



FY 2022-26

Water Utility Enterprise Operations & Maintenance Plan

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FY 2022-26 Water Utility Enterprise Operation and Maintenance Plan

Prepared By:

Jackie Cordero
Associate Engineer

Under the Direction of:

Erin Baker
Unit Manager
District-wide Asset Management Unit

and

Melanie Richardson
Assistant Chief Executive Officer
Office of Integrated Water Management

Accepted By:

Aaron Baker, P.E.
Chief Operating Officer
Water Utility Enterprise

Accepted By:

Bhavani Yerrapotu, P.E.
Deputy Operating Officer
Treated Water Division

Accepted By:

Gregory Williams
Interim Deputy Operating Officer
Raw Water Division

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FACILITY ACRONYMS

AHY = Anderson Hydroelectric Facility

CAD = Campbell Distributary

CDL = Coyote Discharge Line

CPL = Central Pipeline

CPP = Coyote Pumping Plant

CVP = Cross Valley Pipeline

DPP = Dutard Pumping Plant

GPP = Greystone Pumping Plant

LEN = Lenihan Dam

PAC = Pacheco Conduit

PPP = Pacheco Pumping Plant

PWTP or PWT = Penitencia Water Treatment Plant

RWTP or RWT = Rinconada Water Treatment Plant

SCC = Santa Clara Conduit

SFI = San Francisco PUC Intertie

STWTP or SWT = Santa Teresa Water Treatment Plant

SVA = Silicon Valley Advanced Water Purification Center

ULT = Uvas-Llagas Transfer Pipeline

VPP = Vasona Pumping Plant

WSMS = Water Supply Management Systems (i.e., pond systems)

EXECUTIVE SUMMARY

Report Overview

The purpose of this plan is to provide a summary of activities and costs associated with operating and maintaining Valley Water's Water Utility Infrastructure for the next five fiscal years. Specifically, this plan:

- Documents the funded and unfunded operations and maintenance project resource needs for the Raw and Treated Water Operations Divisions for the next five fiscal years, 2022 to 2026, and provides an explanation of unfunded needs.
- Identifies the water utility planned asset renewal projects scheduled for the next five fiscal years, 2022 to 2026, and provides guidance for planning, scheduling and budgeting this work in Valley Water's operations or capital budgets.
- Provides a summary of asset renewal work completed in the prior fiscal year 2021.

This is a rolling five-year plan that is updated annually. In the past, Valley Water's Water Utility developed three separate plans that have now been combined into this Water Utility Enterprise Operations and Maintenance Plan (WUE OMP). Previous plans included a Five-Year Operations and Maintenance Plan, a Five-Year Maintenance Work Plan, and a Maintenance Work Plan Review Report.

Overview of O&M Activities

The Water Utility budgets and executes operations activities in operating projects, and budgets and executes maintenance work through both operations and capital projects. Work that is budgeted in operations projects includes:

- Operations activities including operator labor, chemical costs, power, etc.
- General maintenance activities including inspections and preventive and corrective maintenance
- Engineering support for operations and general maintenance

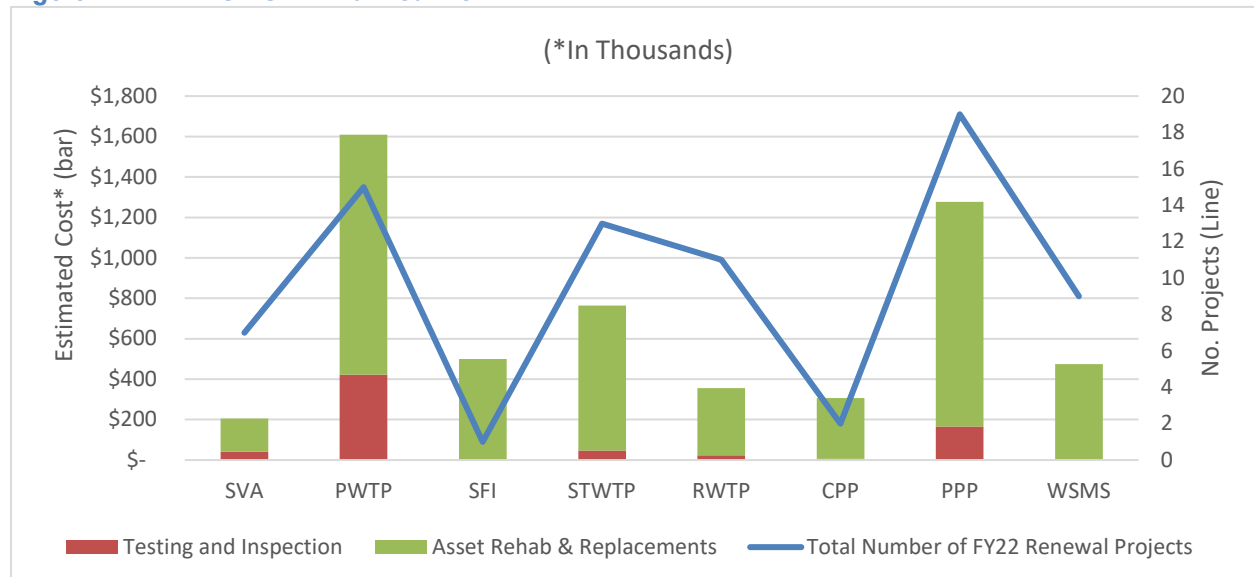
Five-year forecasts of funded and unfunded resource requirements for these operations activities are summarized in Section IV of this plan.

Maintenance work that involves rehabilitation or replacement of an asset or group of assets is budgeted in small or individual capital projects. This type of work extends the life of an asset and is therefore capitalized. Asset rehabilitation and replacement work is identified through the maintenance work planning process described in Section III of this plan. An overview of work for the next five years is below.

FY 22 – 26 Planned Asset Renewal Work

Figure 1 shows 77 planned asset renewal projects scheduled in FY2022 for Water Utility facilities. This work is estimated at nearly \$5.5 Million.

Figure 1: FY22 WUE OMP Planned Work

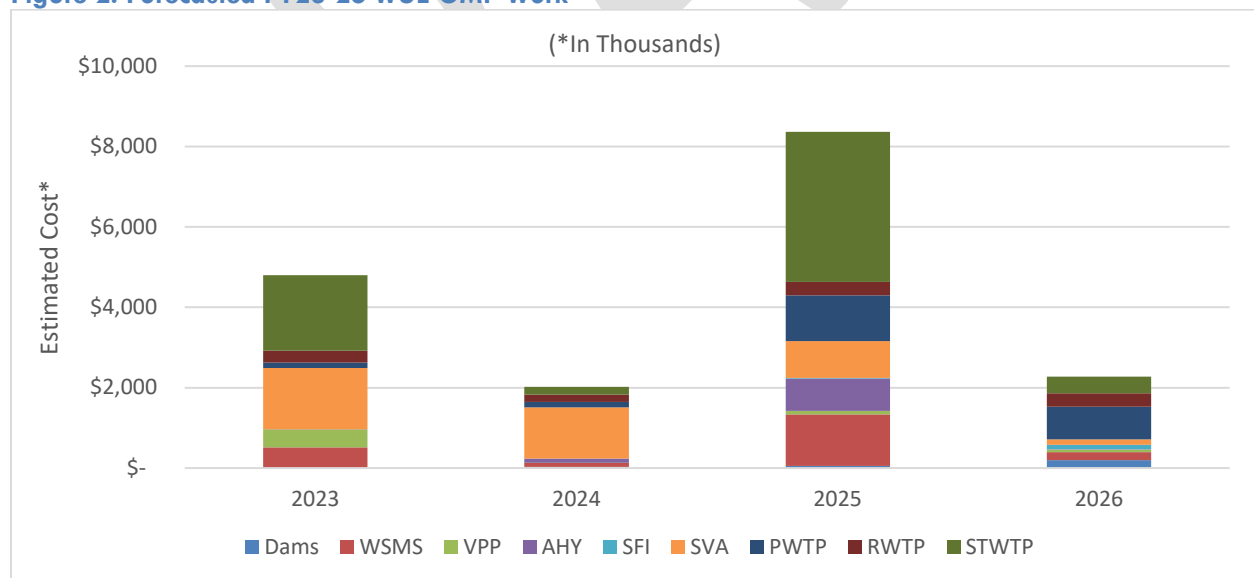


Notes: SVA = Silicon Valley Advanced Water Purification Center; PWTP = Penitencia Water Treatment Plant; SFI = San Francisco PUC Intertie; STWTP = Santa Teresa Water Treatment Plant; RWTP = Rinconada Water Treatment Plant; CPP = Coyote Pumping Plant; PPP = Pacheco Pumping Plant; WSMS = Water Supply Management Systems (i.e., pond systems)

FY2023 – FY2026

Figure 2 summarizes costs of projected asset renewal projects to be completed in future fiscal years, 2023-2026. Over the next four fiscal years, Valley Water estimates \$17.5 Million of planned asset renewal work.

Figure 2: Forecasted FY23-26 WUE OMP Work



Notes: See Figure 1 above for facility names

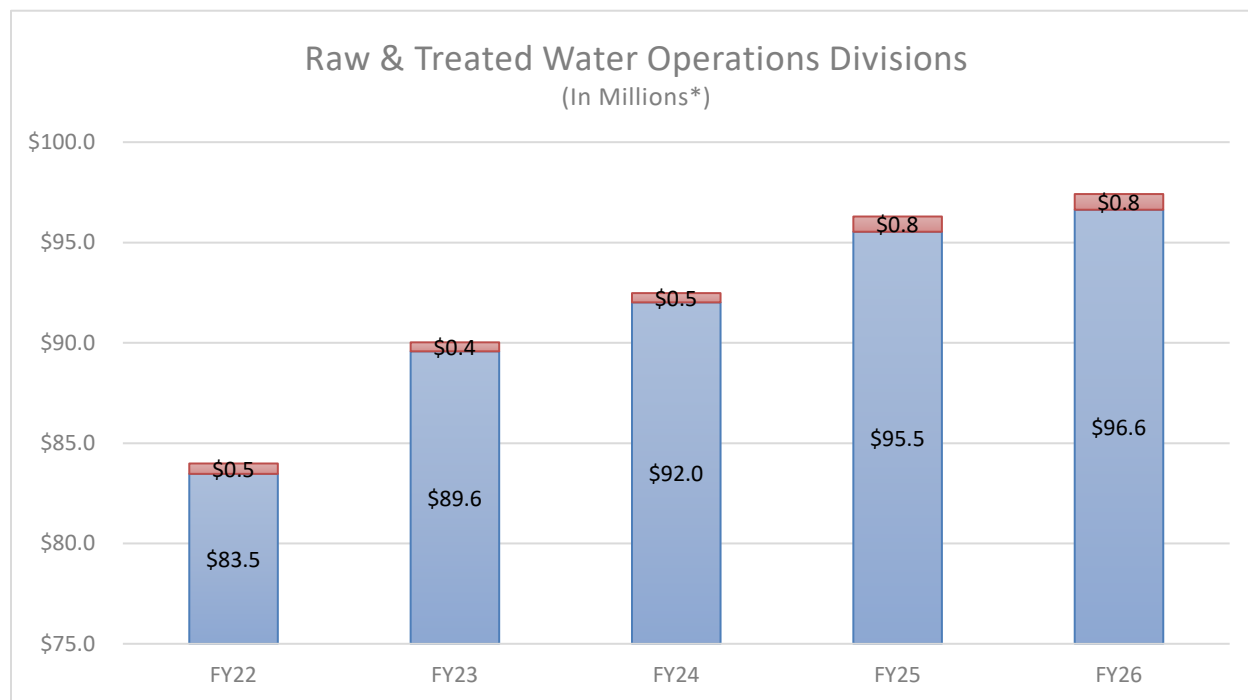
Review of Completed FY2021 Asset Renewal Projects

A total of 337 asset renewal projects were identified in FY2021. In addition, 430 projects were carried forward from FYs 18 - 20. Information on project completion will be provided in the final report in June.

Five-Year Operations Project Forecasts

Five-year forecasts of funding for current service levels as well as future resource requirements which are not yet funded for the Water Utility Raw and Treated Water Operations Divisions are shown in Figure 3.

Figure 3: Raw & Treated Water Operation Division Forecasts



*Data as of December 1, 2020

In total, the Raw and Treated Water Operations Divisions has identified funded resource needs of \$83.5 Million, and an additional unfunded need of \$0.5 Million for Fiscal Year 2022. These resources would provide the following services:

- Additional support for laboratory operations to increase efficiency and reduce use of temp and intern staff
- Intern support for raw water operations and untreated water program planning
- Temp support to implement new water rights measurement methods
- Consultant services for several raw water facility studies

Also note that additional unfunded resource needs were identified for the water quality unit following compilation of the data for this report. The costs of these needs are being determined and not included in figure 3. The additional resources would provide for additional support for water treatment plant operations, regulatory compliance, Anderson and Pacheco reservoirs projects, PFAS and emerging compounds and regulations, and fire and climate change.

I. INTRODUCTION

Report Overview

The purpose of this plan is to provide a summary of activities and costs associated with operating and maintaining Valley Water's Water Utility Infrastructure for the next five fiscal years. Specifically, this plan:

- Documents the funded and unfunded operations and maintenance project resource needs for the Raw and Treated Water Operations Divisions for the next five fiscal years, 2022 to 2026, and provides an explanation of unfunded needs.
- Identifies the water utility planned asset renewal projects scheduled for the next five fiscal years, 2022 to 2026, and provides guidance for planning, scheduling and budgeting this work in Valley Water's operations or capital budgets.
- Provides a summary of asset renewal work completed in the prior fiscal year 2021.

