

DRAFT



Valley Water

FY 2023-27

Water Utility Enterprise Operations & Maintenance Plan

FY 2023-27 Water Utility Enterprise Operation and Maintenance Plan

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DRAFT December 1, 2021

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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 (e.g., 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 baseline and unfunded operations and maintenance project resource needs for the Raw and Treated Water Operations Divisions for the next five fiscal years, 2023 to 2027, and provides an explanation of unfunded needs.
- Identifies the water utility planned asset renewal projects scheduled for the next five fiscal years, 2023 to 2027, 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 2022.

This is a rolling five-year plan that is updated annually. Throughout the plan, the term 'baseline' refers to activities that provide current service levels and are assumed to be funded in fund forecasts prepared by Valley Water's Financial Planning and Management Services Division. ***The FY23-24 budget requests and unfunded needs are preliminary, and will be evaluated throughout the budget and groundwater charge (rate) setting processes through May 2022.***

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 baseline and unfunded resource requirements for these operations activities are summarized in Section IV of this plan.

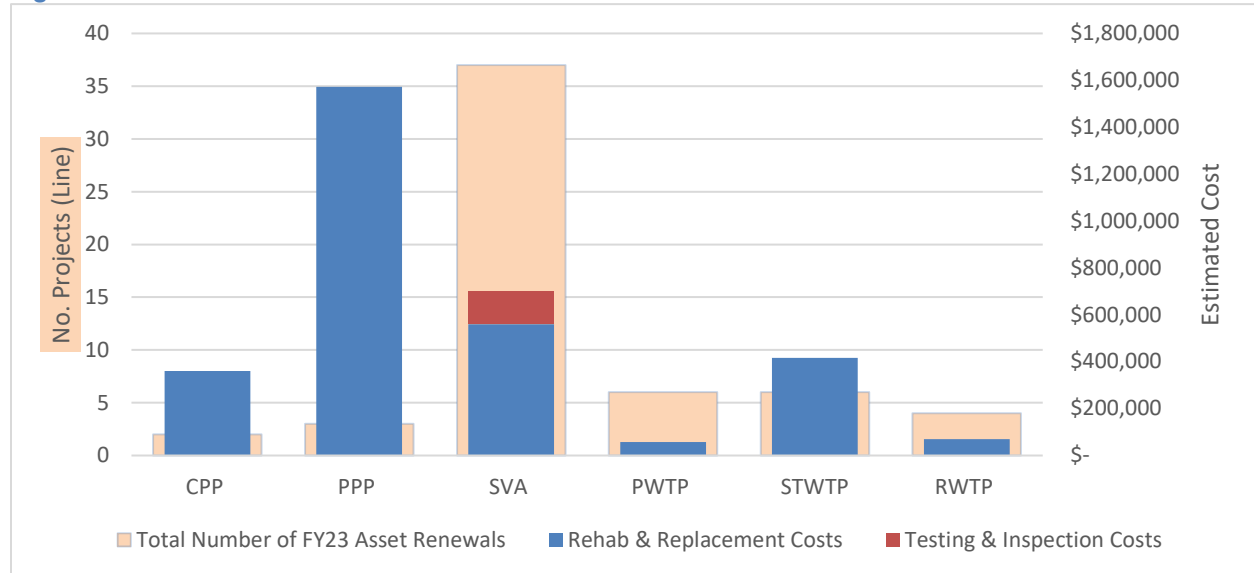
Maintenance work that involves rehabilitation or replacement of an asset or group of assets is budgeted in small or individual capital projects. This type of work extends the life of an asset and is therefore capitalized. Asset rehabilitation and replacement work is identified through the maintenance work planning process described in Section III of this plan. An overview of work for the next five years is below. Note this plan does not include individual/large capital projects as these are included in Valley Water's Five-Year CIP.

In addition, Valley Water is undertaking infrastructure master planning efforts for its water treatment plants, distribution system, and SCADA system. These efforts will identify major facility renewal projects for future years. The projects that come from the master plans will likely be too large for maintenance to execute, and will be done as large/individual capital improvement projects.

FY 23 – 27 Planned Asset Renewal Work

Figure 1 shows 58 planned asset renewal projects scheduled in fiscal year 2023 (FY23) for Water Utility facilities. This work is estimated at nearly \$3.2 Million.

Figure 1: FY23 WUE OMP Planned Work

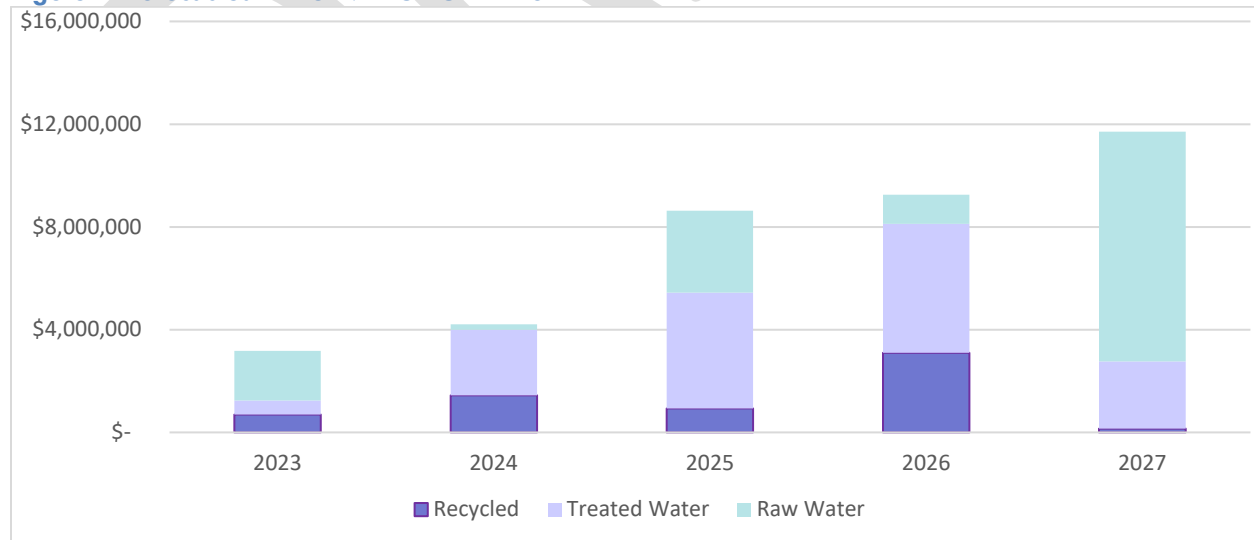


Notes: SVA = Silicon Valley Advanced Water Purification Center; PWTP = Penitencia Water Treatment Plant; STWTP = Santa Teresa Water Treatment Plant; RWTP = Rinconada Water Treatment Plant; CPP = Coyote Pumping Plant; PPP = Pacheco Pumping Plant; SFI: San Francisco Intertie; SFD R: San Felipe Division Reach

FY2023 – FY2027

Figure 2 summarizes costs of projected asset renewal projects to be completed in future fiscal years (FY23-27), 2023-2027. Over the next five fiscal years, Valley Water estimates \$37 Million of planned asset renewal work.

Figure 2: Forecasted FY23-27 WUE OMP Work



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, and Santa Teresa. Recycled = SCRWA system and Silicon Valley Advanced Water Purification Center

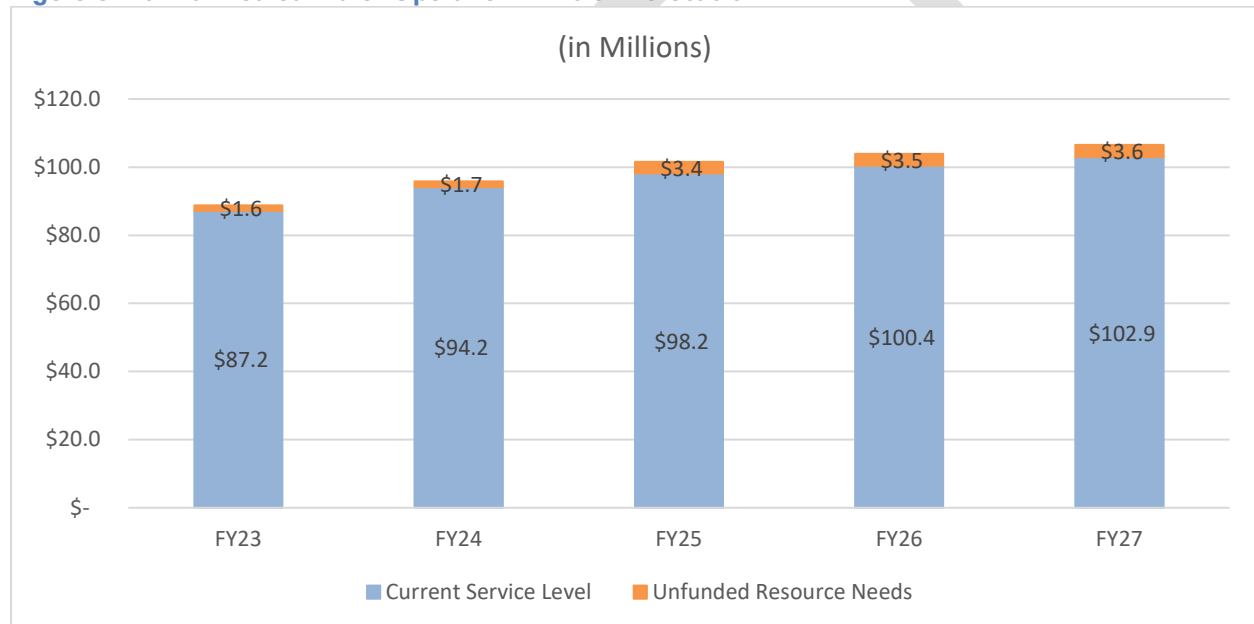
Review of Completed FY2022 Asset Renewal Projects (to be updated at the end of FY22)

Note this section will be updated for the final plan in June 2022, and will include a summary of work completed in FY22.

Five-Year Operations Project Forecasts

Five-year forecasts of funding for baseline (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. The Draft report is prepared using long term forecast data and unfunded needs requests as of December 2021. ***The FY23-24 budget requests and unfunded needs are preliminary, and will be evaluated throughout the budget and groundwater charge (rate) setting processes through May 2022.*** The plan is finalized following Board adoption of Valley Water's final budget and groundwater production charges. The final plan will document the final budgeted amounts for each project for FY23-24 as well as any remaining unfunded needs following the budget and groundwater charge setting process.

