEPRECIATION AND AMORTIZATION	W	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
59200	REAL ESTATE TAXES (LAKE COUNTY)	A	\$ 268,500	\$ 276,555	\$ 284,852	\$ 293,397	\$ 302,199	\$ 311,265
59210	YOLO COUNTY TAXES / ASSESSMENTS	A	\$ 100	\$ 103	\$ 106	\$ 109	\$ 113	\$ 116
59300	OTHER OPERATING EXPENSES	A	\$ 1,000	\$ 1,030	\$ 1,061	\$ 1,093	\$ 1,126	\$ 1,159
59400	EXPENSE CREDITS	W	\$ (248,765)	\$ (256,228)	\$ (263,915)	\$ (271,832)	\$ (279,987)	\$ (288,387)
	Total		\$ 20,835	\$ 21,460	\$ 22,104	\$ 22,767	\$ 23,450	\$ 24,153
	<u>NEW EXPENSES</u>		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NEW	CIP Expense	W	\$ 1,898,750	\$ 1,955,712	\$ 2,014,383	\$ 2,074,815	\$ 2,137,059	\$ 2,201,171
	Total		\$ 1,898,750	\$ 1,955,712	\$ 2,014,383	\$ 2,074,815	\$ 2,137,059	\$ 2,201,171
TOTAL OPERATING EXPENSES			\$ 6,788,711	\$ 6,992,372	\$ 7,202,143	\$ 7,418,208	\$ 7,640,754	\$ 7,869,976
NON-OPERATING EXPENSES			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
61000	INTEREST ON LONG-TERM DEBT	W	\$ 131,015	\$ 134,945	\$ 138,994	\$ 143,164	\$ 147,459	\$ 151,882
61500	OTHER INTEREST EXPENSE	W	\$ 500	\$ 515	\$ 530	\$ 546	\$ 563	\$ 580
61900	LOAN FEES (COST OF FINANCING)	W	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
62000	LOSS ON DISPOSAL FIXED ASSETS	W	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
63000	PRIOR PERIODS' EXPENSE	W	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
64000	COUNTY ADMINISTRATION CHARGE	A	\$ 13,000	\$ 13,390	\$ 13,792	\$ 14,205	\$ 14,632	\$ 15,071
66000	SHARED SERVICES	A	\$ 70,947	\$ 73,075	\$ 75,268	\$ 77,526	\$ 79,851	\$ 82,247
69720	YOLO SUBBASIN GSP PLANNING & PREPARATION GRANT	G	\$ 158,741	\$ 163,503	\$ 168,408	\$ 173,460	\$ 178,664	\$ 184,024
69000	MISCELLANEOUS NON-OPERATING EXPENSE	A	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
75100	IRWMP	A	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
75200	DROUGHT GRANT ADMIN COSTS (Labor & Benefits)	W	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
75400	DROUGHT MITIGATION (GAP)	W	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL NON-OPERATING EXPENSES			\$ 374,203	\$ 385,429	\$ 396,991	\$ 408,901	\$ 421,168	\$ 433,803
TOTAL EXPENSES			\$ 7,162,913	\$ 7,377,801	\$ 7,599,135	\$ 7,827,109	\$ 8,061,922	\$ 8,303,780

[1] Categories: (W) water - ag or non-ag; (F) flood control; (G) groundwater; (A) allocated across all categories