This is a rolling five-year plan that is updated annually. In the past, Valley Water's Water Utility developed three separate plans that have now been combined into this Water Utility Enterprise Operations and Maintenance Plan (WUE OMP). The three plans were:

- Five-Year Operations and Maintenance Plan: Documented five-year forecasts of all Water Utility operations project costs
- Five-Year Maintenance Work Plan: Identified asset renewal projects for the coming five fiscal years
- Maintenance Work Plan Review Report: Summarized completed asset renewal projects completed in the prior fiscal year

Water Utility (WU) O&M activities are carried out to meet the following Board of Directors' (Board) Ends Policies:

- Ends Policy E-2: There is a reliable, clean water supply for current and future generations.

The WU Raw and Treated Water Operations Divisions achieve the Board's Ends Policies by:

- Monitoring and protecting the groundwater basin.
- Conveying local and imported source water to water treatment plants, recharge facilities, and streams.
- Treating and delivering water to retail customers.
- Maintaining the infrastructure needed to conduct the above listed activities.
- Ensuring services are carried out in way that protects the environment.

Copies of past years' reports are available on the Valley Water intranet on the asset management web site at <http://www.aqua.gov/asset-management-library>.

Water Utility Infrastructure

Valley Water manages an integrated water resources system to provide a supply of clean, safe water, flood protection, and stewardship of streams in Santa Clara County (County). Valley Water operates and maintains complex infrastructure and integrates natural and constructed systems to capture, treat and convey raw and treated water for a reliable water supply. Valley Water's system delivers about 300

million gallons of raw water and 200 million gallons of treated drinking water every day (subject to water demand and hydrologic changes).

Valley Water's Water Utility infrastructure includes the following, shown on the map below:

- 10 surface water reservoirs and outlet works
- 17 miles of raw surface water canals
- 393 acres of groundwater recharge ponds
- 91 miles of controlled in-stream recharge
- 142 miles of raw, treated, and recycled water pipelines
- 3 pumping raw water stations
- 1 hydroelectric facility
- 3 drinking water treatment plants
- 1 advanced water purification center



Related Documents

Documents related to this plan include:

- **FY22-26 Capital Improvement Program (CIP):** The CIP is a rolling five-year plan that identifies major capital improvements. This WUE OMP feeds directly into the CIP, as it identifies the scope and costs of five Water Utility small capital improvement projects, as well as identifies upcoming large or individual capital projects. The CIP includes master planning efforts that will further define future asset renewal needs for the Water Utility: Water Treatment Plant Implementation Plan, Distribution

System Implementation Plan, and the SCADA System Implementation Plan. These plans will identify major future infrastructure improvements for Water Utility infrastructure.

- FY22-26 Watersheds Operation and Maintenance Work Plan: The Watersheds Operations and Maintenance Plan is a rolling five-year plan that describes operations and maintenance activities for the Watershed Operations and Maintenance Division for the next five years. It is similar to this WUE OMP
- FY22-32 Long-Term Forecast: The long-term forecast is prepared as the first step of the budget process each year to forecast future funding needs for operations projects. This WUE OMP links to the long-term forecast in two ways. First, it identifies asset renewal costs for the next five years, which is incorporated into long-term forecast for appropriate projects. Second, the operations project five-year forecasts provided in this report are taken from the long-term forecast data. The draft report is prepared using long-term forecast data and unfunded needs requests as of December. The budget requests and unfunded needs are further evaluated throughout the budget and groundwater charge (rate) setting processes through May.
- FY22 Operating and Capital Budget: Valley Water's budget is produced each year to identify the planned operations and capital expenditures and funding sources for the coming fiscal year. It provides an overview of both operations and capital expenses, as well as revenues, for the next fiscal year. This WUE OMP identifies both operations and capital expenditures that are included in the Operating and Capital Budget.
- Protection and Augmentation of Water Supplies (PAWS) Report: The PAWS report is produced each year in accordance with requirements in the District Act section 26.5, and documents the activities undertaken to provide a reliable, clean water supply for the coming fiscal year as a basis for the proposed maximum groundwater production charges. It provides an overview of both operations and capital expenses for the next fiscal year while this plan provides an overview of selected operations and maintenance activities for the next five fiscal years.

II. OVERVIEW OF O&M ACTIVITIES

The Water Utility plans, budgets and executes operations activities in operating projects, and plans, budgets, and executes maintenance work through both operations and capital projects. This section provides an overview of O&M activities and explains what type of work is budgeted in operations projects and what type of work is budgeted in capital projects.

Operations Project Activities

General descriptions of activities budgeted in Water Utility operations projects are provided below. Section IV of this plan provides additional detail on the operations projects and includes a five-year forecast of the projects in which this work is planned, budgeted, and executed.

Operations: Operations activities include operating 142 miles of large diameter transmission pipelines, three pumping plants, 99 ponds used to recharge the groundwater basin, three potable water treatment plants, one well field, and one advanced water purification center. Costs associated with operating these facilities include operator labor, chemical costs, power costs, laboratory operations, and water quality support. Costs associated with these operations activities are budgeted in the operations projects presented in Section V of this plan.

General Maintenance: General maintenance activities include the following, which account for the majority of maintenance labor. These activities are budgeted in the operations projects presented in Section V of this plan:

- *Preventive Maintenance (PM)*: Planned routine maintenance to prevent premature asset failure, such as an oil change or calibration. PM activities occur weekly, monthly, quarterly, semi-annually, or annually, depending on the activity. When a PM work task becomes due for an asset, Maximo (Valley Water's computerized maintenance management system or CMMS), automatically generates a work order for maintenance staff to perform the task. The water utility completes approximately 14,000 PM work orders each year. PM work accounts for approximately 20-40% of maintenance labor hours.
- *Corrective Maintenance (CM)*: Corrective maintenance addresses unplanned asset failures. CM work accounts for approximately 10% of maintenance labor hours.
- *Inspections and Testing*: Projects that involve inspection or testing activities are not capital investments. They are budgeted and conducted under one of the maintenance operating projects identified in Section V of this plan. Biannual electrical testing or chemical tank inspection are examples of activities budgeted under operating projects. These projects are completed by maintenance staff and may require engineering, environmental and/or contractor support. These projects are identified through the maintenance work plan process described in Section III of this plan.

Engineering Support: Engineering support is needed for various operations initiatives, operations planning, and maintenance projects. Civil, mechanical, electrical and control systems engineers support the operations and maintenance of the Water Utility facilities. Engineering support is budgeted in the planning and engineering projects presented in Section V of this plan.

Capital Project Activities

Maintenance work that involves rehabilitation or replacement of an asset or group of assets is budgeted in small or individual capital projects, as described below. This type of work extends the life of an asset and therefore is capitalized. Asset rehabilitation and replacement work is identified through the maintenance work planning process described in Section III of this plan.

Small Capital Projects: Projects that involve replacement or rehabilitation of a single asset, such as a single pump re-build, are budgeted and executed in the Water Treatment, Treated Water Transmission, Raw Water Transmission, or San Felipe Reach 1-3 Small Capital Improvement Projects in Valley Water's five-year CIP. The scopes of each of the Small Capital Improvement Projects change annually based on the work identified in this Plan. These projects are completed by maintenance staff or contractors. They may require engineering and environmental support thus may need to be competitively bid.

Individual Capital Projects: Occasionally, projects can be grouped together to create an individual capital project. In such case, staff initiates a new project in the CIP. On average, one new capital project is identified through the asset renewal planning process each year. One example is the Vasona Pumping Plant Upgrades, which is a project in Valley Water's current five-year CIP. Several pumps, motors, drives, valves, and other equipment within the pump station were due for replacement in 2016. The multiple asset replacements were combined into one project, to be executed under the CIP.

In addition, the pipeline inspection and rehabilitation projects are identified through the maintenance work planning process. These projects are budgeted and executed in the Ten-Year Pipeline Rehabilitation Capital Project.

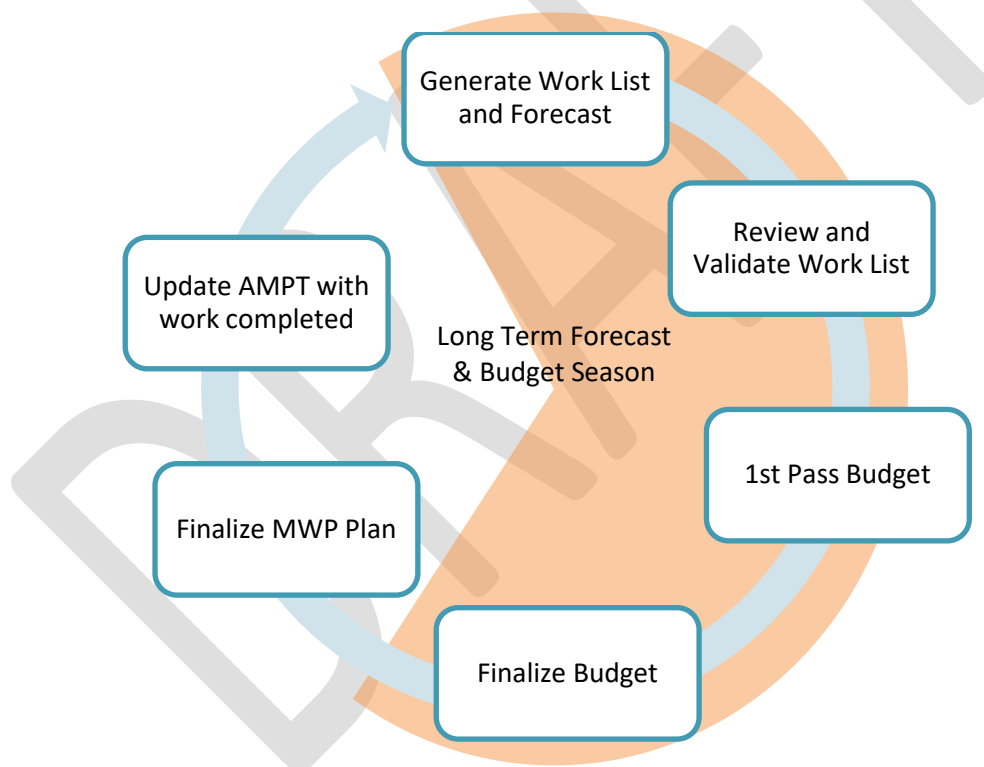
III. WORK PLANNING AND EXECUTION

Work Planning

The Asset Management Program develops forecasts of asset renewal activities and costs using a software tool, Asset Management Planning Tool (AMPT). AMPT contains the database of water utility assets and their planned renewal activities and costs. Asset renewal activities are planned at specific intervals, such as every 5 or 10 years, and are validated as the due dates approach.

Each year, staff generates a list of all renewal activities required for water utility assets for the next five years from the AMPT database. Operations, maintenance, engineering, and asset management validate the list by evaluating field condition and estimated remaining asset life. If assets are found in good condition, renewal projects are rescheduled to future years. The renewal projects are selected to optimize asset performance, maintain, or improve reliability within an acceptable risk tolerance, and to minimize asset life-cycle costs.

Work is planned annually, according to the diagram below, to align with the budget process.



Assets Excluded from the Work Planning Process

The following assets are excluded from the work planning process:

- An asset that has a value less than \$2,500 or is not critical for performance
- An asset that easily accessible (e.g., spare kept on the shelf)
- An asset that is replaced if it fails calibration
- Consumable assets such as air filters

The following table shows the assets that are not included in the work planning process:

Asset Class	Asset Type
Mechanical	Sump pumps, transfer pumps, metering pumps, sludge pumps and motors, sample pumps, air pressure regulating valve ¹
Instrumentation	Analyzers, turbidimeters, level instruments/indicators, portable leak detectors, wet well float switch, staff gauges, mass flowmeters
Civil	Pump out risers, manholes, drain valves, water supply trash racks, underground petroleum storage tanks ²
Notes ¹ Ozone air pressure regulating valves are included ² These tanks are inspected annually and maintained by a trained and certified contractor. These tanks and their appurtenances are not maintained by Valley Water Staff.	

Work Execution

Execution of the asset renewal projects is predominately performed through the following units:

- Treatment Plant Maintenance Unit (555)
- Raw Water Field Operations and Pipeline Maintenance Unit (585)
- Additional technical support is provided by
 - Utility Maintenance Engineering Unit (435)
 - Raw Water Operations Unit (455)
 - Utility Electrical and Control Systems Engineering Unit (545)
 - Other Valley Water units including Watershed Field Operations units, Facilities management and the Environmental Health and Safety Unit.
 - Outside contractors are used as needed.

IV. PLANNED ASSET RENEWAL WORK

This section provides an overview of planned work for the next five fiscal years. Section II of this plan describes how this work is budgeted in operations or capital projects and Section III of this plan describes the work planning process.

FY 22-26 Planned Asset Renewal Work

The key output of the work planning process is the list of asset renewal work to be conducted over the upcoming five fiscal years. The work identified in this process is incorporated into capital and operations budgets as described in Section II. The work list for the upcoming fiscal year FY22 is fixed, whereas the work listed for the remaining four years of the five-year rolling plan is adjusted based on changing conditions.