Figure 3: Raw & Treated Water Operation Division Forecasts



*Data as of December 2021.

In total, the Raw and Treated Water Operations Divisions have identified baseline resource needs of \$87.2 Million, and an additional unfunded need of \$1.6 Million for Fiscal Year 2023. These unfunded resources would provide the following services:

- Support for ongoing laboratory operations to meet accreditation requirements
- Program administration for the Corrosion Control and Cathodic Protection Program
- Mechanical engineering support for Water Utility maintenance and capital projects
- Water Quality support to ongoing operations
- Electrical and Controls engineering support for future capital improvements such as Pacheco Reservoir Expansion Project.

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 baseline and unfunded operations and maintenance project resource needs for the Raw and Treated Water Operations Divisions for the next five fiscal years, 2023 to 2027, and provides an explanation of unfunded needs.
- Identifies the water utility planned asset renewal projects scheduled for the next five fiscal years, 2023 to 2027, 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 2022.

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.

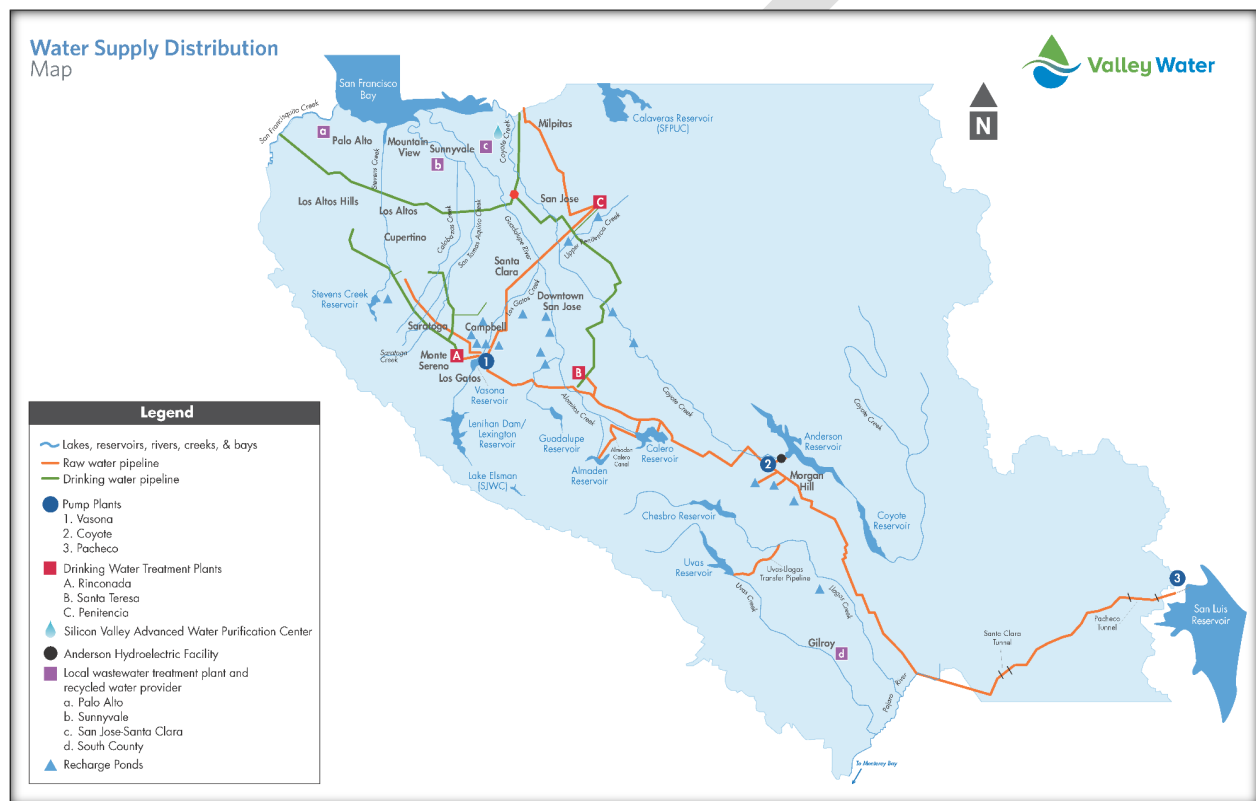
Copies of past years' reports are available on the Valley Water intranet on the asset management web site at <http://www.aqua.gov/asset-management-library>.

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:

- **FY23-27 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.
- **FY23-27 Watersheds Operation and Maintenance 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

- FY23-32 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.
- FY23 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. Biennial 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.

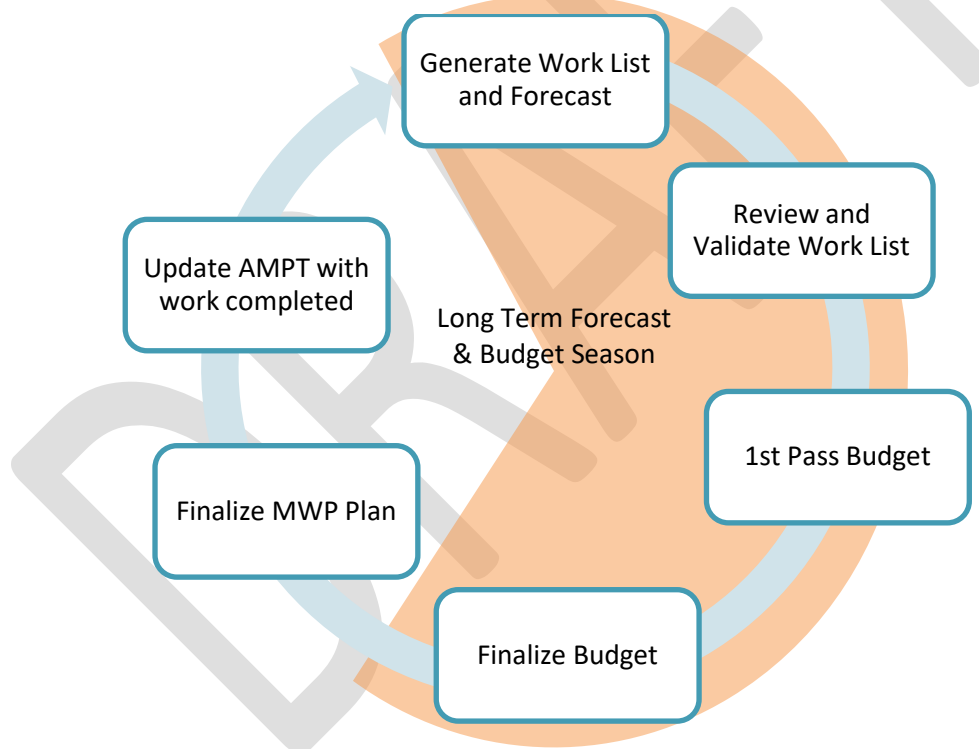
III. WORK PLANNING AND EXECUTION

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 (e.g., 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.

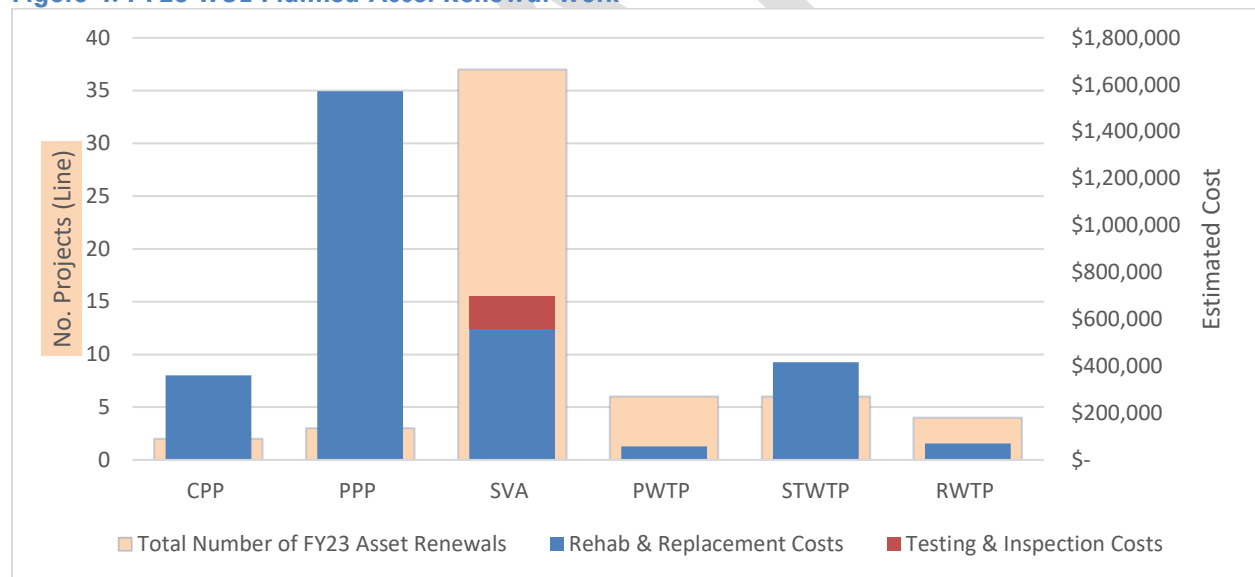
FY 23-27 Planned Asset Renewal Work

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 FY23 is fixed, whereas the work listed for the remaining four years of the five-year rolling plan is adjusted based on changing conditions.