Appendix B – Capital Projects and Cost Estimates

Appendix B: Comprehensive Capital Asset List

Project / Activity	Estimated Life- Cycle	Estimated Total Cost	Estimated Annual Cost [1]	Annualized Cost [2]
Cache Creek Dam				
Gate Inspections (16) and Temporary Bulkhead (2x)	50 years	\$50,000		\$1,763
Gate 15 Bulkhead Replacement	50 years	\$30,000		\$1,058
Electrical Repowering Project	50 years	\$500,000		\$17,629
Gate Controls (automation and oil replacement)	25 years	\$1,000,000		\$54,276
Hydro Plant Refurbishment (or removal)	30 years	\$1,500,000		\$71,666
Power poles on transmission line (x 36)	50 years	\$360,000		\$12,693
Power poles on transmission line (x 10)	50 years	\$100,000		\$3,526
Lighting on Dam	30 Years	\$15,000		\$717
On-site office/Storage Building	40 years	\$150,000		\$5,975
Indian Valley Reservoir, Hydro & Campground				
SCADA for hydro controls	25 years	\$200,000		\$10,855
Power poles on transmission line (x 45)	50 years	\$450,000		\$15,866
Power poles on transmission line (x 3)	50 years	\$30,000		\$1,058
C-3429-001	50 years	\$190,000		\$6,699
Penstock Painting (external)	20 years	\$300,000		\$19,244
Penstock Relining (internal)	20 years	\$618,000		\$39,643
60" HJV Refurbishment	30 years	\$150,000		\$7,167
12" HJV Replacement	30 years	\$75,000		\$3,583
Turbine #1 - Replacement or Repair	25 years	\$380,000		\$20,625
Turbine #2 - Replacement or Repair	25 years	\$380,000		\$20,625
Turbine #3 - Replacement or Repair	25 years	\$80,000		\$4,342
Spillway Repairs	50 years	\$350,000		\$12,340
Spillway gates (Tainter) recoated and repainted	20 years	\$600,000		\$38,488
Spillway gate control DC to AC upgrade	25 years	\$100,000		\$5,428
Piezometer replacements	40 years	\$160,000		\$6,374
Switch gear upgrade	25 years	\$100,000		\$5,428
Seismic Accelerometers (x 2)	25 years	\$12,000		\$651
Hydraulic control system replacement	25 years	\$200,000		\$10,855
Campground electricity distribution system	25 years	\$50,000		\$2,714
Campground water distribution system	25 years	\$25,000		\$1,357
Campground water treatment plant	25 years	\$150,000		\$8,141
Capay Dam	[3]			
Bladder Replacement	25 years	\$2,000,000		\$108,552
Bladder Failure Recovery (EAP)	50 years	\$350,000		\$12,340
Winters Canal Headworks Controls Upgrade	25 years	\$70,000		\$3,799
West Adams Headworks Controls Upgrade	25 years	\$80,000		\$4,342
Headworks Culvert Extensions (WIN & WEA)	50 years	\$150,000		\$5,289
Headworks Trash Racks (WIN & WEA)	30 years	\$300,000		\$14,333

Headworks Gate Replacement (x14)	25 years	\$280,000	\$15,197
Winters Canal Flumes, Moore Siphon & Salisbury Spill	[3]		
Lamb Valley Slough	50 years	\$500,000	\$17,629
Ammondale Slough	50 years	\$500,000	\$17,629
Cottonwood Slough	50 years	\$500,000	\$17,629
Fredericks Flume	50 years	\$500,000	\$17,629
Walnut Siphon	50 years	\$500,000	\$17,629
Moody Slough Siphon	50 years	\$500,000	\$17,629
Moore Siphon	50 years	\$3,000,000	\$105,774
Salisbury Spill	50 years	\$100,000	\$3,526
Canal Distribution System	[3]		
Gates/Turnouts (655)	30 years	\$44,000	\$44,000
Checks/Backups (283)	50 years	\$180,000	\$180,000
Canals (160 miles)	80 years	\$100,000	\$100,000
Drain-intos (282)	30 years	\$10,000	\$10,000
Bridges & Crossings (224)	50 years	\$250,000	\$250,000
Headquarters & Shops			
Vehicles (3x per year)	180,000 miles	\$90,000	\$90,000
Heavy Equipment (Excavators, Backhoe, etc.)	Various	\$50,000	\$50,000
Back-up power supply	25 years	\$4,000	\$4,000
Asphalt Parking Lot Surface	25 years	\$1,000	\$1,000
Remodel	30 years	\$34,000	\$34,000
SCADA System		\$3,000,000	\$162,828
Backbone System	25 years		
Canal Level Monitoring (16)	25 years		
Real-time Groundwater Monitoring (12)	25 years		
Automated Gates - Langemann (4)	25 years		
Automated Gates - LOPAC (26)	25 years		
Automated Gates - Watch Tech. (14)	25 years		
Pump Flow Meters (21/100)	25 years		
Miscellaneous			
Bufones Bridge	20 years	\$20,000	\$1,283
Potential Future Capital Expenditures		\$5,000,000	\$238,888
Regulating Ponds (Forbes, etc.)			
Groundwater Wells (capacity & conjunctive use)			
Low-head Hydro			
SBX7-7 Implementation (New flow meters)			
Pressurized Pipelines			
Dual-conveyance Canals			
Off-stream Storage			
Roads into Dams			
Annualized Total			\$1,955,712

[1] Estimated annual cost provided by YCFCWCD and used instead of total estimated costs.

[2] Assumes a discount rate of 2.5% for the purposes of annualizing the total estimated costs, where provided, to account for potential financing and timing uncertainty.

[3] Projects and activities found within this category are included as part of the assessment district.