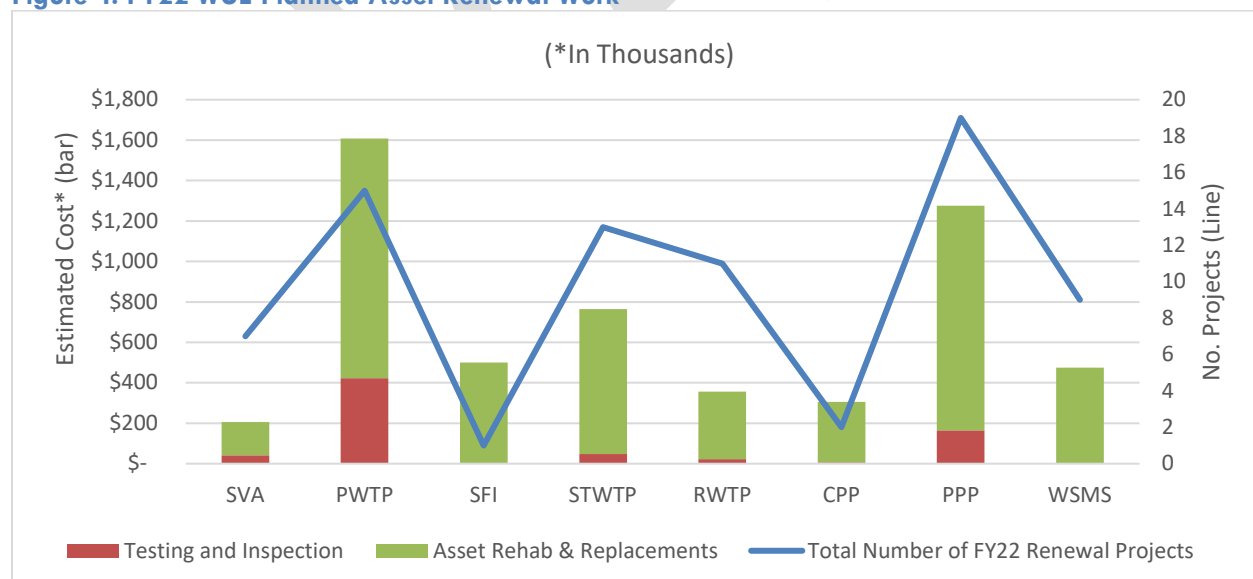
Appendix A contains tables which identify the planned asset renewals for FY22 and the backlog from prior years for all Water Utility facilities. The estimated project costs provided in the tables include services and supply costs as well as estimated labor hours. Work order numbers are provided and used for tracking all work associated with the projects.

Detailed work lists for FY23-26 are not provided in this report, but are available in the Asset Management unit's web-based planning tool. Summary information for years FY23-26 is provided below.

FY22 Summary

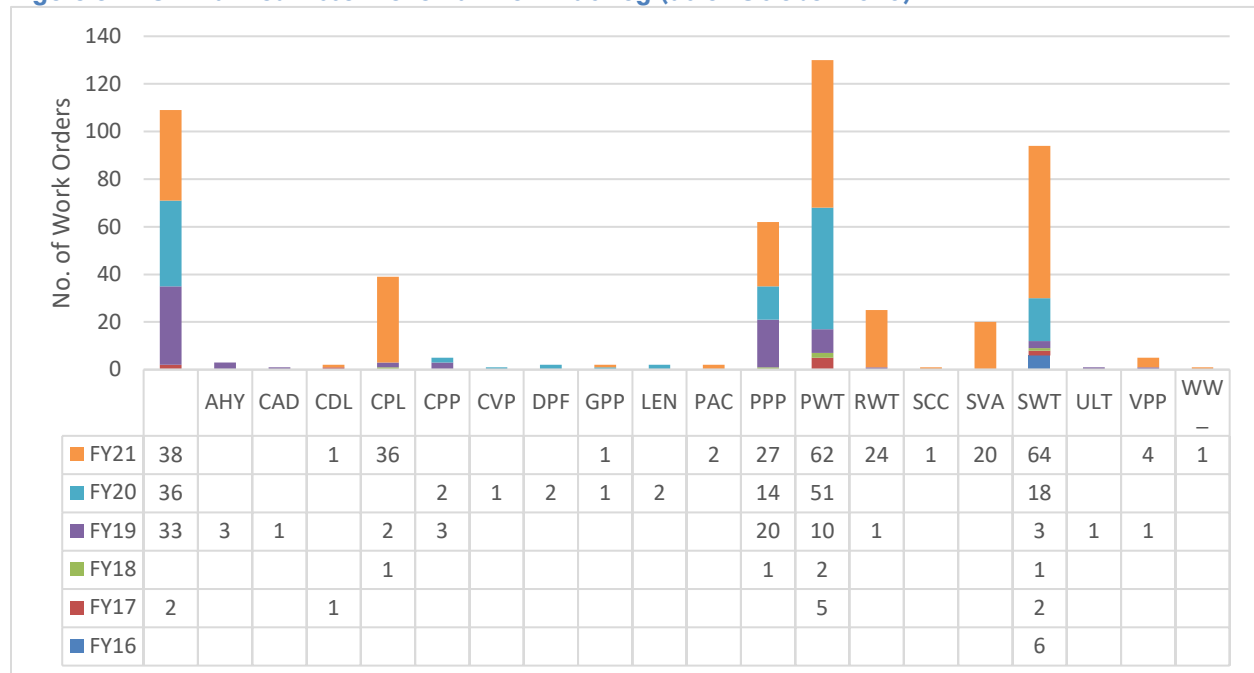
For FY 2022, a total of 77 asset renewal projects were identified, with an estimated total cost of \$5.5 Million. Note this cost includes only materials and equipment and does not include labor costs. Figures 4 and 5 provide information about FY22 Planned work and backlog.

Figure 4: FY22 WUE Planned Asset Renewal Work



Note: See Table of Acronyms for Facility Names

Figure 5: WUE Planned Asset Renewal Work Backlog (as of October 2020)



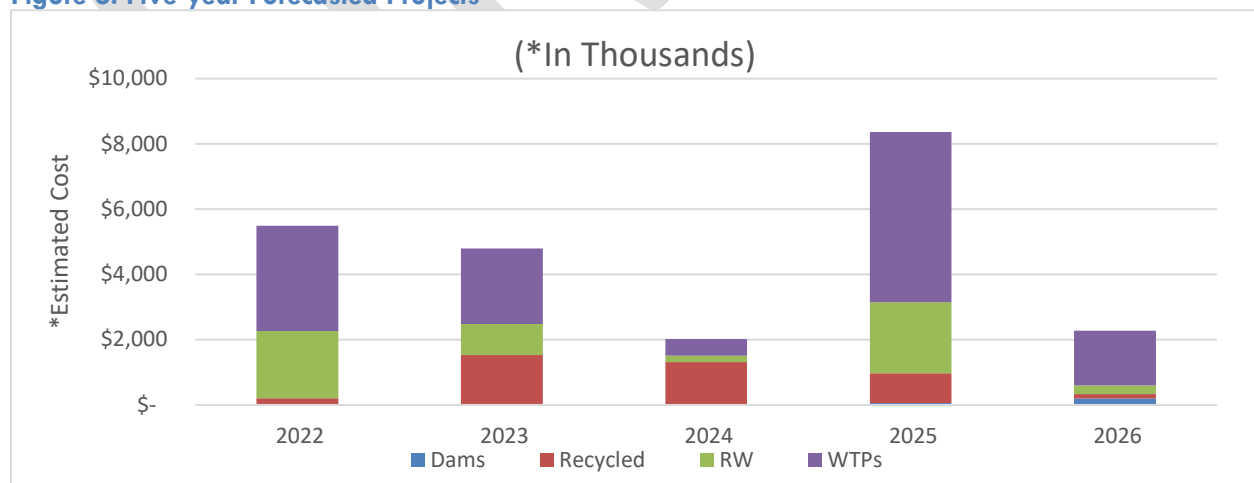
Note: See Table of Acronyms for Facility Names

FY2023 – 2026 Summary

Figures 6 through 23 summarize the projected asset renewal projects to be completed in future fiscal years, 2023-2026. The project costs provided in the figures include equipment and material costs. Labor costs are included as a multiplier of the equipment and material costs.

Expanding the horizon from a single year to five-years allows staff to review the workload by year and see trends and peaks in workload, asset class, or facility. This also provides staff with an opportunity to look for efficiencies and balance the work between the years.

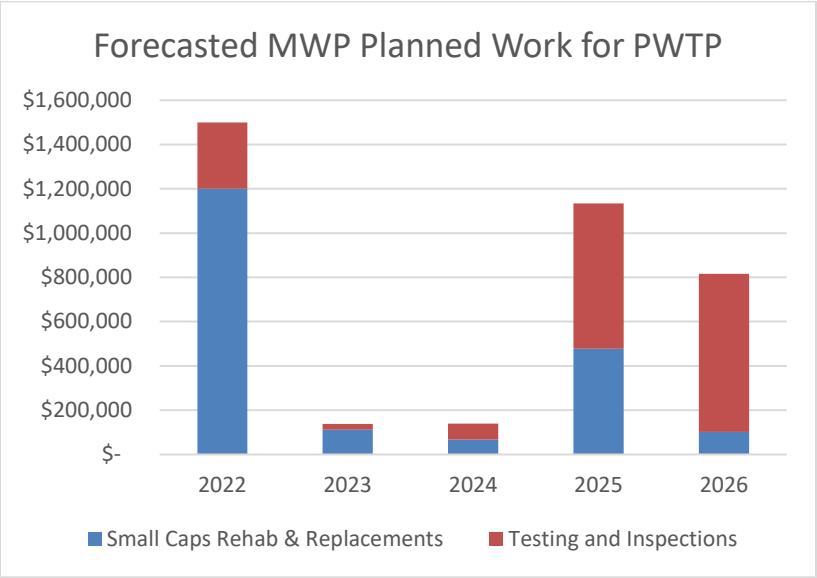
Figure 6: Five-year Forecasted Projects



Note: In this chart, project costs are grouped by facility category rather than individual facility. RW = Raw Water facilities including pipelines, pump stations, and pond systems. WTPs = Penitencia, Rinconada, Santa Teresa, and Silicon Valley Advanced Water Treatment Plants

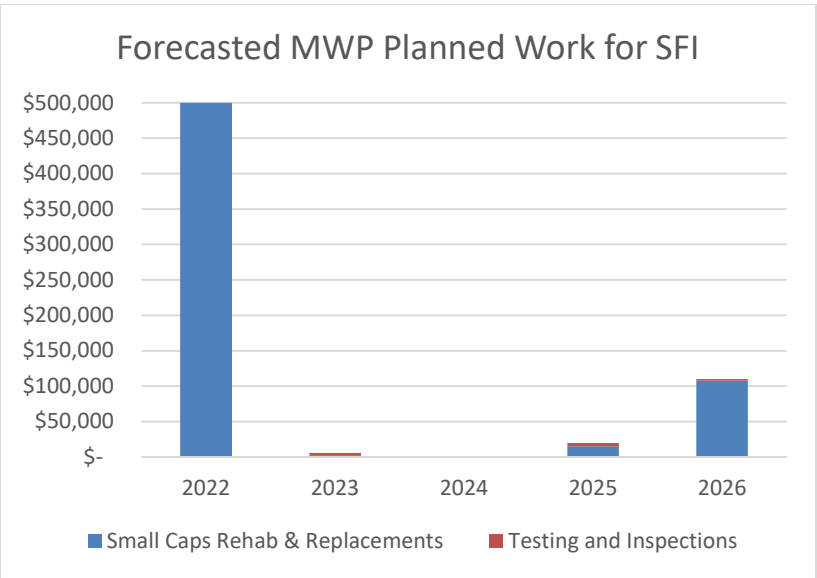
All replacements are pending condition assessment.
Replacement activities may be replaced with rehabilitations.

Figure 7: Penitencia Water Treatment Plant (PWTP) FY22-26 Planned and Forecasted Work



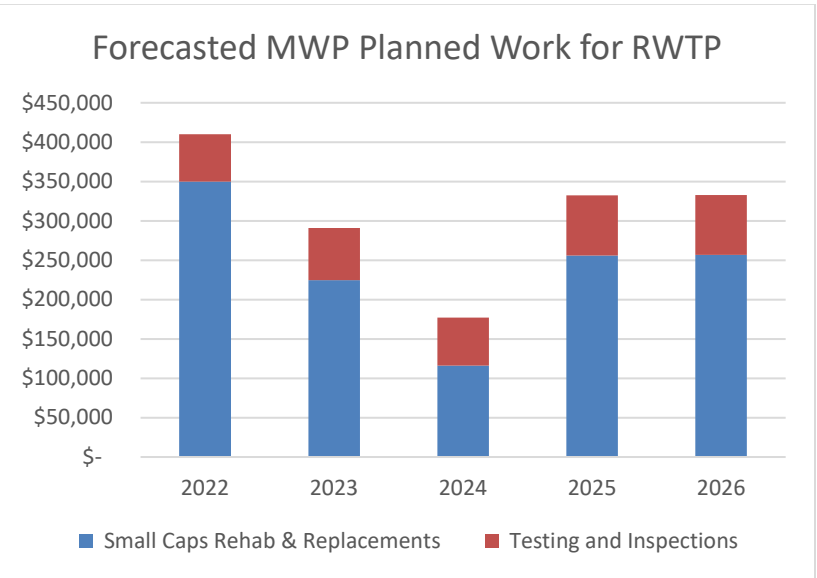
Year	Most Expensive Planned Work for PWTP
2022	-Clearwell corrosion mitigation (~\$500K) -Rebuild 3 Ozone generator shells (~\$225k each) -Inspection of Flocculator #1(~200k) -Inspection of filter troughs and support brackets (~\$100k) -Inspection and condition assessment of chemical piping (~\$50k)
2023	-PWTP Clearwell Bypass Valve (~\$TBD) -Replacement of flights and chains in Sediment Basin (~\$12.5k) -Replacement of chemical control panels (~\$ 12k each)
2024	-Replacement of SCADA cabinets -Plant Water pump replacement (~\$50k)
2025	-2 Flocculators Inspections (~\$200K per flocculator) -Filter #6 inspection (~\$200k) -Replace liner bags in OCL storage tanks (~\$75k) -Replacement of OGB HVAC assets (~50k) -Replacement of Ammonia Pumps and updating piping (~\$TBD)
2026	-Inspection of 3 sediment basins (~\$200k each)
Note: The following assets replacements are not included in the MWP forecast: -Motor control cabinets included in the Electrical Improvement Project (Capital Project estimated in FY24)	