FY23 Summary

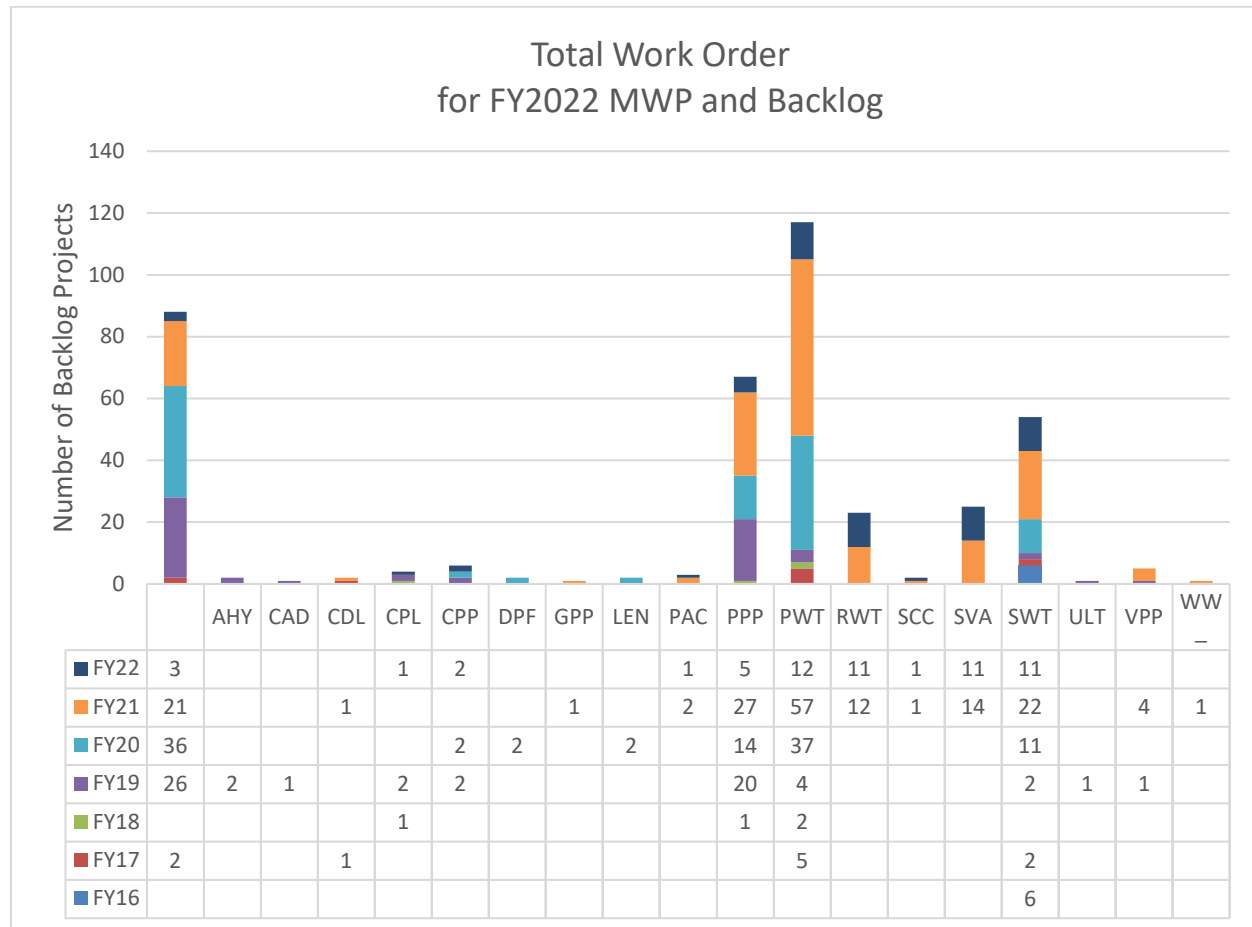
For FY 2023, a total of 58 asset renewal projects were identified, with an estimated total cost of \$3.2 Million. Note this cost includes materials and equipment plus a multiplier for labor and installation costs. In addition to projects identified for FY 2023, staff continues to work on projects identified in prior years. These projects are referred to as “backlog work”. There are a total of 564 backlog projects from prior years FY16-22 that staff continues to work on. Figures 4 and 5 provide information about FY23 Planned work and backlog. As shown in Figure 5, many backlog projects are from FY20 and FY21. Many asset renewal projects did not get completed these years due to COVID-19.

Figure 4: FY23 WUE Planned Asset Renewal Work



Note: See Table of Acronyms for Facility Names

Figure 5: WUE Planned Asset Renewal Work Backlog



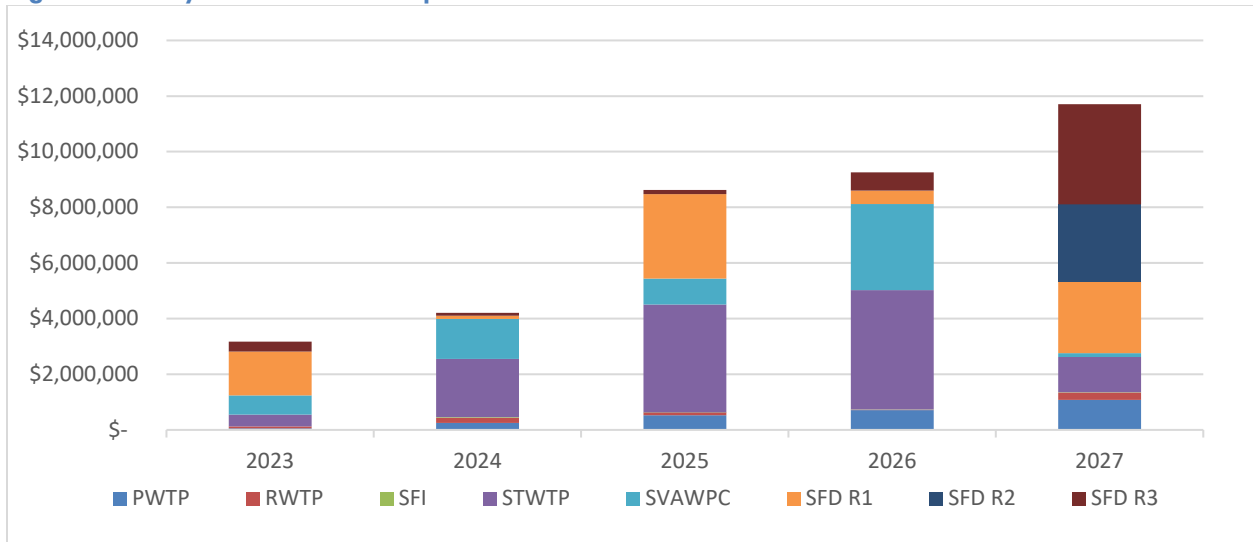
Note: See Table of Acronyms for Facility Names *Data as of November 2, 2021.

FY2023 – 2027 Summary

Figures 6 through 23 summarize the projected asset renewal projects to be completed in future fiscal years, 2023-2027. 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. The total project costs over five years is \$37 Million.

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.

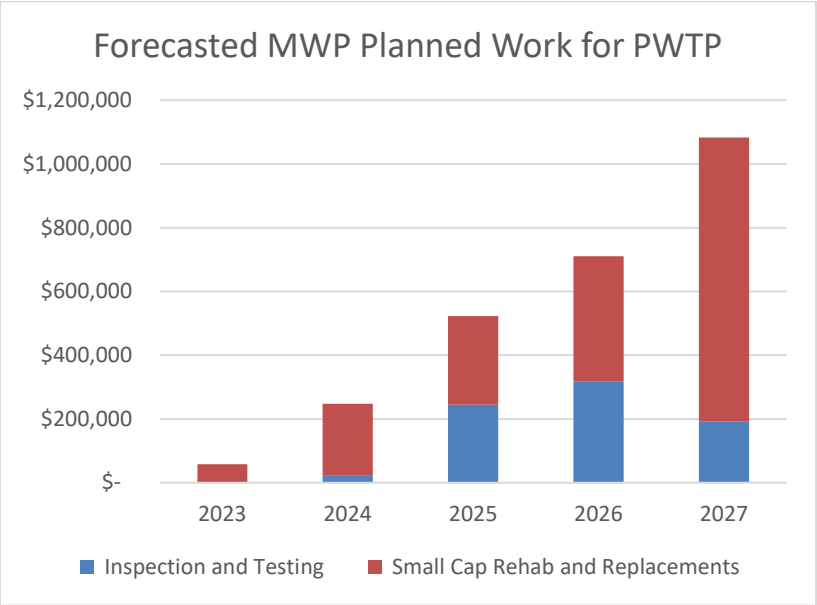
Figure 6: Five-year Forecasted Projects



Note: See Figure 1 for facility names

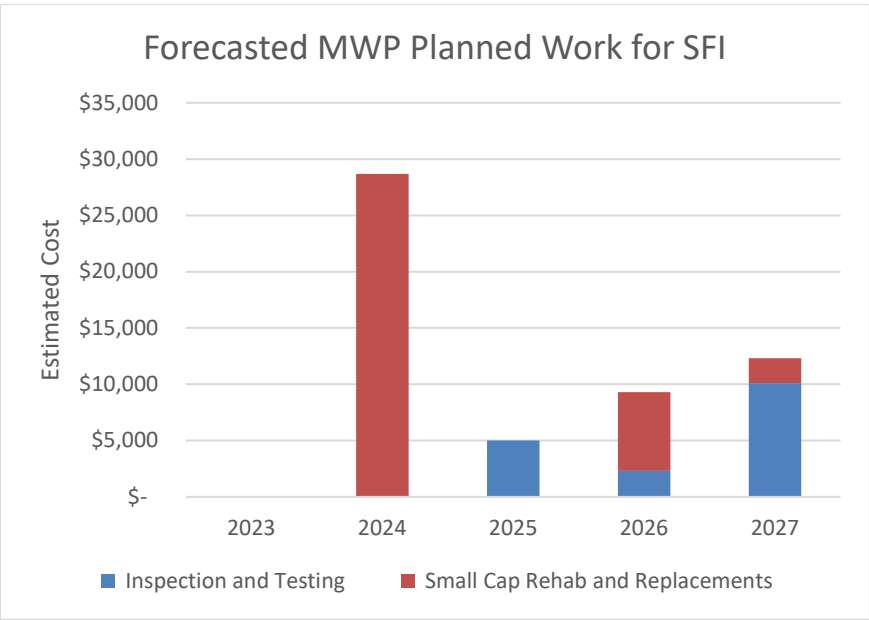
All replacements are pending condition assessment.
Replacement activities may be replaced with rehabilitations.

Figure 7: Penitencia Water Treatment Plant (PWTP) FY23-27 Planned and Forecasted Work



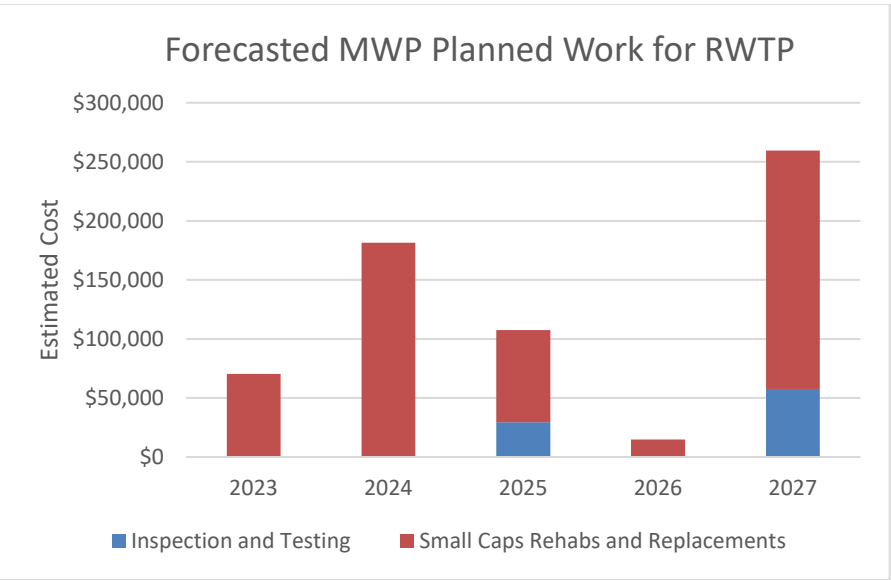
Year	Most Expensive Planned Work for PWTP
2023	-Replacement of Primary & Backup Non-Ionic Poly Blend Pump (~\$12k each) -Replacement of Ozone After Destruct Motor (~\$11k)
2024	-Replacement of Dutard Pump Station Pump #2 (~\$39k) -Replacement of Carbon Tank #1 Dust Collector (~\$31k) -Replacement of Lab TOC (~\$20k)
2025	-Inspection of Carbon Tanks #1&2 (~\$113k each) -Replacement of Backwash Motor (~\$111k)
2026	-Replacement of various chemical feed pumps
2027	-Replacement of Flocculator drive units (~\$22k; each 9 total) -Replacement of filter valve operators (~\$12k; 14 total)
Note: The following assets replacements are not included in the MWP forecast: -Motor control centers included in the WTP Electrical Improvement Project (Capital Project estimated in FY24)	

Figure 8: San Francisco Intertie (SFI) FY23-27 Planned and Forecasted Work



Year	Most Expensive Planned Work for SFI
2023	
2024	-Replacement of Pump Station Security Alarm System (~\$9k) -Replacement of Phosphoric Acid Pumps #1&2 (~\$7k each)
2025	-Electrical Testing of Pump Station Transformer (~\$5k)
2026	-Replacement of Phosphoric Acid Feed Motors #1&2 (~\$1k each) -Replacement of Backup Generator Tank Unloading Motor (~\$1k)
2027	-Electrical Testing of Pump Station Transformer (~\$5k) -Inspection of Phosphoric Acid Tank (~\$5k) -Replacement of Pump Station SCADA Node (~\$2k)

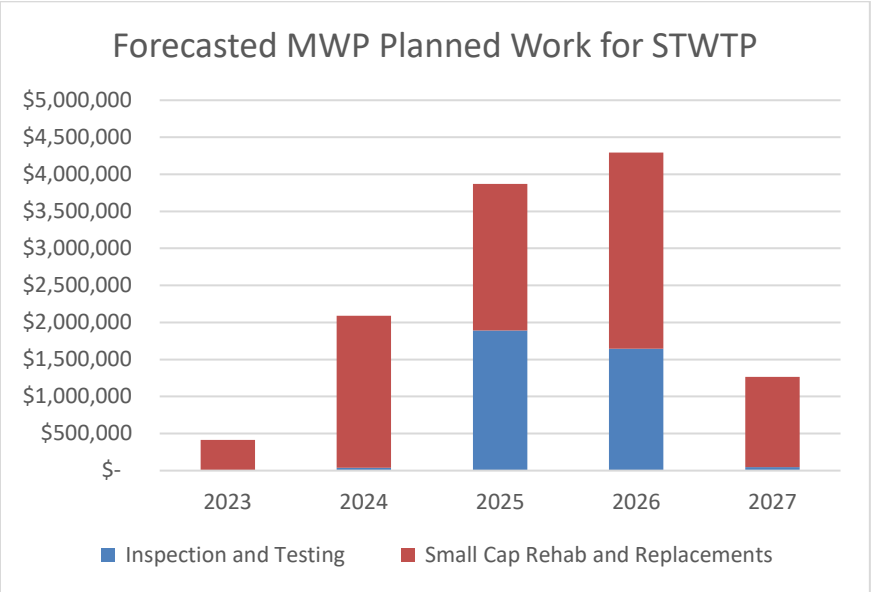
Figure 9: Rinconada Water Treatment Plant (RWTP) FY23-27 Planned and Forecasted Work



Year	Most Expensive Planned Work for RWTP
2023	-Rehabilitation of Caustic Tanks #1&2 Control Panel (~\$28k each) -Replacement of PAC Dust Collector #2 (~\$24k) -Replacement of More Ave. Resv. Flushing Flowmeter (~\$12k)
2024	-Replacement of UPS 50 KVA (~\$66k) -Rehabilitation of Non-Ionic Neat Poly Storage Tank Mixer (~\$55k) -Replacement of PAC Dust Collector #1 (~\$31k)
2025	-Replacement of PAC Storage Tank #2 Mixer (~\$47k) -Rehabilitation of MAPS LCCP1 (~\$27k) -Electrical Testing of MAPS Transformer 30 KVA (~\$5k)
2026	-Replacement of Phosphoric Acid Tank Transfer Pump (~\$8k) -Replacement of Floc Poly Pumps #1&2 (~\$8k each)
2027	-Rehabilitation of Treated Water Pumping Panel (~\$28k) -Rehabilitation of RM 220 Local Control Panel #14 (~\$28k) -Replacement of Caustic Soda SCADA Panel (~\$18k)
Note: RWTP projected planned work is anticipated to change once AMPT is updated with the newly installed assets per the CIP project. AMPT has been updated with RWTP new assets starting in FY22 and will continue until the CIP completion.	

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

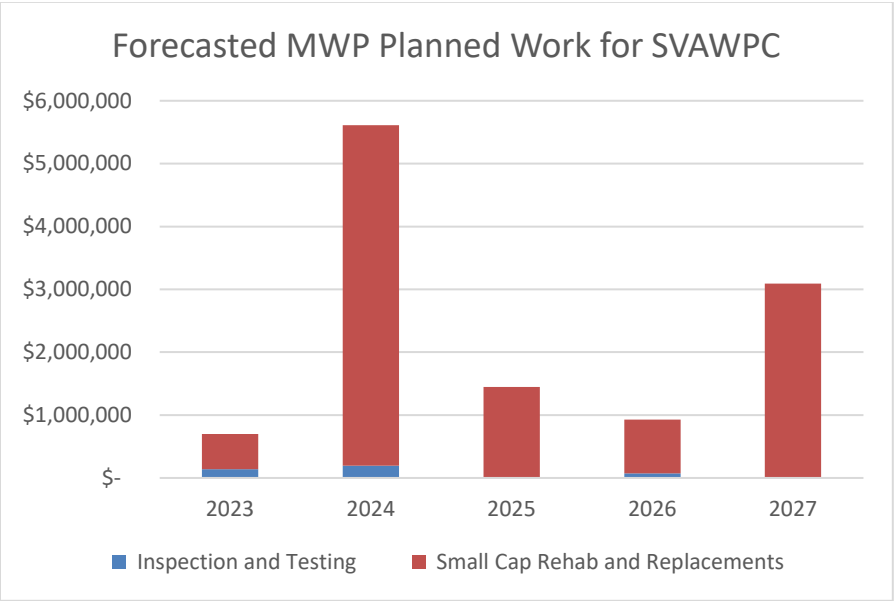
Figure 10: Santa Teresa Water Treatment Plant (STWTP) FY23-27 Planned and Forecasted Work



*Includes Graystone pumping station projects

Year	Most Expensive Planned Work for STWTP
2023	-Rehabilitation of Ozone Generator Chamber (~\$240k) -Replacement of Cross Collector Sludge Collector System (~\$120k) -Replacement of Floc./Sed. Mixer and Drive (~\$30k)
2024	-Replacement of Chiller (~\$287k) -Replacement of Non-Ionic Poly Day Tank #13 Mixer (~\$133k) -Replacement of Cationic Poly Tank #11 Mixer (~\$133k)
2025	-Inspection of West Filters #1 - 5 (~\$225k each)
2026	-Inspection of WWC Floc. and Sed. Basins #1 & 2 (~\$232k each) -Inspection of East Filter #3&5 (~\$232k each)
2027	-Replacement of UPS System in OPS Bldg. (~\$72k) -Replacement of Floc. Mixer 1 st STG MX-25 (~\$50k) -Replacement of Floc. Mixer 3 rd STG MX-23 (~\$50k)
Note: The following assets replacements are not included in the MWP forecast: -Replacement of Filter Media and Filter valves (Capital Project) -Motor control centers included in the WTP Electrical Improvement Project (Capital Project estimated in FY24)	

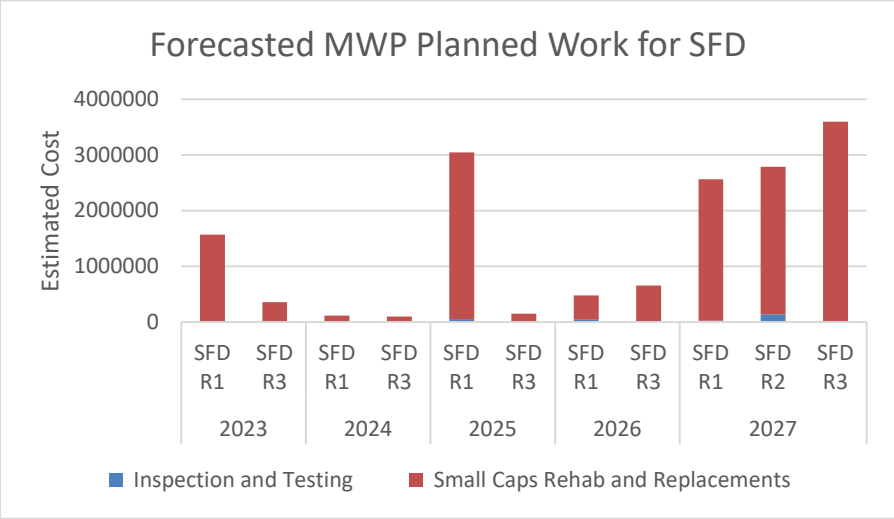
Figure 11: Silicon Valley Advanced Water Purification Center (SVAWPC) FY23-27 Planned and Forecasted Work



Year	Most Expensive Planned Work for SVAWPC
2023	-Rehabilitation of Sleeves and Wipers per MFG specs of UV Systems Reactors Train (~\$78k) -Performance Review (~\$78k) -Rehabilitation of Threshold Inhibitor Tank Mixer #2 (~\$60k)
2024	-Replacement of RO Trains #1, 2, & 3 (~\$333k each) -Replacement of Main Breaker Transformer 9804 (~\$60k)
2025	-Rehabilitation of Fire Protection Pump (~\$34k) -Rehabilitation of RO Flush Pump #2 Spare (~\$24k) -Rehabilitation of Product Water Storage Tank Outlet RO Flush Pump Spare (~\$24k)
2026	-Rehabilitation of Threshold Inhibitor Tank Mixer #1 (~\$58k) -Rehabilitation of MF Reverse Filtration Supply Pump #2 (~\$35k) -Replacement of ~900 MF Membranes (~\$3k each)
2027	-Inspection of Sodium Hydroxide Tanks #1&2 (~\$14k)
Note: Various asset replacements have been scheduled for 2023-2025 or 10 years after installation. In FY23, SVAWPC and Asset Management staff will reevaluate useful life and schedule based on asset condition.	