Figure 8: San Francisco Intertie (SFI) FY22-26 Planned and Forecasted Work



Year	Most Expensive Planned Work for SFI
2022	-Replacement of Phosphoric acid tank 2 coating, pumps, piping, and coating (~\$500k Small Caps Project)
2023	
2024	
2025	-Replacement of control panels and transformer (~\$19k)
2026	-Replacement of valve operators (~\$18k 6 total)

Figure 9: Rinconada Water Treatment Plant (RWTP) FY22-26 Planned and Forecasted Work



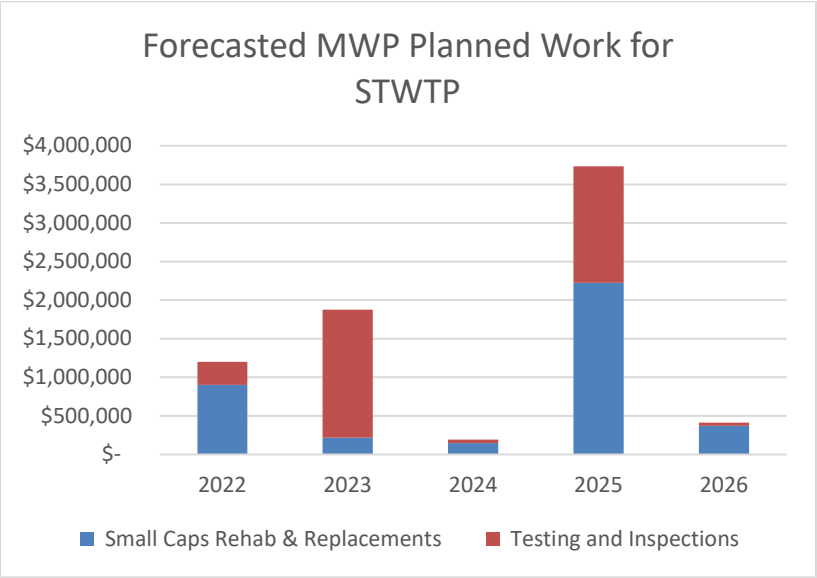
Year	Most Expensive Planned Work for RWTP
2022	-Sediment removal (~\$175k) -Rehabilitation of Sludge Pond #1 (~100k)
2023	-Caustic Tank #1&2 control panel replacement (~\$36K) -Plant Water Pump motor replacement #2 (~\$11K) -Catpoly/Alum mixer rehabilitations (~\$10K)
2024	-Floccuator#2-4 rake drive gearbox rehabilitation (~\$150K per asset) * -Switchgear 1 and Substation Breaker Control Panel replacement (~\$36k per control panel) -Electrical Testing (~\$35k) -Clearwell inspections (~\$15k per clearwell)
2025	-Replacement Booster Pump (~150K) and Motor (~\$100k) -Replacement of Plant Water pumps #1-3 (~\$70K per pump) -OCL Storage tank replacements #2&3 (~\$25k per tank)
2026	

Note: RWTP projected planned work is anticipated to change once AMPT is updated with the newly installed assets per the CIP project. AMPT will be updated with RWTP new assets starting in FY2021 and will continue until the CIP completion. *

The existing clarifiers have been replaced with the new floc/sed basins. The 6 current filters will be replaced with 12 new filters where clarifiers #1 and #3 are now. The Alum, PAC, Poly, phos acid, and caustic metering pumps are or will be replaced in the future. The filter aid poly pumps have been replaced, but the cat and non-ionic pumps will not.

All replacements are pending condition assessment.
Replacement activities may be replaced with rehabilitations.

Figure 10: Santa Teresa Water Treatment Plant (STWTP) FY22-26 Planned and Forecasted Work

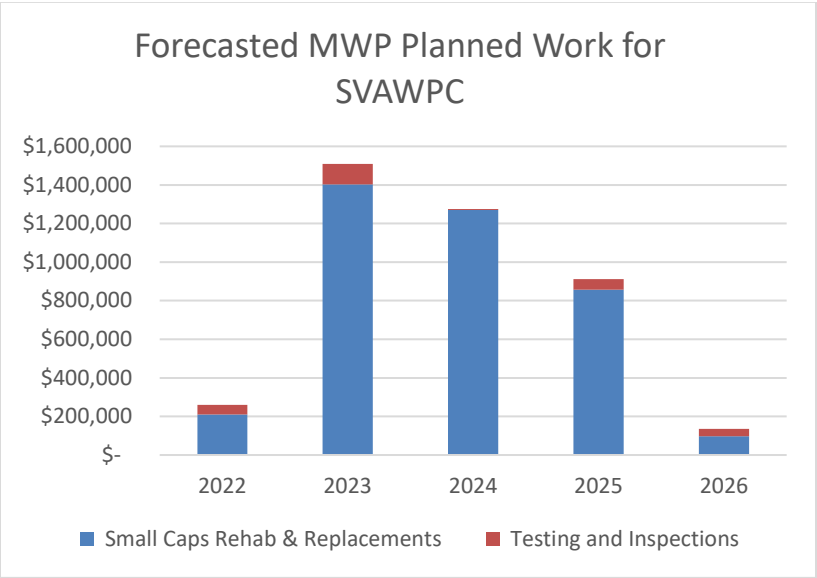


*Includes Graystone pumping station projects

Year	Most Expensive Planned Work for STWTP
2022	-Rebuild 3 Ozone generator shells (~\$225k each) -Replace Floc mixer motor and drive (~50k)
2023	-Inspection and potential rehabilitation/coating (~200K per filter) for East Filters #1-6 (estimated ~\$1.6M)
2024	-Replacement of switchboards in Ozone Gen (~\$200k each) -Replacement of Ozone monitors
2025	-Replacement of Floc and Sec Basin sludge rakes (~\$245k) -Replacement of 2 nd and 3 rd stage mixers (~30k each) -Major carbon system replacements (~\$165k) -Sludge pond rehabilitation and cleaning (~\$40k per pond; 7 ponds is ~\$240k) -Sludge decant line rehabilitation (estimated ~\$500k)
2026	

Note: The following assets replacements are not included in the MWP forecast:
-Replacement of Filter Media and Filter valves (Capital Project)
-Motor control cabinets included in the Electrical Improvement Project (Capital Project estimated in FY24)

Figure 11: Silicon Valley Advanced Water Purification Center (SVAWPC) FY22-26 Planned and Forecasted Work

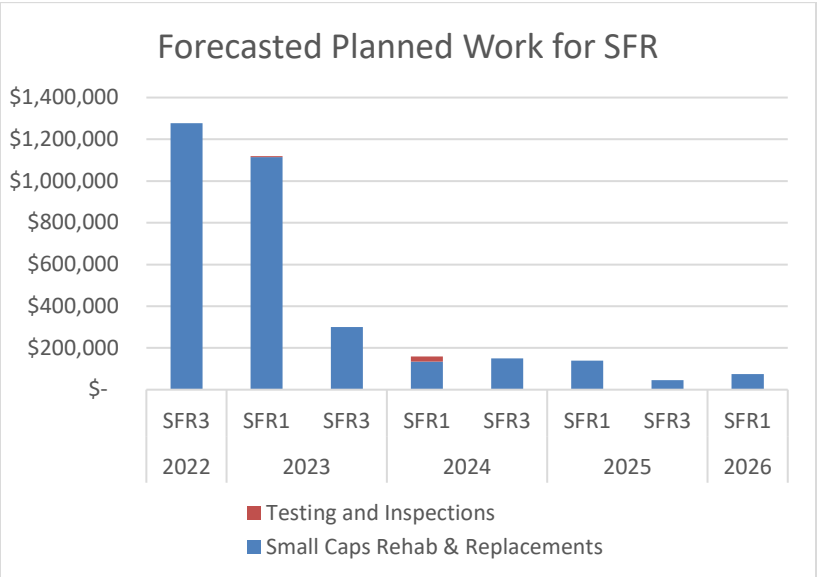


Year	Most Expensive Planned Work for SVAWPC
2022	-Replacement of two sets of chemical pumps and associated appurtenances (~\$100k) -Annual MF, RO, and UV performance review (~\$40k)
2023	-MF Rack 1 & 2 Inspections and replace membranes as needed (~\$313k per rack) -Electrical testing (~\$40k) -Product water transfer pump rehabilitation (~\$30k each) -Annual MF, RO, and UV performance review (~\$40k)
2024	-Annual MF, RO, and UV performance review (~\$40k)
2025	-Annual MF, RO, and UV performance review (~\$40k)
2026	-Annual MF, RO, and UV performance review (~\$40k)

Note: Various asset replacements have been scheduled for 2023-2025 or 10 years after installation. In FY22, SVAWPC and Asset Management staff will reevaluate useful life and schedule based on asset condition.

The FY22-24 pipeline inspection and rehabilitation schedule is likely to be impacted by SFPUC’s project shutdown schedule. Valley Water inspection windows may need to be shortened and major rehabilitations are currently in question with a chance of being deferred until a window becomes available (e.g., line valve replacements). Valley Water staff continue to coordinate with SFPUC staff.

Figure 12: San Felipe Division Reach 1-3 FY22-26 Planned and Forecasted Work



Year	Most Expensive Planned Work for
2022	-One PPP Pump and motor rehabilitation (SFR1) -Two CPP pump rehabilitations (SFR3)
2023	-One PPP Pump and motor rehabilitation (SFR1) -One CPP pump rehabilitation (SFR3)
2024	TBD
2025	TBD

Note: The following assets replacements are not included in the MWP forecast:
-Pipeline inspection and rehabilitations per the 10-year Capital project*
-- In FY22, Pacheco Tunnel Reach 1 and 2, PSV, Santa Clara Tunnel SCT to SV1, and Santa Clara Conduit.
-- In FY23, Santa Clara Tunnel SV1 to CPP and Coyote Discharge line
-CPP ASD Replacement Capital project scheduled in FY23

Figure 13: Raw Water Transmission and Distribution FY22-26 Planned and Forecasted Work

Year	Most Expensive MWP Planned Work for
2022	-Development of mobile condition assessment solution
2023	-Development of mobile condition assessment solution
2024	-Pipeline Appurtenance Inspection and condition assessment with mobile solution -Tentative replacement or rehabilitation of RFM 407 valve
2025	-Pipeline Appurtenance Inspection and condition assessment with mobile solution
2026	-Pipeline Appurtenance Inspection and condition assessment with mobile solution

Note: The following assets replacements are not included in the MWP forecast:
-Pipeline inspection and rehabilitations per the 10-year Capital project*
-- In FY23, Anderson Force Main, Almaden Valley Pipeline (Coleman to Calero), and Santa Teresa Force Main

Figure 14: Treated Water Transmission and Distribution FY22-26 Planned and Forecasted Work

Year	Most Expensive Planned Work for
2022	-Development of mobile condition assessment solution
2023	-Pilot Pipeline Appurtenance Inspection and condition assessment with mobile solution
2024	-Pilot Pipeline Appurtenance Inspection and condition assessment with mobile solution
2025	-Pilot Pipeline Appurtenance Inspection and condition assessment with mobile solution
2026	-Pilot Pipeline Appurtenance Inspection and condition assessment with mobile solution

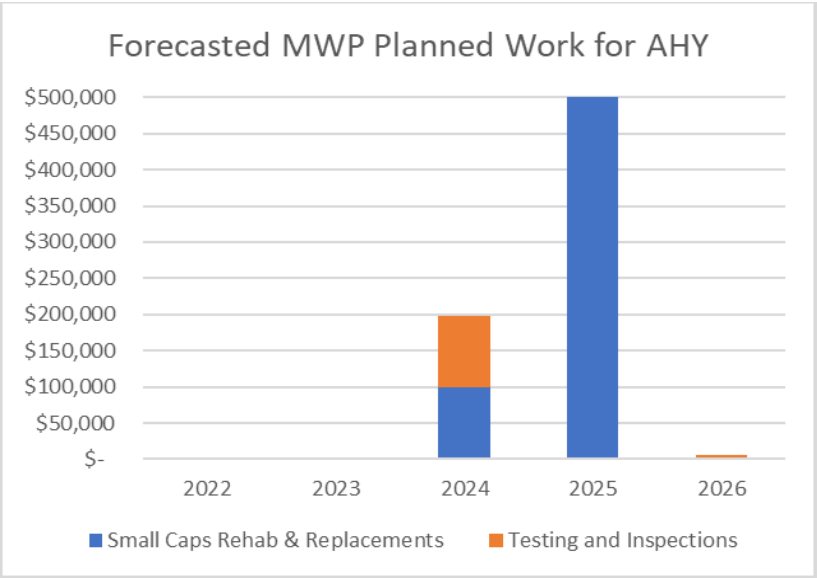
Note: The following assets replacements are not included in the MWP forecast:
-Pipeline inspection and rehabilitations per the 10-year Capital project*
-- In FY24, West Pipeline (RWTP to Cox), Santa Clara Distributary, and Campbell Distributary

Figure 15: Gilroy Reclamation Line FY22-26 Planned and Forecasted Work

Year	Most Expensive Planned Work for
2022	TBD
2023	TBD
2024	TBD
2025	TBD

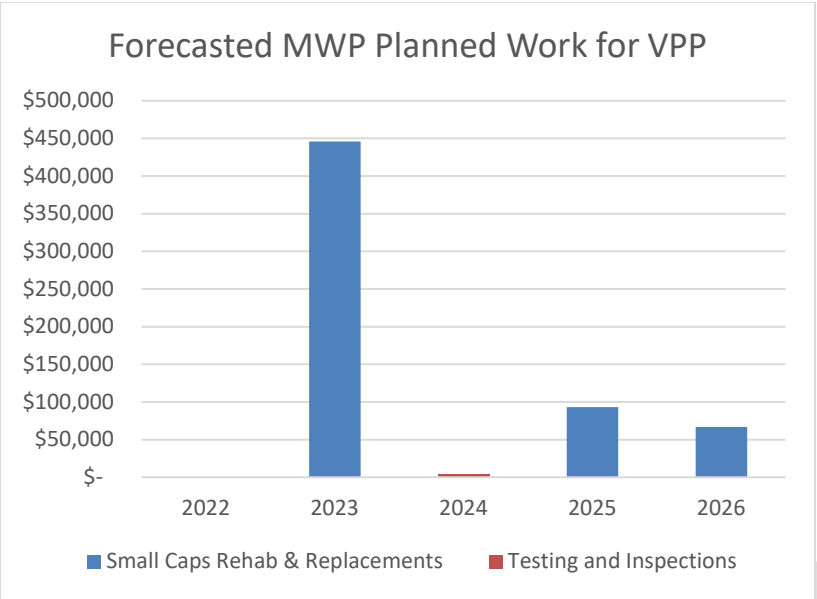
Note: An inspection of a portion of the Gilroy Reclamation Line will be schedule during the South Country Recycled Water Pipeline Project (Capital Project). A contractor will conduct a condition assessment of the pipeline. After the inspection, Asset Management will update the planned work.

Figure 16: Anderson Hydroelectric (AHY) Facility FY22-26 Planned and Forecasted Work



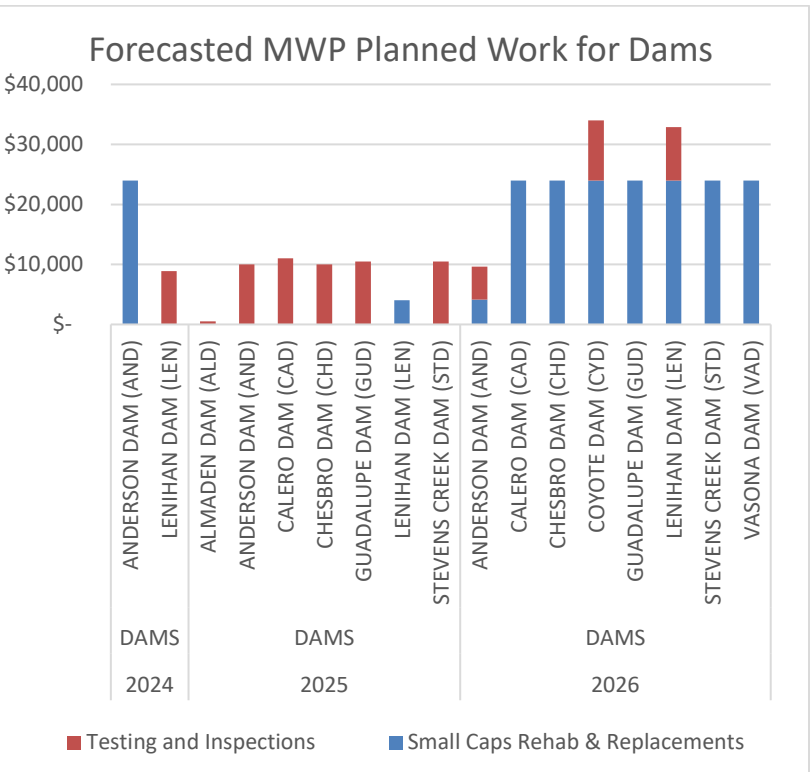
Year	Most Expensive Planned Work for AHY
2022	
2023	
2024	-Replacement of Discharge valves (~\$20k) -Replacement of transformers (~\$60k)
2025	-Replacement of Hydro Turbines (\$ 365k)
Note: In FY21, Raw Water Operations is going to the Board to discuss the future of Anderson Hydroelectric.	

Figure 17: Vasona Pumping Plant (VPP) Facility FY22-26 Planned and Forecasted Work



Year	Most Expensive Planned Work for VPP
2022	
2023	-Replacements will be rescheduled to FY24-25 during the capital project
2024	
2025	
Note: The projected planned work is anticipated to change once AMPT is updated with the newly installed assets per the CIP project. Major replacements are scheduled for FY24-25 per Capital project Vasona Upgrade	

Figure 18: Dams FY22-26 Planned and Forecasted Work



Year	Most Expensive Planned Work for Dams
2022	
2023	
2024	
2025	
2026	-Replacement of SCADA RTUs (~\$168k)
Note: The Five-Year MWP does not currently include rehabilitation or replacement recommended by the State of California Division of Safety of Dams (DSOD) and Federal Energy Regulatory Commission (FERC). DSOD and FERC annual inspections identify required maintenance activities which Valley Water implements.	

Individual/Large Capital Project Recommendations

The work planning process recommends some activities for execution as individual or larger capital projects. Individual/large capital projects represent major work efforts that are beyond the capabilities of the maintenance units to perform and meet one of the following criteria: exceeds \$2.5 Million, duration greater than 2 years, or requires right of way purchase. Generally, these projects require multi-year planning and extensive design efforts, which include preparation of plans and specifications for bidding.

No new individual Capital Projects have been identified for FY2022. Staff is currently working on grouping activities for future FYs 2023-2026.

Planned Work Tracking

Actual scheduling, execution, and reporting on the planned asset renewal projects are primary responsibilities of the assigned units' work within the Maximo work order system. These units communicate the status to Asset Management Unit, which performs QA/QC and reviews at the close of each fiscal year to assess what work was successfully completed. The Asset Management Program tracks asset renewal that is not undertaken since it increases the risk of asset failures.

A review of completed asset renewal work planned for FY21 is provided in Appendix B.

V. FIVE YEAR OPERATIONS FORECASTS

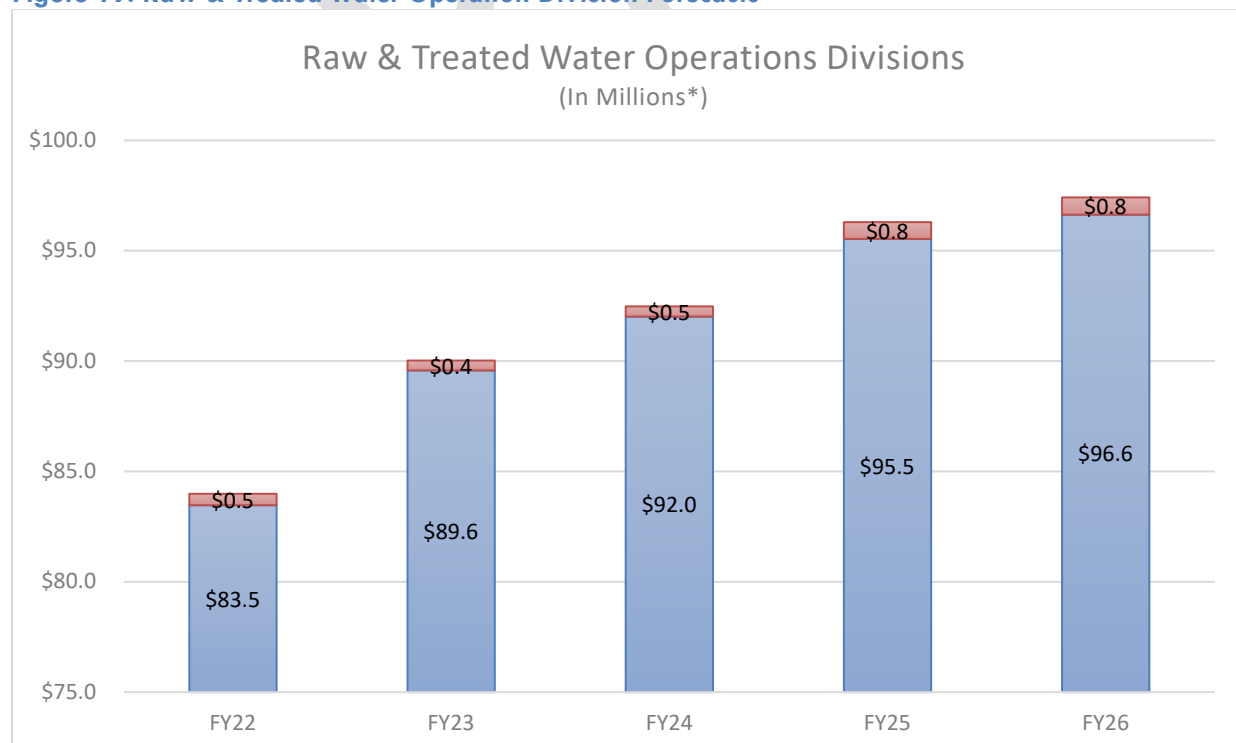
This section provides an overview of the expected operations expenses and unfunded needs for the operations and maintenance activities conducted by the Raw and Treated Water Operations Divisions for the next five fiscal years. These two Divisions are responsible for operations and maintenance of Valley Water's water supply, treatment, and distribution system. The types of activities budgeted in the projects presented in this section are described in Section II.

The final financial information provided in this section is taken from the Board adopted budget for FY22, as well as the forecast data that is collected as part of the budget process. The Draft report is prepared using long term forecast data and unfunded needs requests as of December 2020. The FY22 budget requests and unfunded needs are evaluated throughout the budget and groundwater charge (rate) setting processes through May 2021. The plan is finalized following Board adoption of Valley Water's final budget and groundwater production charges. The final plan documents the final budgeted amounts for each project for FY22 as well as any remaining unfunded needs following the budget and groundwater charge setting process.

The sections below provide an overview of the Raw and Treated Water Division Units, as well as tables and charts which summarize expected operations expenses and unfunded operations resource needs for fiscal years 22-26.

A summary of the five-year forecasts of funding for current service levels as well as future resource requirements which are not yet funded for the Raw and Treated Water Operations Divisions are shown in the chart below.

Figure 19: Raw & Treated Water Operation Division Forecasts



In total, the Raw and Treated Water Operations Divisions has identified a need for an additional \$517 Thousand for Fiscal Year 2022. These resources would provide the following services:

- Additional support for laboratory operations to increase efficiency and reduce use of temp and intern staff
- Intern support for raw water operations and untreated water program planning
- Temp support to implement new water rights measurement methods
- Consultant services for several raw water facility studies

DRAFT

RAW WATER DIVISION

The Raw Water Division maintains and operates 142 miles of large diameter transmission pipelines including 94 miles of raw water pipelines and tunnels, three pumping plants and 99 ponds used to recharge the groundwater basin. The use of local and imported raw water supplies are maximized to meet treated water, groundwater recharge, and environmental needs.

Unit 408 is this Division's organizational unit and consists of the Deputy Operating Officer and one Administrative assistant. This Division manages one project in addition to the Units listed below: 91211005 – SFD Reach 1 Administration. The following Units are included in this Division:

Utility Maintenance Engineering (Unit 435)

The Utility Maintenance Engineering Unit provides civil and mechanical engineering as well as corrosion control services for all Water Utility facilities.

Raw Water Operations (Unit 455)

The Raw Water Operations Unit performs the day-to-day operations planning and remote operations of Valley Water's Raw Water System consisting of:

- 10 water supply reservoirs with a combined restricted storage capacity of about 62,362 acre-feet.
- 3 Raw Water Pump Stations with over 37,000 combined horsepower.
- 1 hydroelectric facility.
- 94 miles of large diameter raw water pipelines and tunnels.
- 102 groundwater recharge ponds.
- 91 miles of streams managed for groundwater recharge.

The Unit also performs the required water right and regulatory compliance reporting to maintain and protect local water supply operations.

Groundwater Management (Unit 465)

The Groundwater Management Unit helps ensure continued groundwater sustainability by providing accurate and timely information on current and forecasted groundwater conditions; ensuring Valley Water compliance with California Water Code Sustainable Groundwater Management Act (SGMA) requirements; and implementing programs to protect groundwater resources. These efforts support Board objective 2.1.1: "Aggressively protect groundwater from the threat of contamination and maintain and develop groundwater to optimize reliability and to minimize land subsidence and saltwater intrusion."

Treatment Plant Maintenance (Unit 555)

The Treatment Plant Maintenance Unit conducts preventive, corrective and rehabilitative maintenance required to sustain operations of the Santa Teresa Water Treatment Plant, Penitencia Water Treatment Plant (PWTP), Rinconada Water Treatment Plant (RWTP), Campbell Well Field, and San Francisco Intertie.

Raw Water Field Operations and Pipeline Maintenance (Unit 585)

The Raw Water Field Operations and Pipeline Maintenance Unit is responsible for the mechanical, electrical, and control system preventive, corrective, and rehabilitative maintenance of the distribution system infrastructure which includes three pump stations (Pacheco, Coyote, and Vasona) and 142 miles

of pipeline. Also included is the operation of recharge and water distribution systems for groundwater basins, reservoirs, canals, and other water supply infrastructure.

Funding for current service levels as well as future resource requirements which are not yet funded for the operations projects managed by this Division are included in the tables below. The resource requirements and unfunded needs are summarized by project.