The FY23-24 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 FY23-27 Planned and Forecasted Work



Year	Most Expensive Planned Work for SFD
2023	R1 -Rehabilitation of PPP Pump Unit (~\$1.32M) -Inspection and Rehabilitation of PPP Motor (~\$240k) R3 -Rehabilitation of CPP Pump (Unit #1) (~\$180k)
2024	R1 -Replacement of PPP Site Security System (~\$58k) -Replacement of PAC BIF Stand-By Generator (~\$30k) R3: -Replacement of CPP Shop Air Compressor (~\$45k)
2025	R1 -Rehabilitation of PPP Pump #1-12 Motors (~\$236k each) R3 -Replacement of Coyote Pump Office Trailer #1 (~\$124k)
2026	R1 -Replacement of PPP Regulating Tank External CP Rectifier Anode Bed (~\$226k) -Inspection of Pacheco Regulating Tank (~\$28k)

Year	Most Expensive Planned Work for SFD
	R3 -Replacement of Coyote Pump Isolation Control Valves #3&4 (~\$92k each)
2027	R1 -Replacement of PPP Mech and HVAC Gallery Chillers CH-1&CH-2 (~\$313k each) R2 -Rehabilitation of SCC Fault Crossing Pipe (~\$1.8M) R3 -Replacement of CPP Distribution Panelboard DNA Transformer (~\$1.1M)

Note: The following assets replacements are not included in the MWP forecast:
-Pipeline inspection and rehabilitations per the 10-year Capital Pipeline Rehabilitation project
Tentatively scheduled in FY23 (pending shutdown windows):
Pacheco Tunnel Reach 2, PSV, Santa Clara Tunnel SCT to SV1, and Santa Clara Conduit. 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 FY23-27 Planned and Forecasted Work

Year	Most Expensive MWP Planned Work for Raw Water Transmission and Distribution
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	
2026	
2027	

Note: The following assets replacements are not included in the MWP forecast:
-Pipeline inspection and rehabilitations per the 10-year Capital Pipeline Rehabilitation project
Tentatively scheduled pending shutdown windows:
-- In FY23, Almaden Valley Pipeline (Coleman to Calero) in FY23, Snell Pipeline in FY24, West Pipeline (RWTP to Cox) in FY25, West Pipeline (Cox to Mountain View LV) in FY26, East Pipeline (PWTP to Thompson LV) in FY27.

Figure 14: Treated Water Transmission and Distribution FY23-27 Planned and Forecasted Work

Year	Most Expensive Planned Work for Treated Water Transmission and Distribution
2023	Development of mobile condition assessment solution
2024	-Pilot Pipeline Appurtenance Inspection and condition assessment with mobile solution
2025	
2027	

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

Figure 15: Gilroy Reclamation Line FY23-27 Planned and Forecasted Work

Year	Most Expensive Planned Work for Gilroy Reclamation Line
2023	TBD
2024	TBD
2025	TBD

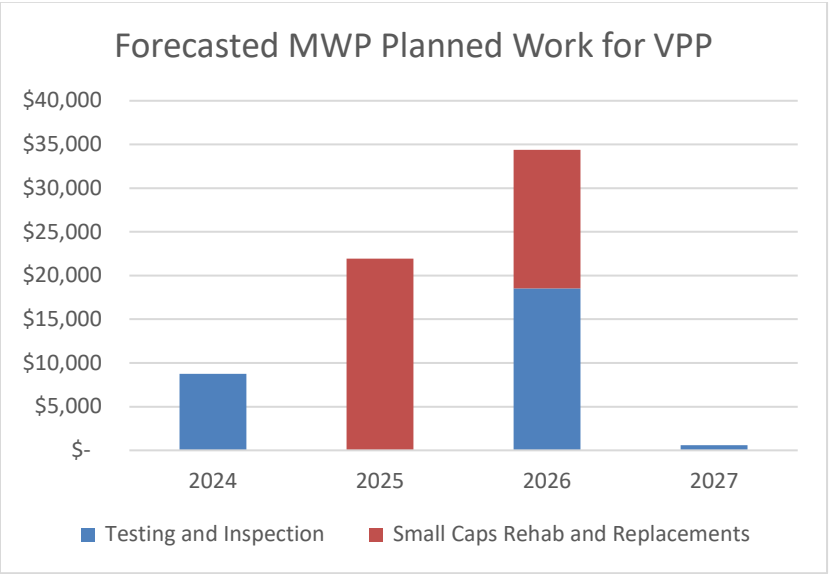
Note: An inspection of a portion of the Gilroy Reclamation Line will be schedule during the South Country Recycled Water Pipeline Project (Capital Project). A contractor will conduct a condition assessment of the pipeline. After the inspection, Asset Management will update the planned work.

Figure 16: Anderson Hydroelectric (AHY) Facility FY23-27 Planned and Forecasted Work

Year	Most Expensive Planned Work for AHY
2023	
2024	
2025	

Note: In FY22, Anderson Hydroelectric will be decommissioned. No asset renewal work is scheduled in FY23-26.

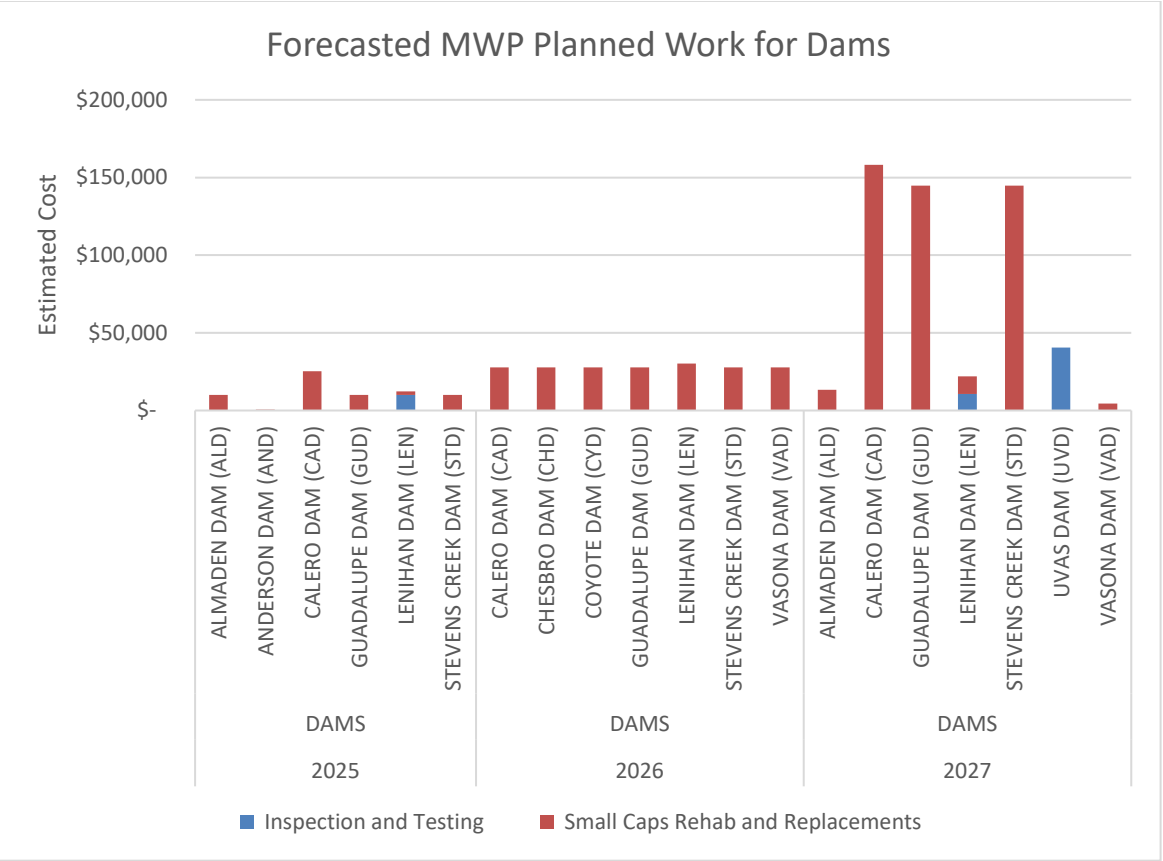
Figure 17: Vasona Pumping Plant (VPP) Facility FY23-27 Planned and Forecasted Work



Year	Most Expensive Planned Work for VPP
2023	
2024	-Electrical Testing (~\$9k)
2025	-Replacement of #300 Isolation Valve (~\$22k)
2026	-Electrical Testing (~\$9k) -Replacement of Backflow Preventer (~\$8k) -Replacement of BIF Metering Pump (~\$8k)
2027	-Inspection of Meter Shop Air Compressor (~\$1k)

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 FY23-27 Planned and Forecasted Work



Year	Most Expensive Planned Work for Dams
2023	
2024	
2025	-Replacement of ALD, CAD, & GUD Oxygenation Trailer RECIP Compressors (~\$10k each)
2026	-Replacement of SCADA RTUs (~\$195k each)
2027	-Replacement of CAD, GUD, & STD Oxygenation Trailers (~\$131k each)

Note: The Five-Year MWP does not currently include rehabilitation or replacements 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 \$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.

One new individual Capital Projects have been identified for FY2023. The approved project is Coyote Pumping Plant Isolation Valves and Actuators replacement, which will replace seven valve actuators at CPP.

Staff is currently working on grouping activities for future FYs 2024-2027. In addition, Valley Water is undertaking infrastructure master planning efforts for its water treatment plants, distribution system, and SCADA system. These efforts will identify major facility renewal projects for future years. The projects that come from the master plans will likely be too large for maintenance to execute, and will be done as large/individual capital improvement projects.

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 competed asset renewal work planned for FY22 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.

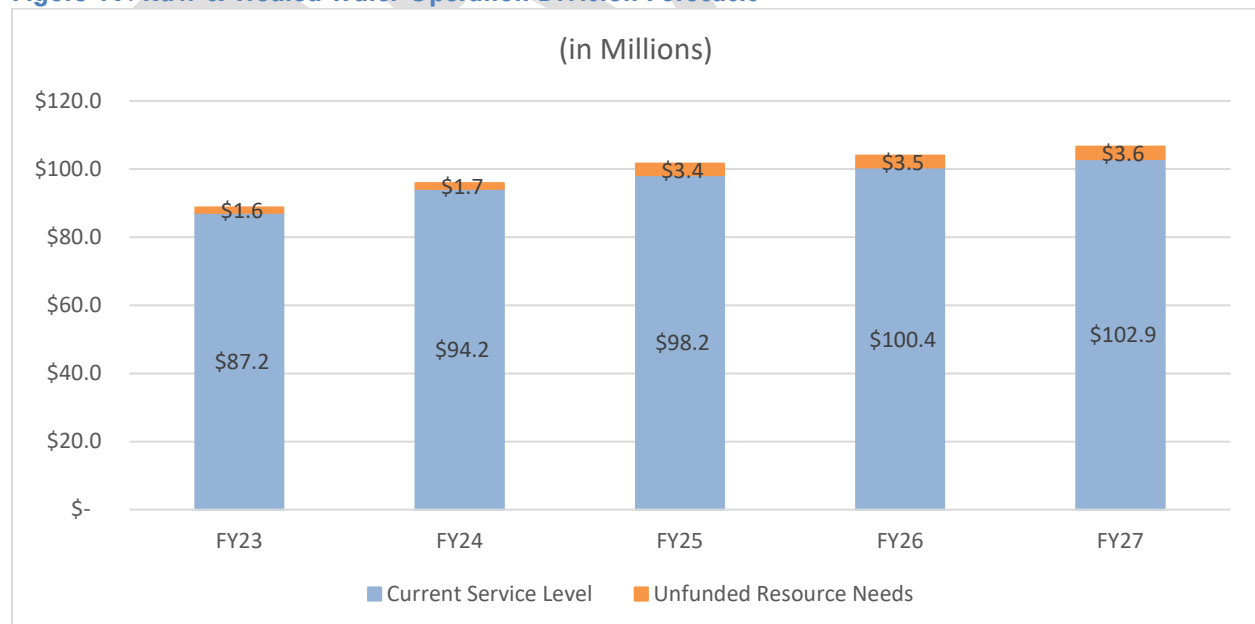
The Draft report is prepared using long term forecast data and unfunded needs requests as of December 2021. ***The FY23 budget requests and unfunded needs are preliminary, and will be evaluated throughout the budget and groundwater charge (rate) setting processes through May 2022.***

Throughout the plan, the term 'baseline' refers to activities that maintain current service levels and are assumed to be funded in fund forecasts prepared by Valley Water's Financial Planning and Management Services Division. The plan is finalized following Board adoption of Valley Water's final budget and groundwater production charges. The final plan will document the final budgeted amounts for each project for FY23-24 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 23-27.

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*



*Data as of December 2021.

In total, the Raw and Treated Water Operations Divisions have identified baseline resource needs of \$87.2 Million, and an additional unfunded need of \$1.6 Million for Fiscal Year 2023. Additional details on these resource requests are provided below. ***The requests and unfunded needs are preliminary, and will be evaluated throughout the budget and groundwater charge (rate) setting processes through May 2022.*** The additional requested resources would provide the following services:

- Mechanical engineering support for operations, maintenance, asset management and capital projects and programs for water treatment, pump station and transmission facilities; including pump condition monitoring, completion of annual maintenance work, and support for water utility capital projects.
- Program administration support for the Corrosion Control and Cathodic Protection Program; including data analysis, contract administration, and project and survey scheduling.
- Laboratory operations support for water quality testing needs and to meet accreditation requirements.
- Water quality support for water treatment plant operations and implementing a new water quality database.
- Future electrical and control systems engineering support for upcoming major capital projects including Anderson Dam Seismic Retrofit Project, Pacheco Reservoir Expansion Project and the Purified Water Program.

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 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 and supports the development of the water treatment plant, distribution system and SCADA implementation plans.

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	FY22 Adopted	FY23 Requested	FY24	FY25	FY26	FY27
SFD Reach 1 Administration - 91211005	408	\$11	\$12	\$13	\$13	\$14	\$14
SF Reach 1-Engineering – Other - 91211085	435	\$299	\$486	\$343	\$355	\$366	\$378
SF Reach 2-Engineering – Other - 91221006	435	\$160	\$192	\$412	\$426	\$440	\$454
SF Reach 3-Engineering – Other - 91231085	435	\$116	\$129	\$346	\$369	\$381	\$393
Raw Water T&D - Engineering – Other - 92761083	435	\$1,135	\$1,666	\$1,461	\$1,512	\$1,562	\$1,616
Raw Water Corrosion Control - 92781002	435	\$664	\$725	\$752	\$778	\$804	\$832
Water Treatment Plant Engineer - 93081009	435	\$363	\$439	\$455	\$471	\$487	\$503
TW T&D - Engineering – Other - 94761005	435	\$566	\$683	\$710	\$868	\$897	\$929
Treated Water T&D Corrosion - 94781001	435	\$533	\$577	\$651	\$619	\$639	\$661
Water Operations Planning - 91041012	455	\$655	\$805	\$838	\$870	\$901	\$934
Water Rights - 91111001	455	\$678	\$771	\$806	\$839	\$871	\$906
San Felipe Reach 1 Operation - 91211004	455	\$653	\$739	\$770	\$800	\$828	\$858
San Felipe Reach 2 Operation - 91221002	455	\$53	\$69	\$72	\$75	\$77	\$80
San Felipe Reach 3 Operation - 91231002	455	\$104	\$201	\$333	\$355	\$388	\$412
Local Reservoirs/Diversions Planning & Analysis - 91761001	455	\$2,437	\$2,758	\$2,590	\$2,502	\$2,589	\$2,685
Raw Water T&D General Operation - 92761001	455	\$1,734	\$1,857	\$1,933	\$2,007	\$2,080	\$2,156
Untreated Water Program Planning - 92761012	455	\$444	\$491	\$511	\$530	\$549	\$568
Groundwater Management Program - 91041018	465	\$5,815	\$5,893	\$6,137	\$6,371	\$6,799	\$6,858
Hollister Groundwater Management - 60041003	465	\$69	\$73	\$76	\$79	\$136	\$108
Nitrate Treatment System Rebate Program - 26061010	465	\$4					

PROJECT NAME & NUMBER	UNIT	FY22 Adopted	FY23 Requested	FY24	FY25	FY26	FY27
Rinconada WTP General Maintenance - 93291099	555	\$3,317	\$4,472	\$4,655	\$4,821	\$4,983	\$5,152
Santa Teresa WTP General Maintenance - 93281099	555	\$3,248	\$3,952	\$4,106	\$4,255	\$4,400	\$4,552
Penitencia WTP General Maintenance - 93231099	555	\$2,842	\$3,376	\$3,507	\$3,634	\$3,757	\$3,886
SF/SCVWD Intertie General Maintenance - 93761099	555	\$147	\$187	\$193	\$200	\$207	\$213
Campbell Well Field Maintenance - 93761005	555	\$110	\$112	\$121	\$125	\$120	\$134
San Felipe Reach 1 General Maintenance - 91211099	585	\$859	\$940	\$977	\$1,887	\$1,048	\$1,084
San Felipe Reach 2 General Maintenance - 91221099	585	\$178	\$165	\$171	\$177	\$183	\$189
San Felipe Reach 3 General Maintenance - 91231099	585	\$1,125	\$1,154	\$1,199	\$1,242	\$1,364	\$1,329
Vasona Pumping Station General Maintenance - 92261099	585	\$159	\$252	\$240	\$270	\$258	\$288
Recycled Water General Maintenance - 92761008	585	\$225	\$274	\$284	\$294	\$304	\$314
Recharge & Raw Water Field Operations - 92761009	585	\$3,244	\$3,546	\$3,677	\$3,805	\$3,932	\$4,061
Recharge & Raw Water Field Facility Maintenance - 92761010	585	\$1,866	\$2,494	\$2,583	\$2,672	\$2,759	\$2,850
Anderson Hydroelectric Facility Maintenance - 92761085	585	\$160	\$163	\$156	\$175	\$167	\$187
Raw Water T&D General Maintenance - 92761099	585	\$2,361	\$2,769	\$2,880	\$2,987	\$3,046	\$3,152
Treated Water T&D General Maintenance - 94761099	585	\$1,529	\$1,540	\$1,612	\$1,658	\$1,728	\$1,773
TOTAL		\$37,863	\$43,962	\$45,570	\$48,041	\$49,064	\$50,509

*In thousands. Data as of December 2021.