Resource Requirements for Current Service Levels*

PROJECT NAME & NUMBER	UNIT	FY20 Actuals	FY21 Adopted	FY22	FY23	FY24	FY25	FY26
SFD Reach 1 Administration - 91211005	408	\$4	\$5	\$7	\$7	\$7	\$8	\$8
SF Reach 1-Engineering – Other - 91211085	435	\$373	\$289	\$326	\$340	\$351	\$362	\$373
SF Reach 2-Engineering – Other - 91221006	435	\$8	\$178	\$186	\$399	\$411	\$424	\$436
SF Reach 3-Engineering – Other - 91231085	435	\$10	\$111	\$336	\$350	\$361	\$373	\$384
Raw Water T&D - Engineering – Other - 92761083	435	\$487	\$936	\$1,207	\$1,442	\$1,486	\$1,536	\$1,580
Raw Water Corrosion Control - 92781002	435	\$511	\$645	\$692	\$727	\$750	\$775	\$797
Water Treatment Plant Engineer - 93081009	435	\$87	\$395	\$420	\$442	\$456	\$471	\$485
TW T&D - Engineering – Other - 94761005	435	\$362	\$550	\$633	\$671	\$823	\$851	\$875
Treated Water T&D Corrosion - 94781001	435	\$257	\$529	\$564	\$592	\$611	\$631	\$649
Water Operations Planning - 91041012	455	\$519	\$633	\$708	\$755	\$780	\$807	\$830
Water Rights - 91111001	455	\$531	\$662	\$806	\$801	\$827	\$857	\$882
San Felipe Reach 1 Operation - 91211004	455	\$606	\$641	\$709	\$755	\$779	\$807	\$830
San Felipe Reach 2 Operation - 91221002	455	\$59	\$63	\$82	\$87	\$89	\$93	\$95
San Felipe Reach 3 Operation - 91231002	455	\$310	\$330	\$362	\$696	\$722	\$744	\$772
Local Reservoirs/Diversions Planning & Analysis - 91761001	455	\$1,541	\$1,688	\$1,990	\$2,047	\$2,062	\$2,146	\$2,210
Raw Water T&D General Operation - 92761001	455	\$1,687	\$1,602	\$1,829	\$1,929	\$1,982	\$2,042	\$2,103
Untreated Water Program Planning - 92761012	455	\$99	\$396	\$324	\$325	\$335	\$347	\$357
Groundwater Management Program - 91041018	465	\$4,222	\$4,941	\$5,096	\$5,400	\$5,571	\$5,769	\$6,279
Hollister Groundwater Management - 60041003	465	\$12	\$86	\$70	\$54	\$56	\$58	\$112
Nitrate Treatment System Rebate Program - 26061010	465	\$3	\$4	\$4	\$4	\$0	\$0	\$0
Rinconada WTP General Maintenance - 93291099	555	\$2,921	\$3,647	\$3,609	\$3,805	\$3,740	\$3,867	\$3,975

PROJECT NAME & NUMBER	UNIT	FY20 Actuals	FY21 Adopted	FY22	FY23	FY24	FY25	FY26
Santa Teresa WTP General Maintenance - 93281099	555	\$2,767	\$3,464	\$3,521	\$3,721	\$3,837	\$3,968	\$4,080
Penitencia WTP General Maintenance - 93231099	555	\$2,801	\$3,086	\$2,876	\$3,039	\$3,134	\$3,241	\$3,332
SF/SCVWD Intertie General Maintenance - 93761099	555	\$42	\$112	\$100	\$105	\$108	\$111	\$115
Campbell Well Field Maintenance - 93761005	555	\$86	\$112	\$103	\$108	\$111	\$115	\$118
San Felipe Reach 1 General Maintenance - 91211099	585	\$1,052	\$856	\$1,019	\$967	\$997	\$1,930	\$1,059
San Felipe Reach 2 General Maintenance - 91221099	585	\$270	\$162	\$194	\$167	\$170	\$174	\$177
San Felipe Reach 3 General Maintenance - 91231099	585	\$1,005	\$1,048	\$1,122	\$1,183	\$1,219	\$1,260	\$1,376
Vasona Pumping Station General Maintenance - 92261099	585	\$84	\$140	\$220	\$256	\$242	\$273	\$258
Recycled Water General Maintenance - 92761008	585	\$136	\$282	\$258	\$271	\$280	\$289	\$297
Recharge & Raw Water Field Operations - 92761009	585	\$2,832	\$3,325	\$3,201	\$3,365	\$3,466	\$3,579	\$3,678
Recharge & Raw Water Field Facility Maintenance - 92761010	585	\$2,343	\$2,281	\$2,196	\$2,299	\$2,369	\$2,445	\$2,515
Anderson Hydroelectric Facility Maintenance - 92761085	585	\$212	\$168	\$144	\$165	\$157	\$175	\$166
Raw Water T&D General Maintenance - 92761099	585	\$2,189	\$2,326	\$2,650	\$2,804	\$2,890	\$2,988	\$3,070
Treated Water T&D General Maintenance - 94761099	585	\$1,021	\$1,486	\$1,493	\$1,568	\$1,629	\$1,670	\$1,731
TOTAL		\$31,448	\$37,180	\$39,058	\$41,646	\$42,808	\$45,188	\$46,006

*In thousands. Data as of December 2020.

Key Milestones for Current Service Levels

- Complete all required corrosion control and cathodic protection monitoring and minor repair work on all utility facilities.
- Provide engineering support for both planned and unplanned work requests and monitor condition of all utility facilities.
- Operate and maintain the Almaden Valley Pipeline and Pacheco Conduit Acoustic Fiber Monitoring Systems
- Ensure pipelines are protected by operating rectifiers based upon industry established criteria per NACE SP0100-2019.
- Update raw water operations plans as water supply conditions change and operations evolve, or at least monthly.
- Submit and maintain Central Valley Project (CVP) and State Water Project (SWP) annual delivery schedules per contract requirements.
- Coordinate San Felipe Division Reach 1 Operations with the United States Bureau of Reclamation (USBR) and San Benito County Water District (SBCWD).

- Manage the untreated surface water program and prepare annual report on previous fiscal year (FY).
- Submit the annual water rights reports to State Water Resources Control Board and pay the associated fees.
- Prepare Lake or Streambed Alteration Agreement (LSAA) South County operating strategy annual compliance report and Annual Report on North County LSAAs.
- Measure groundwater elevation in 200 wells and complete monthly Groundwater Condition Reports.
- Submit groundwater elevation data to DWR quarterly.
- Update Valley Water's SGMA alternative and support San Benito County Water District efforts to prepare a Groundwater Sustainability Plan for the North San Benito Subbasin by January 2022.
- Complete identified Preventive Maintenance (PM) and Corrective Maintenance (CM) work for all water utility facilities.
- Manage operations of off stream recharge, in-stream recharge, canals, ditches, low-pressure pipelines, in-stream diversion facilities, fish screens, and fish ladders.
- Provide on-call support 24 hours per day.
- Plan and execute work projects identified in the 5-year Maintenance Work Plan.
- Perform condition assessments all water utility facilities.

Additional Resource Needs (Unfunded)*

PROJECT NAME & NUMBER	UNIT	FY22	FY23	FY24	FY25	FY26
Water Operations Planning - 91041012	455	\$26	\$27	\$27	\$28	\$29
Water Rights - 91111001	455	\$54	\$0	\$0	\$0	\$0
Local Reservoirs/Diversions Planning & Analysis - 91761001	455	\$64	\$24	\$25	\$25	\$26
Untreated Water Program Planning - 92761012	455	\$26	\$27	\$27	\$28	\$29
TOTAL		\$170	\$77	\$79	\$82	\$84

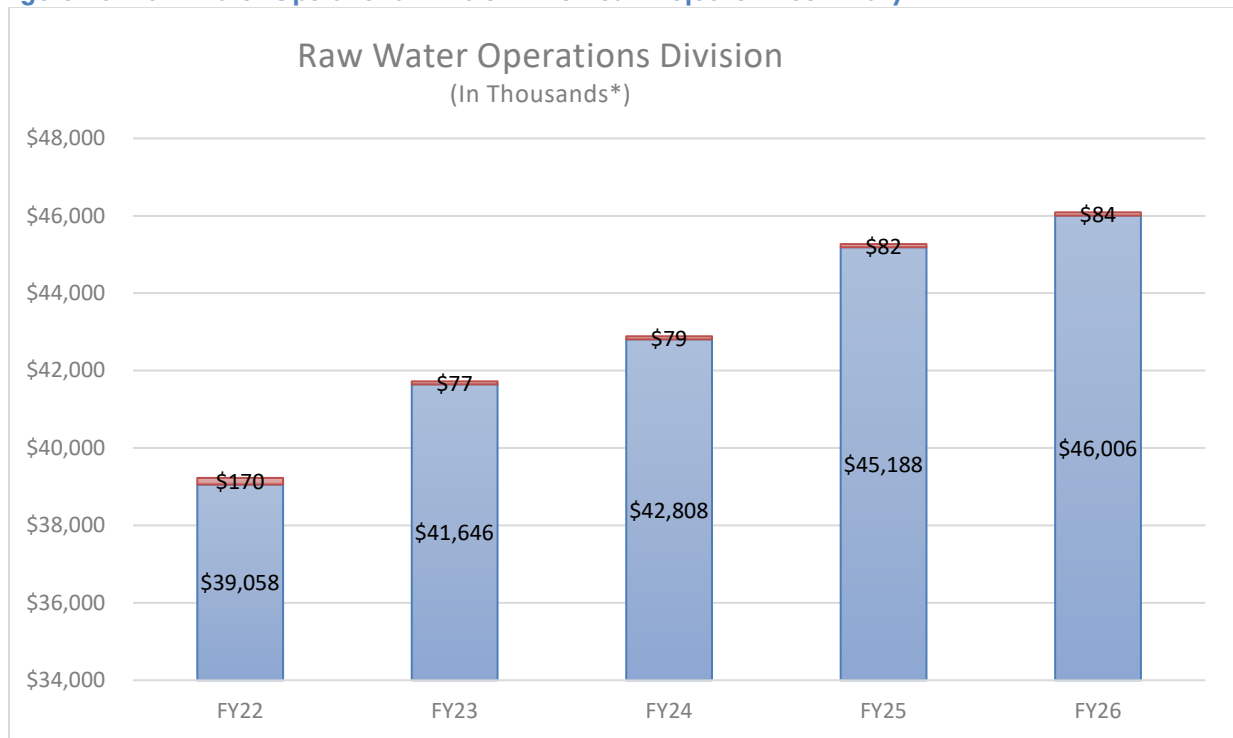
*\$ in thousands. Data as of December 1, 2020.

Description of Services to be Provided with Additional Resources

The Division is requesting resources to support raw water operations programs and studies, as described below.

- Intern support for operations and untreated water program planning.
- Consultant services to investigate connecting San Pedro Ponds to the sewer system, to study the future use of Smith Creek and Vasona Canal, and to develop stationing for raw water canals.
- Temp support in FY22 to implement water rights measurement methods, which are required by law to be updated every five years.

Figure 20: Raw Water Operations Division Five Year Projection - Summary



*Data as of December 1, 2020.

TREATED WATER DIVISION

The Treated Water Division manages Valley Water's three conventional drinking water treatment plants, providing a reliable, high-quality drinking water supply to Santa Clara County. In addition, the Division operates the Campbell Well Field to provide backup supply to the treated water system, and the Silicon Valley Advanced Water Purification Center to advance the quality and use of recycled water in the county. The Division provides laboratory, and SCADA and electrical engineering support across the water utility divisions, and Valley Water as a whole. The Division provides technical expertise and leadership for all commissioning-related work to improve overall safety, quality, and reliability upon handover to Operations & Maintenance (O&M). In addition, the Division communicates regularly with water retailers, and maintains communication and conducts annual check-ins with the State Water Resources Control Board, Division of Drinking Water (DDW), which includes tracking ongoing and annual updates to drinking water regulations.

Unit 515 is this Division's organizational unit and consists of the Deputy Operating Officer, one Assistant Operating Officer, a Senior Management Analyst, and one Administrative Assistant. The following Units are included in this Division:

Treatment Plant Process and Commissioning (Unit 516)

The Treatment Plant Process & Commissioning Unit leads the commissioning and start-up activities at Valley Water's treatment facilities and treated water pipelines, and the implementation of major treatment process changes. The unit also leads the development of the water treatment plant implementation plan and provides support to other implementation plan efforts related to treatment plant and distribution systems.

Water Quality (Unit 525)

The Water Quality Unit is responsible for providing water quality operational, process, and project support directly to the treated water managers and water treatment plant supervisors and operators. The unit is also responsible for tracking drinking water-related regulatory development, providing recommendations for regulatory compliance strategy, and communicating with DDW on various regulatory issues and retailers on various water quality issues. The unit also provides leadership in water quality and treatment research through collaboration with other agencies and involvement in professional drinking water organizations. In addition, the unit oversees Source Water Quality Management and Invasive Mussel Prevention Programs and supports internal and external groups on source water quality management and protection.

Laboratory Services (Unit 535)

The Laboratory Services Unit is responsible for providing analytical and sampling services to the Water Utility Enterprise. Our state-of-the-art laboratory is certified with the California Environmental Laboratory Accreditation Program (ELAP) and tests water produced from each of our drinking water treatment plants, the Silicon Valley Advanced Water Purification Center, surface water reservoirs and groundwater basins.

Utility Electrical and Control Systems Engineering (Unit 545)

The Utility Electrical and Control Systems Engineering Unit provides electrical, control systems, Supervisory Control and Data Acquisition (SCADA), and imported electricity management engineering services, including direct technical services, in support of Valley Water's critical infrastructure and systems used in the day-to-day (24 hours a day, 7 days a week) operations and maintenance of its complex, countywide raw and treated water conveyance system (including three raw water pump

stations and pipelines), three drinking water treatment plants, one advanced purified water processing plant, the headquarters office campus, and watershed facilities. The imported electricity management saves Valley Water approximately \$2,000,000 in annual electrical energy expenditures and is 100 percent carbon-free.

North Water Treatment Operations (Unit 565)

The North Water Treatment Operations Unit provides safe, clean, and high-quality drinking water to Valley Water's three (3) treated water retailers along the East/Milpitas Pipelines, including San Jose Water Company, City of San Jose, and City of Milpitas. The unit is responsible for safe and cost-effective operations (24 hours a day, 7 days a week) and management of the Penitencia Water Treatment Plant (PWTP), the joint San Francisco Public Utilities Commission (SFPUC)-Valley Water (VW) Intertie facility, and the East/Milpitas Pipeline turnouts. The unit is responsible for cost-effective operations and maintenance of the Silicon Valley Advanced Water Purification Center (SVAWPC).

South Water Treatment Operations (Unit 566)

The South Water Treatment Operations Unit provides safe, clean, and high-quality drinking water and a backup supply of drinking water to Valley Water's seven (7) treated water retailers, and ultimately to the residents of Santa Clara County. The unit is responsible for providing a safe and cost-effective operations (24 hours a day, 7 days a week) and management of the Santa Teresa Water Treatment Plant (STWTP), the Rinconada Water Treatment Plant (RWTP), the Campbell Well Field, and the West and Snell/East Pipeline turnouts.