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 LSAA's.
- Measure groundwater elevation in 200 wells and complete monthly Groundwater Condition Reports.
- Submit groundwater elevation data to the California Department of Water Resources (DWR) semi-annually.
- Submit updated SGMA alternative plan to DWR and adopt the 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	FY23	FY23	FY24	FY25	FY26
Raw Water Corrosion Control - 92781002	435	\$373	\$389	\$404	\$418	\$434
Water Treatment Plant Engineer - 93081009	435	\$396	\$413	\$429	\$444	\$460
TOTAL		\$769	\$802	\$833	\$862	\$894

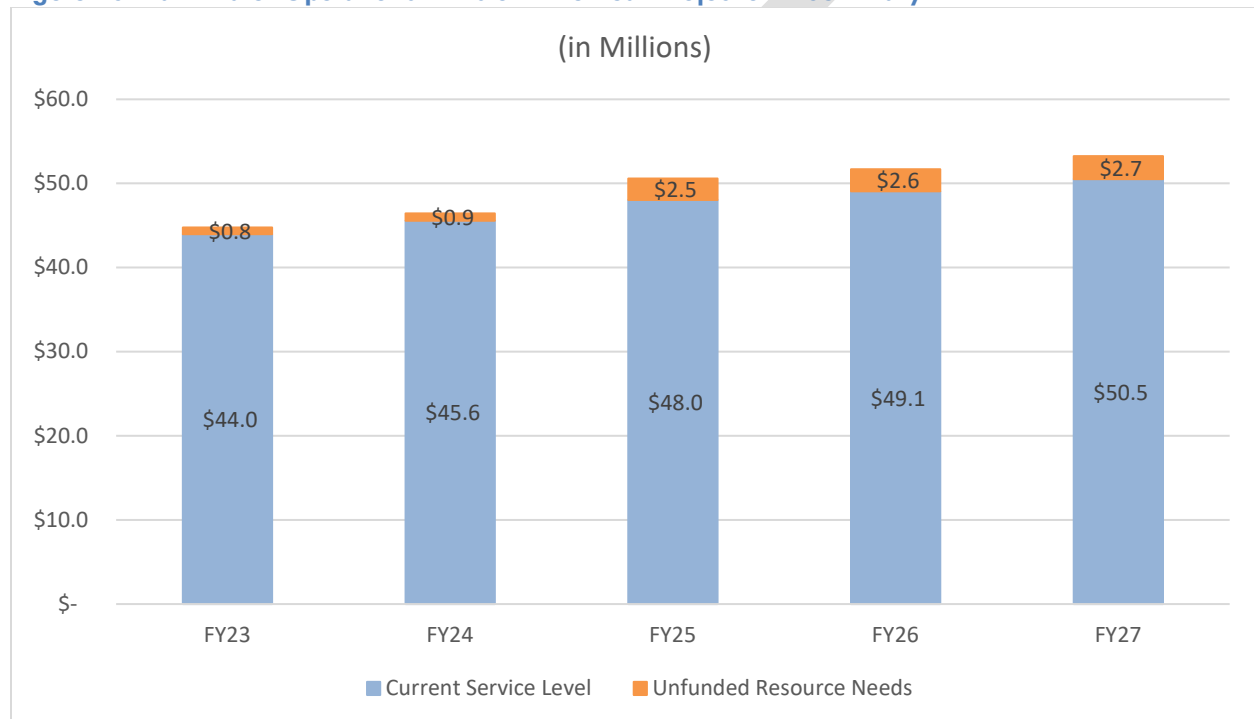
*\$ in thousands. Data as of December 2021.

Description of Services to be Provided with Additional Resources

The additional requested resources will be reviewed through the groundwater charge setting and budget process. The requested resources will provide for:

- Mechanical engineering support for operations, maintenance, asset management and capital projects and programs for water treatment, pump station and transmission facilities; including pump condition monitoring, completion of annual maintenance work, and support for water utility capital projects.
- Program administration support for the Corrosion Control and Cathodic Protection Program; including data analysis, contract administration, and project and survey scheduling.

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



*Data as of December 2021.

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 and distribution system implementation plans.

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 accredited with the California Environmental Laboratory Accreditation Program (ELAP) and tests water produced from each of our drinking water treatment plants, distribution lines, 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 saved Valley Water approximately \$1.13 Million in annual electrical energy expenditures and is 100 percent carbon-free in 2020.

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	FY22 Adopted	FY23 Requested	FY24	FY25	FY26	FY27
Treatment Plant Process & Commissioning - 93081002	516	\$528	\$573	\$597	\$620	\$642	\$666
Source Water Quality Management - 91451005	525	\$423	\$474	\$494	\$513	\$812	\$550
Invasive Mussel Prevention - 91451011	525	\$625	\$760	\$784	\$809	\$834	\$860
WT General Water Quality - 93081008	525	\$2,464	\$3,230	\$2,572	\$2,669	\$2,762	\$2,862
Water District Laboratory - 93401002	535	\$5,971	\$6,838	\$7,146	\$7,421	\$7,727	\$8,016
Energy Management - 00021008	545	\$403	\$447	\$465	\$483	\$500	\$518
SCADA Systems Upgrades - 00761013	545	\$882	\$937	\$970	\$1,003	\$1,035	\$1,069
San Felipe Reach 1 Control and Electrical Engineering - 91211084	545	\$369	\$413	\$430	\$446	\$461	\$477
San Felipe Reach 3 Control and Electrical Engineering - 91231084	545	\$321	\$359	\$373	\$386	\$399	\$413

PROJECT NAME & NUMBER	UNIT	FY22 Adopted	FY23 Requested	FY24	FY25	FY26	FY27
Raw Water T&D Control and Electrical Engineering - 92761082	545	\$722	\$807	\$839	\$870	\$900	\$931
Treated Water Control and Electrical Engineering - 93761006	545	\$2,544	\$2,858	\$2,974	\$3,084	\$3,191	\$3,304
PWTP General Operations - 93231009	565	\$6,175	\$6,973	\$7,234	\$7,490	\$7,740	\$8,002
SFPUC/VW Intertie General Operations - 93761001	565	\$235	\$205	\$212	\$218	\$225	\$232
SVAWPC General Operations - 91281007	565	\$2,678	\$3,053	\$3,165	\$3,275	\$3,383	\$3,496
SVAWPC Facility Maintenance - 91281008	565	\$2,256	\$3,172	\$3,783	\$3,571	\$2,702	\$2,678
Wolfe Road Recycled Water Facility - 91241001	565	\$150	\$155	\$159	\$164	\$169	\$174
STWTP- General Operations - 93281005	566	\$6,837	\$7,247	\$7,515	\$7,655	\$7,910	\$8,176
RWTP - General Operations - 93291012	566	\$9,516	\$9,980	\$10,331	\$10,568	\$10,911	\$11,267
Campbell Well Field Operations - 93761004	566	\$102	\$112	\$116	\$120	\$123	\$ 126
TOTAL		\$43,201	\$48,593	\$50,159	\$51,365	\$52,426	\$53,817

*In thousands. Data as of December 2021.

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 projects, 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, distribution system and SCADA implementation plans.

Additional Resource Needs (Unfunded)*

PROJECT NAME & NUMBER	UNIT	FY23	FY24	FY25	FY26	FY27
WT General Water Quality - 93081008	525	\$438	\$456	\$474	\$490	\$508
Water District Laboratory - 93401002	535	\$383	\$400	\$415	\$430	\$445
SCADA Systems Upgrades - 00761013	545	\$0	\$0	\$246	\$253	\$261
Raw Water T&D Control and Electrical Engineering - 92761082	545	\$0	\$0	\$248	\$257	\$266
San Felipe Reach1 Ctrl and Electrical Engineering - 91211084	545	\$0	\$0	\$129	\$134	\$139
San Felipe Reach 3 Control and Electrical Engineering - 91231084	545	\$0	\$0	\$109	\$112	\$117
Treated Water Control and Electrical Engineering - 93761006	545	\$0	\$0	\$919	\$951	\$986
TOTAL		\$821	\$856	\$2,411	\$2,493	\$2,583

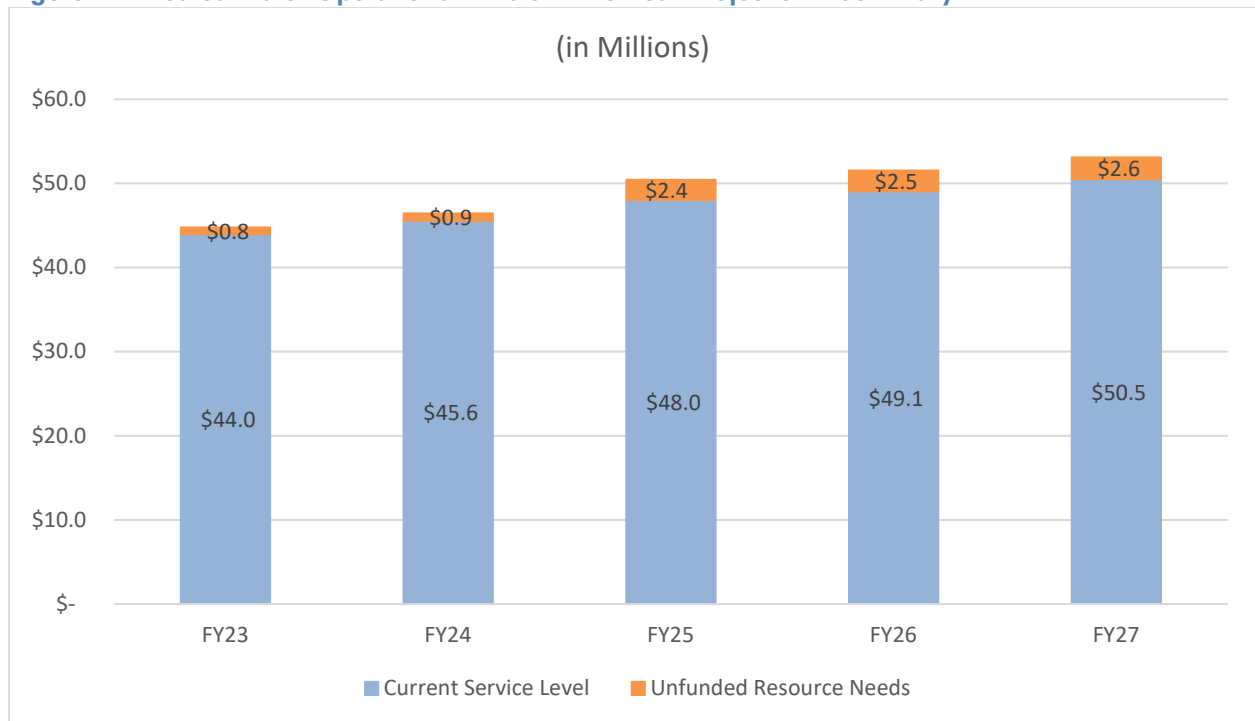
*\$ in thousands. Data as of December 2021.

Description of Services to be Provided with Additional Resources

The additional requested resources will be reviewed through the groundwater charge setting and budget process. The requested resources will provide for:

- Laboratory operations support for ongoing water quality testing needs and to meet accreditation requirements.
- Water quality support for water treatment plant operations and implementing a new water quality database.
- Future electrical and control systems engineering support for upcoming major capital projects including Anderson Dam Seismic Retrofit Project, Pacheco Reservoir Expansion Project and the Purified Water Program.