Funding for current service levels as well as future resource requirements which are not yet funded for the operations projects managed by this Division are included in the tables below. The resource requirements and unfunded needs are summarized by project.

Resource Requirements for Current Service Levels*

PROJECT NAME & NUMBER	UNIT	FY20 Actuals	FY21 Adopted	FY22	FY23	FY24	FY25	FY26
Treatment Plant Process & Commissioning - 93081002	516	\$0	\$387	\$496	\$530	\$547	\$566	\$582
Source Water Quality Management - 91451005	525	\$344	\$700	\$440	\$468	\$483	\$500	\$797
Invasive Mussel Prevention - 91451011	525	\$486	\$618	\$777	\$805	\$829	\$855	\$881
WT General Water Quality - 93081008	525	\$1,823	\$2,416	\$2,505	\$2,750	\$2,492	\$2,580	\$2,652
Water District Laboratory - 93401002	535	\$5,241	\$5,519	\$6,135	\$6,532	\$6,784	\$7,033	\$7,217
Energy Management - 00021008	545	\$244	\$471	\$511	\$543	\$561	\$581	\$597
SCADA Systems Upgrades - 00761013	545	\$465	\$722	\$755	\$786	\$810	\$835	\$860
San Felipe Reach 1 Control and Electrical Engineering - 91211084	545	\$249	\$316	\$348	\$369	\$381	\$394	\$405

PROJECT NAME & NUMBER	UNIT	FY20 Actuals	FY21 Adopted	FY22	FY23	FY24	FY25	FY26
San Felipe Reach 3 Control and Electrical Engineering - 91231084	545	\$222	\$314	\$344	\$365	\$377	\$390	\$401
Raw Water T&D Control and Electrical Engineering - 92761082	545	\$798	\$567	\$621	\$658	\$679	\$702	\$722
Treated Water Control and Electrical Engineering - 93761006	545	\$2,100	\$2,112	\$3,116	\$3,311	\$3,416	\$3,536	\$3,635
PWTP General Operations - 93231009	565	\$5,244	\$5,869	\$6,436	\$6,772	\$6,980	\$7,213	\$7,418
SFPUC/VW Intertie General Operations - 93761001	565	\$65	\$228	\$200	\$207	\$214	\$220	\$227
SVAWPC General Operations - 91281007	565	\$2,581	\$2,515	\$2,881	\$3,021	\$3,114	\$3,217	\$3,309
SVAWPC Facility Maintenance - 91281008	565	\$1,923	\$2,379	\$2,678	\$3,881	\$4,093	\$3,707	\$2,395
Wolfe Road Recycled Water Facility - 91241001	565	N/A	N/A	TBD	TBD	TBD	TBD	TBD
STWTP- General Operations - 93281005	566	\$5,807	\$6,476	\$6,801	\$7,144	\$7,364	\$7,607	\$7,824
RWTP - General Operations - 93291012	566	\$7,965	\$9,064	\$9,257	\$9,674	\$9,968	\$10,289	\$10,585
Campbell Well Field Operations - 93761004	566	\$34	\$104	\$109	\$113	\$117	\$121	\$124
TOTAL		\$35,590	\$40,776	\$44,411	\$47,930	\$49,207	\$50,348	\$50,628

*In thousands. Data as of December 1, 2020. Closed projects with no FY21 or future charges are not included in FY19 Actuals or FY20 Adopted.

Key Milestones for Current Service Levels

- 100% of the treated water delivered to customers meets and/or surpasses all applicable primary drinking water quality regulatory standards.
- Provide cost-effective service to our retailers, ensuring that the annually contracted volume of treated water is delivered effectively and efficiently.
- Supply recycled water, up to 8 million gallons per day, to reach a target of 500 mg/L (+/- 50 mg/L) for total dissolved solids, into the South Bay Water Recycling distribution system.
- Provide water to SFPUC through the Intertie as needed, consistent with the SFPUC-Valley Water agreement.
- Maintain state certification through the California Environmental Laboratory Accreditation Program (ELAP) for all fields of testing, through the successful completion of on-site audits, proficiency testing studies, and payment of applicable fees.
- Provide technical expertise and leadership for all commissioning-related work to improve overall safety, quality, and reliability upon handover to Operations & Maintenance.
- Actively track drinking water regulations and provide annual updates on the status of regulations.
- Maintain regular communications and participate in the annual check-in with DDW.

- Maintain timely and regular communication with retailers on water quality issues.
- Support continual operation of critical water utility facilities, dam safety projects, new reservoir project, and raw and treated water capital projects by providing essential electrical, control systems, and SCADA engineering services to capital project teams.
- Continue to manage a cost-effective and carbon-free imported electricity program.
- Lead and manage the development of the water treatment plant and SCADA implementation plans.

Additional Resource Needs (Unfunded)*

PROJECT NAME & NUMBER	UNIT	FY22	FY23	FY24	FY25	FY26
Water District Laboratory - 93401002	535	\$347	\$370	\$382	\$396	\$407
SCADA Systems Upgrades - 00761013	545	\$0	\$0	\$0	\$281	\$290
TOTAL		\$347	\$370	\$382	\$678	\$697

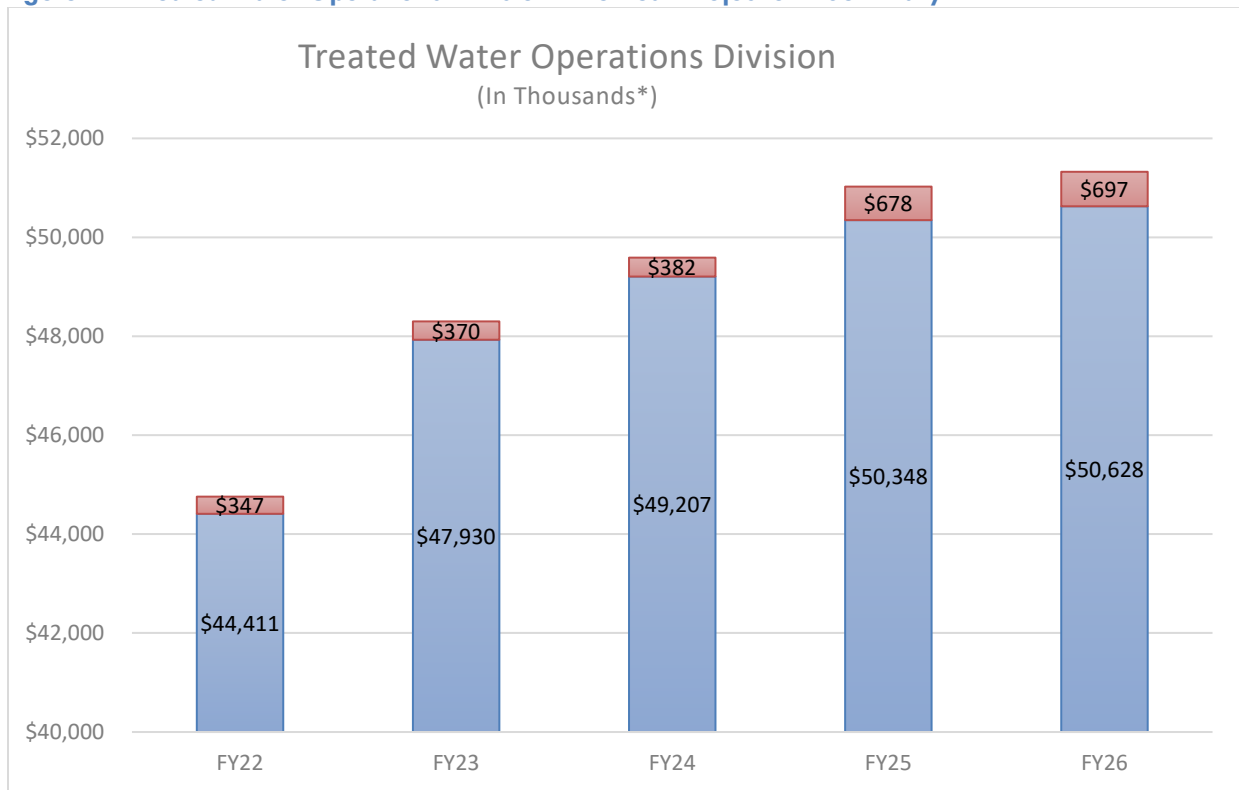
*\$ in thousands. Data as of December 1, 2020. Additional unfunded need for the Water Quality Unit (525) was identified after this data was published and is not included in the table, but is described below.

Description of Services to be Provided with Additional Resources

The Division is requesting additional resources to support water quality and lab operations and future SCADA improvements as described below.

- Additional support for laboratory operations to increase efficiency and reduce use of temp and intern staff
- Future support (FY25-26) for implementation of SCADA improvements resulting from the SCADA Implementation Plan/Master Plan project.
- Additional support to provide training to WT operations and plant unit process evaluation per DDW directives, regulatory compliance analysis and tracking, and water quality and treatment impact analysis and support related with Anderson and Pacheco reservoirs projects, PFAS and emerging compounds and regulations, fire and climate changes. *(NOTE – the costs associated with these activities have not been determined and therefore are not included in the table above.)*

Figure 21: Treated Water Operations Division Five Year Projection - Summary



*Data as of December 1, 2020.



Fiscal year 2022-2026

Water Utility Enterprise Operation & Maintenance Plan (WUE OMP)

APPENDIX A: FY2022 PLANNED ASSET RENEWAL WORK

Overview

Appendix A contains tables conveying the FY2022 Planned Asset Renewal Work (PARW) details per facility. Each facility has one table for planned work which may span multiple pages. In addition, one table has been made to convey the backlog.

Notes for the PW tables:

- The project costs provided in the tables include services and supply costs; and required labor hours are estimated. The required labor hours are provided by staff and are conservative.
- Work order number will be generated in Maximo and effective July 1, 2021.

Description	Figure No.	Description	Figure No.
Backlog	22	FY2022 PW for San Felipe Reaches	28
FY2022 PW for PWTP	23	FY2022 PW for Water Supply Management System	29
FY2022 PW for SFI	24		
FY2022 PW for RWTP	25		
FY2022 PW for STWTP	26		
FY2022 PW for SVAWPC	27		

APPENDIX A: FY2022 PLANNED ASSET RENEWAL WORK (PARW) PLANNED WORK

Figure 22: Backlog

To Be updated in June 2021

Figure 23: FY22 Planned Asset Renewal Work for PWTP

System	Renewal Project Description	Estimated Cost	#
PWTP CLEARWELL CORROSION	Clearwell Inspection and Corrosion Mitigation (FY21-23) clearwell corrosion rehab	\$ 500,000	1
PWTP OZONE GENERATION	Rehabilitation of PWTP OGB OZONE GENERATOR SHELL #1 (POZOG01) AP46731	\$ 225,000	2
	Rehabilitation of PWTP OGB OZONE GENERATOR SHELL #2 (POZOG02) AP46732	\$ 225,000	3
	Rehabilitation of PWTP OGB OZONE GENERATOR SHELL #3 (POZOG03) AP46733	\$ 225,000	4
PWTP FLOCCULATOR/ SEDIMENTATION	Inspection of PWTP FLOCCULATOR #1 AP10306	\$ 200,000	5
	Replacement of PWTP SEDIMENT BASIN #1 RAKE CHAIN & FLIGHTS AP54312	TBD	6
PWTP BUILDINGS AND GROUNDS	Replacement of PWTP ELECTRIC GATE OPENER AP10186	\$ 7,875	7
PWTP AMMONIA	Inspection (I) (E) (UT) + Cleaning of PWTP AQUA NH4 STORAGE TANK AP10029	\$ 5,000	8
PWTP ALUM/FERRIC	External Inspection (Contractor) of PWTP ALUM FC/LA TANK #1 AP10017	\$ 4,000	9
	External Inspection (Contractor) of PWTP ALUM FC/LA TANK #2 AP10018	\$ 4,000	10
	External Inspection (Contractor) of PWTP ALUM FC/LA TANK #3 AP10019	\$ 4,000	11
PWTP FLUOROSILICIC ACID	External Inspection (Contractor) of PWTP FLUOROSILICIC ACID STORAGE TANK # 1 (PFSAT01) AP67415	\$ 4,000	12
PWTP FIRE PROTECTION	Inspection of PWTP PW FIRE PUMP DEISEL FUEL TANK (12 GA/300 gals) AP49925	\$ 1,000	13
PWTP CHEMICAL PIPING	Inspection of all chemical piping and list of future projects and priority to replace chemical piping	\$ 50,000	14
PWTP Filter Trough Supporting Brackets and Future Filter Trough	Conduct an inspection and condition assessment. Generate a recommendation for replacement	\$ 100,000	15
PWTP has 15 total FY22 Renewal Projects with an estimated cost of ~\$1.5 Million			

Figure 24: FY22 Planned Asset Renewal Work for SFI

System	Renewal Project Description	Estimated Cost	#
SFI Intertie PO ₄	Small caps project created for the replacement of the phosphoric acid tank, tank appurtenances, and feed pumps. In addition, protection will be installed so that vulnerable assets are protected.	\$ 500,000	1
SFI has 1 total FY22 Renewal Projects with an estimated cost of ~\$500,000.			

Figure 25: FY22 Planned Asset Renewal Work for RWTP

System	Renewal Project Description	Estimated Cost	#
RWTP SLUDGE (UNDERFLOW)	Sediment Removal of RWTP LOWER SLUDGE POND #1 AP20542	\$ 175,000	1
	Rehabilitation of RWTP LOWER SLUDGE POND #1 AP20542	\$ 100,000	2
RWTP BUILDINGS AND GROUNDS	Replacement of RWTP ELECTRIC GATE OPENERS UPPER	\$ 7,875	3
RWTP ZINC/PHOSPHORIC ACID	External Inspection (Contractor) of RWT PHOSPHORIC ACID SYS; TANK #1 AP50744	\$ 4,000	4
	External Inspection (Contractor) of RWT PHOSPHORIC ACID TANK #2 AP50745	\$ 4,000	5
RWTP ALUM/ FERRIC	External Inspection (Contractor) of RWTP ALUM/ FERRIC STORAGE TANK #1 AP20024	\$ 4,000	6
	External Inspection (Contractor) of RWTP ALUM/ FERRIC STORAGE TANK #2 AP20025	\$ 4,000	7
	External Inspection (Contractor) of RWTP ALUM/ FERRIC STORAGE TANK #3 AP20026	\$ 4,000	8
RWTP FLOC POLY SYSTEM (NON- IONIC AND ANIONIC)	External Inspection (Contractor) of RWTP ANIONIC POLY TANK # 1 AP50202	\$ 1,000	9
RWTP NON-IONIC POLY SYSTEM	External Inspection (Contractor) of RWTP NON-IONIC FILTER POLY MIXING TANK # 1 AP20268	\$ 1,000	10
RWTP RINCONADA RESERVOIR	Inspection of RWTP Reservoir Roof for corrosion and faults	\$ 50,000	11
RWTP has 11 total FY22 Renewal Projects with an estimated cost of ~\$355,000.			

Figure 26: FY22 Planned Asset Renewal Work for STWTP

System	Renewal Project Description	Estimated Cost	#
STWTP ALUM/FERRIC	External Inspection (Contractor) of STWTP ALUM STORAGE TANK #1 AP30000 or #2 AP30003	\$ 4,000	1
	External Inspection (Contractor) of STWTP ALUM STORAGE TANK #3 AP30006 (if not done in FY21)	\$ 4,000	2
STWTP BACK WASH	External Inspection (Contractor) of STWTP BACKWASH CONSTANT HEAD TANK AP50463	\$ 18,000	3
STWTP FLOCCULATOR/SEDIMENTATION	Replacement of STWTP FLOC MIXER 1ST STG MX-17 AP30746	\$ 42,000	4
STWTP MAIN ELECTRICAL	Inspection of STWTP DIESEL FUEL DAY TANK - GENERATOR AP30180	\$ 1,000	5
STWTP OZONE GENERATION	Rehabilitation of STWTP OZONE GENERATOR SHELL UNIT #1 (SOZOG01) AP42810	\$ 225,000	6
	Rehabilitation of STWTP OZONE GENERATOR SHELL UNIT #2 (SOZOG02) AP42811	\$ 225,000	7
	Rehabilitation of STWTP OZONE GENERATOR SHELL UNIT #3 (SOZOG03) AP42812	\$ 225,000	8
	External Inspection (Contractor) of STWTP OZONE GEN BLDG CLEAN AIR RECEIVER TANK (VERTICAL) AP45285	\$ 500	9
STWTP SODIUM HYPOCHLORITE (OCL)	External Inspection (Contractor) of STWTP OCL STORAGE TANK #1 AP30138	\$ 5,000	10
	External Inspection (Contractor) of STWTP OCL STORAGE TANK #2 AP30141	\$ 5,000	11
	External Inspection (Contractor) of STWTP PHOSPHORIC ACID STORAGE TANK AP66785	\$ 4,000	12
STWTP SPARE CHEMICAL SYSTEM	External Inspection (Contractor) Inspection of STWTP SPARE CHEMICAL TANK T-6 AP50617	\$ 5,000	13
STWTP has 13 total FY22 Renewal Projects with an estimated cost of ~\$765,000.			

Figure 27: FY22 Planned Asset Renewal Work for SVAWPC

System	Renewal Project Description	Estimated Cost	#
CHEMICAL TRANSFER	Replace chemical transfer pumps, associated piping, and route power to chemical tank area. Pending resources, the plan is to replace two sets of chemical transfer pumps in FY22 and FY23.	\$100,000	1
SVA MICROFILTRATION MEMBRANE (MF)	ANNUAL MF SYSTEM PERFORMANCE REVIEW of MF SYSTEM PERFORMANCE REVIEW LP18644	\$ 15,000	2
SVA POTABLE WATER	OSHA INSPECTIONS: (E), (UT), PERMIT RENEWAL 5 YR of SVA POTABLE AIR GAP BREAK TANK (73-TNK-9401, 2000 GAL) AP67161	\$ 500	3
	OSHA INSPECTIONS: (E), (UT), PERMIT RENEWAL 5 YR of SVA POTABLE WATER SYSTEM ACCUMULATOR TANK (211 GAL, 150 PSI) AP67162	\$ 500.00	4
SVA REVERSE OSMOSIS (RO)	ANNUAL RO SYSTEM PERFORMANCE REVIEW of RO SYSTEM PERFORMANCE REVIEW LP18513	\$ 10,000	5
SVA ULTRAVIOLET (UV)	REPLACE BULBS, RECORD BULB HOURS AND BALAST CARD IF NEEDED. For TRAIN 1-6	\$ 65,000	6
	ANNUAL UV SYSTEM PERFORMANCE REVIEW of UV SYSTEM PERFORMANCE REVIEW LP18523	\$ 15,000	7
SVAWPC has 7 total FY22 Renewal Projects with an estimated cost of ~\$206K			

Figure 28: FY 22 Planned Asset Renewal Work for San Felipe Reaches

System	Renewal Project Description	Estimated Cost	#
CPP - MAIN PUMP	Rehabilitation of COYOTE PUMP UNIT #TBD (1,2,5,6)	\$ 150,000	1
	Rehabilitation of COYOTE PUMP UNIT #TBD (1,2,5,6)	\$ 150,000	2
PACHECO TUNNEL REACH 2	Inspection of PACHECO TUNNEL REACH 2 - STA. 206+09.93 - STA. 481+95 AR40600	\$ 125,099	3
PPP - HVAC	Inspection of PPP HVAC GALLERY, CHILLER #1, COMPRESSOR 1 AR52238	\$ 500	4
	Inspection of PPP HVAC GALLERY, CHILLER #1, COMPRESSOR 2 AR52239	\$ 500	5
	Inspection of PPP HVAC GALLERY, CHILLER #2, COMPRESSOR 1 AR52898	\$ 500	6
	Inspection of PPP HVAC GALLERY, CHILLER #2, COMPRESSOR 2 AR52899	\$ 500	7
	Inspection of PPP - HVOS ACCUMULATOR TANK #2 AR41485	\$ 500	8
PPP - MAIN ELECTRICAL SYSTEM	Replacement of PPP PACHECO SWYD, SWGR 1A BATTERY & CHARGER AR52101	\$ 4,444	9
	Replacement of PPP SWGR 2A BATTERY & CHARGER AR52122	\$ 4,444	10
	Inspection of PPP - STANDBY GENERATOR PROPANE TANK AR30893	\$ 500	11
	Inspection of PPP PACHECO SWYD, SWGR 1A PULL SECTION TVSS AR52102	\$ 4,444	12
	Inspection of PPP PACHECO SWYD, SWITCHGEAR 1A AR52100	\$ 4,444	13
	Inspection of PPP PACHECO SWYD, SWITCHGEAR 2A AR52121	\$ 4,444	14
	Inspection of PPP PUMP GALLERY, MAIN SWITCH BOARD (SWDB-1) AR52197	\$ 4,444	15
	Inspection of PPP SWGR 2A PULL SECTION TVSS AR52123	\$ 4,444	16
PPP - MAIN PUMP CONTROL	Inspection of PPP ASD GALLERY, RAW WATER COMMUNICATION, UPS AR52926	\$ 1,000	17
PPP - MAIN PUMP	Rehabilitation of PACHECO PUMP UNIT #8 MOTOR AR42081	\$ 210,000	18
	Rehabilitation of PACHECO PUMP UNIT #8 PUMP AR42082 (or other PUMP)	\$ 900,000	19
	Replacement of PACHECO PUMP UNIT #8 PUMP AIR RELEASE VALVE AR42083	\$ 1,350	20
	Testing of PACHECO PUMP UNIT #8 MOTOR AR42081 or other Motor	\$ 5,000	21
SANTA CLARA TUNNEL STRUCTURES	Inspection and possible rehabilitation of SANTA CLARA CONDUIT (SCC)	\$ 4,293,330	22

System	Renewal Project Description	Estimated Cost	#
SANTA CLARA TUNNEL STRUCTURES	Inspection and possible rehabilitation of SANTA CLARA TUNNEL	\$102,066,531	23
SFR has 23 total FY22 Renewal Projects with an estimated cost of ~\$108M			

Figure 29: FY22 Planned Asset Renewal Work for WSMS

System	MWP Activity Description	Estimated Cost	#
BUDD AVENUE PONDS	Bank Repair at Budd Pond	TBD	1
LOS CAPITANCILLOS PONDS	Installation of sheet piles which replace old rotten wood	\$ 100,000	2
	Raising pond elevation	TBD	3
	Installation of rocks before and around spillway for all 11 ponds	TBD	4
MADRONE CHANNEL PERCOLATION FACILITY	Concrete spillway installation in replacement of dirt spillway	TBD	5
MAIN AVENUE PONDS	Pipeline replacement and catwalk installation	\$ 35,000	6
PAGE DITCH DESILTING PONDS	Bank Repair at Page Pond		7
SUNNYOAKS PONDS	Bank Repair at Sunnyoaks Pond	TBD	8
VASONA PUMPING PLANT	Shed installation for existing generator and poly tank system	\$ 40,000	9
WSMS has 9 total FY22 Renewal Projects with an estimated cost of ~TBD			



Valley Water

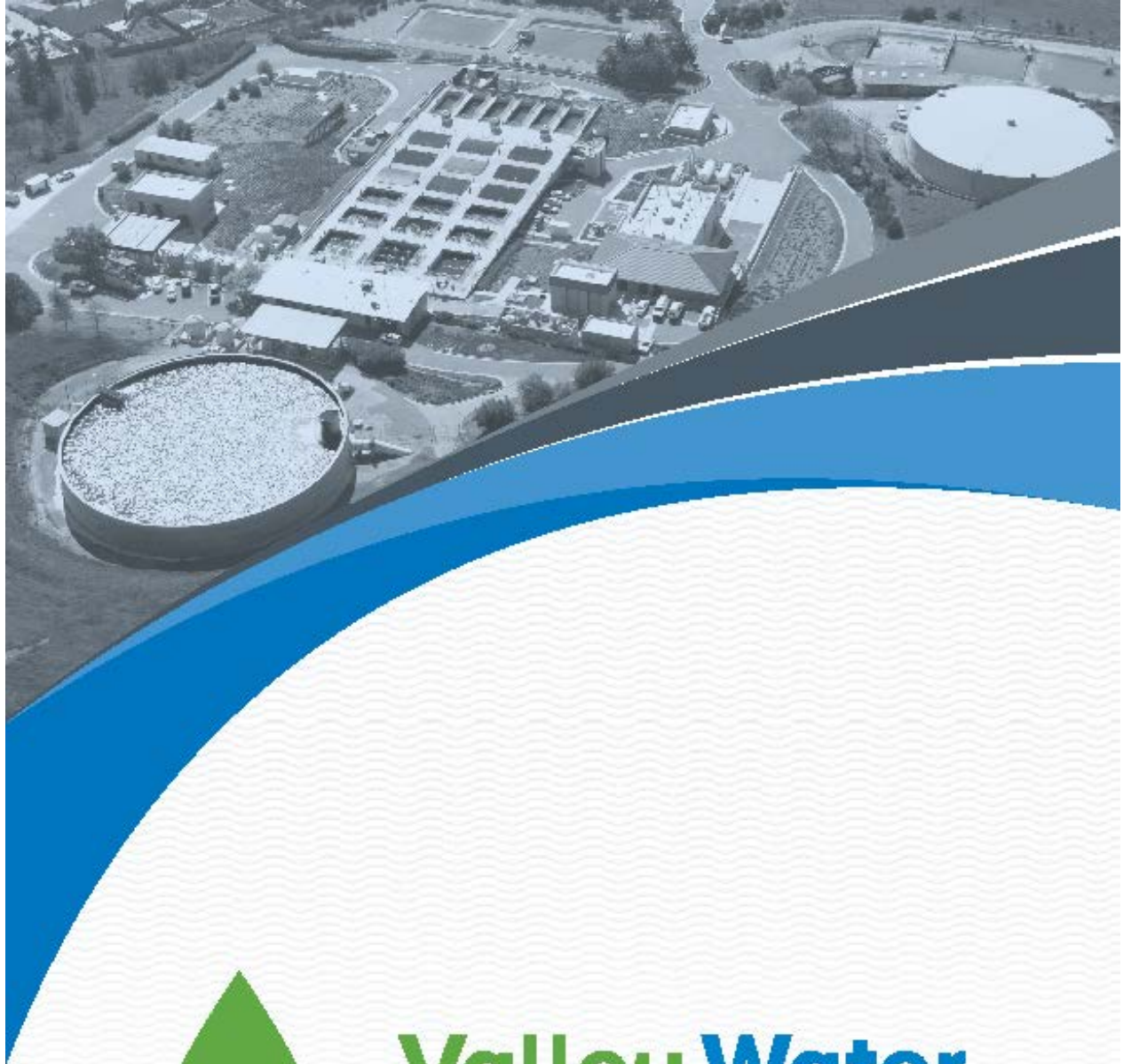
Fiscal year 2022-2026

Water utility Enterprise Maintenance Work Plan (MWP)

APPENDIX B: REVIEW OF FY2021 PLANNED ASSET RENEWAL WORK

To be updated in June 2021

DRAFT



Valley Water

Clean Water • Healthy Environment • Flood Protection

Santa Clara Valley Water District
5750 Almaden Expressway, San José, CA 95118-3686
Phone: (408) 265-2600 Fax: (408) 266-0271
www.valleywater.org

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