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



*Data as of December 2021.



Fiscal year 2023-2027

Water Utility Enterprise Operation & Maintenance Plan (WUE OMP)

APPENDIX A: FISCAL YEAR 2023 (FY2023)

PLANNED ASSET RENEWAL WORK

Overview

Appendix A contains tables conveying the FY2023 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, 2022.

Description	Figure No.
FY2023 PW for PWTP	22
FY2023 PW for SFI	23
FY2023 PW for RWTP	24
FY2023 PW for STWTP	25
FY2023 PW for SVAWPC	26
FY2023 PW for San Felipe Reaches	27
FY2023 PW for Water Supply Management System	28

APPENDIX A: FY2023 PLANNED ASSET RENEWAL WORK (PARW) PLANNED WORK

Figure 22: FY23 Planned Asset Renewal Work for PWTP

System	Renewal Project Description and Maximo work order number	Estimated Cost	#
PWTP NON-IONIC POLY	Replacement of PWTP NON-IONIC POLY BLEND PUMP (BACKUP) - AP54393 Maximo work order: to be created in June 2022	\$ 12,600	1
	Replacement of PWTP NON-IONIC POLY BLEND PUMP (PRIMARY) - AP54374 Maximo work order: to be created in June 2022	\$ 12,000	2
PWTP OZONE DESTRUCT	Replacement of PWTP OZONE AFTER DESTRUCT MONITOR (AIT-723) - AP52041 Maximo work order: to be created in June 2022	\$ 11,250	3
	Replacement of PWTP OZONE OFF GAS BEFORE DESTRUCT MONITOR (AIT-721) - AP54016 Maximo work order: to be created in June 2022	\$ 11,250	4
PWTP SODIUM HYPOCHLORITE (OCL)	Rehabilitation of PWTP OCL STORAGE TANK #2 TRANSFER PUMP (M-319) - AP54377 Maximo work order: to be created in June 2022	\$ 5,400	5
	Rehabilitation of PWTP OCL STORAGE TANK #3 TRANSFER PUMP (M-320) - AP54379 Maximo work order: to be created in June 2022	\$ 5,400	6
PWTP has 6 total FY23 Renewal Projects with an estimated cost of ~\$58K.			

Figure 23: FY23 Planned Asset Renewal Work for SFI

System	Renewal Project Description and Maximo work order number	Estimated Cost	#
SFI has 0 total FY23 Renewal Projects with an estimated cost of ~\$0.			

Figure 24: FY23 Planned Asset Renewal Work for RWTP

System	Renewal Project Description and Maximo work order number	Estimated Cost	#
RWTP CARBON	Replacement of RWTP PAC DUST COLLECTOR #2 - AP20103 Maximo work order: to be created in June 2022	\$ 24,000	1
RWTP FLOC POLY (NON-IONIC)	Replacement of RWTP FLOC POLYMER AIR COMBINED FLOWMETER #200 (FLNP_FE/FIT200) - AP69174 Maximo work order: to be created in June 2022	\$ 6,000	2
RWTP SODIUM HYDROXIDE (CAUSTIC)	Rehabilitation of RWTP CAUSTIC TANKS 1 & 2 CONTROL PANEL (ROHTCP) - AP50913 Maximo work order: to be created in June 2022	\$ 28,350	3
RWTP PLANT WATER	Replacement of RWTP MORE AVE RESV FLUSHING FLOWMETER; MAG; (FE/FIT-301) - AP50660 Maximo work order: to be created in June 2022	\$ 12,000	4
RWTP has 4 total FY23 Renewal Projects with an estimated cost of ~\$70K.			

Figure 25: FY23 Planned Asset Renewal Work for STWTP

System	Renewal Project Description and Maximo work order number	Estimated Cost	#
STWTP BACK WASH	Replace backwash VOP and gear box Maximo work order: to be created in June 2022	\$ 14,400	1
STWTP FLOCCULATOR/ SEDIMENTATION	Purchase mixer and drive. Install later when a mixer fails/ condition worsens and Operations is able to accommodate Maximo work order: to be created in June 2022	\$ 30,000	2
STWTP OZONE GENERATION	Rehabilitation of Ozone Generator Chamber Maximo work order: to be created in June 2022	\$ 240,000	3
STWTP SLUDGE (UNDERFLOW)	Replacement of cross collector sludge collection system Maximo work order: to be created in June 2022	\$ 120,000	4
STWTP SUMP PUMP	Replacement of STWTP SUMP PUMP EAST FILTER GALLERY P-39 - AP30816 Maximo work order: to be created in June 2022	\$ 4,800	5
	Replacement of STWTP SUMP PUMP EAST FILTER GALLERY P-40 - AP54238 Maximo work order: to be created in June 2022	\$ 7,200	6
STWTP has 6 total FY23 Renewal Projects with an estimated cost of ~\$416K.			

Figure 26: FY23 Planned Asset Renewal Work for SVAWPC

System	Renewal Project Description and Maximo work order number	Estimated Cost	#
SVA AQUA AMMONIA	Replacement of SVA Aqua Ammonia Fail Safe Valve MOV (VOP-8214) - AP70299 Maximo work order: to be created in June 2022	\$ 6,720	1
	Replacement of SVA Aqua Ammonia Fail Safe Valve MOV (VOP-8215) - AP70446 Maximo work order: to be created in June 2022	\$ 6,720	2
	Replacement of SVA Aqua Ammonia Fail Safe Valve MOV (VOP-8216) - AP70297 Maximo work order: to be created in June 2022	\$ 6,720	3
	Replacement of SVA Aqua Ammonia Fail Safe Valve MOV (VOP-8217) - AP73067 Maximo work order: to be created in June 2022	\$ 6,720	4
	Replacement of SVA AQUA AMMONIA FEED PUMP #1 (PMP-8201) - AP52383 Maximo work order: to be created in June 2022	\$ 6,720	5
SVA DECARBONATION	Inspection and Rehabilitation of SVA Decarbonation Tower #1 Blower (BLO-2901) - AP52667 Maximo work order: to be created in June 2022	\$ 10,500	6
	Inspection and Rehabilitation of SVA Decarbonation Tower #2 Blower (BLO-2902) - AP52672 Maximo work order: to be created in June 2022	\$ 10,500	7
SVA PRODUCT WATER	Rehabilitation of SVA PRODUCT WATER TRANSFER PUMP #1 (PMP-2911) - AP52680 Maximo work order: to be created in June 2022	\$ 36,000	8

System	Renewal Project Description and Maximo work order number	Estimated Cost	#
	Rehabilitation of SVA PRODUCT WATER TRANSFER PUMP #2 (PMP-2912) - AP52683 Maximo work order: to be created in June 2022	\$ 36,000	9
	*Purchase Spare of SVA PRODUCT WATER TRANSFER PUMP. Replace one of the Product Water Transfer pumps with this one. Rebuild the pump taken out Maximo work order: to be created in June 2022	TBD	10
	Testing and Rehabilitation of SVA Product Water Transfer Pump 2911 Motor (MTR-2911) - AP52681 Maximo work order: to be created in June 2022	TBD	11
	Testing and Rehabilitation of SVA Product Water Transfer Pump 2912 Motor (MTR-2912) - AP52684 Maximo work order: to be created in June 2022	TBD	12
	Testing and Rehabilitation of SVA Product Water Transfer Pump 2913 Motor (MTR-2913) - AP52687 Maximo work order: to be created in June 2022	TBD	13
SVA FIRE PROTECTION	Rehabilitation of SVA FIRE PROTECTION PUMP (PMP-9501) - AP52777 Maximo work order: to be created in June 2022	\$ 36,000	14
SVA MF CIP	Rehabilitation of SVA MF CIP CIRCULATION PUMP #1 (PMP-1601) - AP52515 Maximo work order: to be created in June 2022	\$ 25,920	15
	Rehabilitation of SVA MF CIP CIRCULATION PUMP #2 (PMP-1602) - AP52518 Maximo work order: to be created in June 2022	\$ 25,920	16
	*Purchase Spare of SVA MF CIP CIRCULATION PUMP. Install spare and rebuild pump taken out. Maximo work order: to be created in June 2022	TBD	17
	Rehabilitation of SVA MF CIP DRAIN PUMP #3 (PMP-1603) - AP52521 Maximo work order: to be created in June 2022	\$ 25,920	18
	Rehabilitation of SVA MF CIP Drain Pump (PMP-1631) - AP70270 Maximo work order: to be created in June 2022	\$ 25,920	19
SVA MF HIGH PRESSURE AIR	Inspection of SVA MF COMPRESSED AIR RECEIVER TANK (TNK-1801) - AP52485 Maximo work order: to be created in June 2022	\$ 6,600	20
SVA MF REVERSE FILTRATION	Rehabilitation of SVA MF REVERSE FILTRATION SUPPLY PUMP #1 (PMP-1401) - AP52499 Maximo work order: to be created in June 2022	\$ 36,000	21
	Rehabilitation of SVA MF REVERSE FILTRATION SUPPLY PUMP #2 MOTOR (MTR-1402) - AP52503 Maximo work order: to be created in June 2022	\$ 5,760	22
SVA RO CIP	Rehabilitation of SVA RO CIP Spare Pump - AP70401 Maximo work order: to be created in June 2022	\$ 25,920	23

System	Renewal Project Description and Maximo work order number	Estimated Cost	#
	Replacement of SVA RO CIP CAUSTIC DOSING PUMP (PMP-2404) - AP52633 Maximo work order: to be created in June 2022	\$ 8,100	24
SVA RO FLUSH PUMP	Rehabilitation of SVA RO FLUSH PUMP #1 (PMP-2701) - AP52664 Maximo work order: to be created in June 2022	\$ 25,920	25
SVA RO TRANSFER PUMP	*Purchase spare of SVA RO TRANSFER PUMP. Install spare. Rebuild pump taken out Maximo work order: to be created in June 2022	\$ 36,000	26
	Testing and Rehabilitation of SVA RO TRANSFER PUMP #1; MOTOR (MTR-2101) - AP52782 Maximo work order: to be created in June 2022	\$ 9,120	27
SVA SODIUM HYPOCHLORITE (OCL)	Inspection of SVA SODIUM HYPOCHLORITE TANK #2 (TNK-8102) 6435 GALS - AP52357 Maximo work order: to be created in June 2022	\$ 4,800	28
	Replacement of SVA SODIUM HYPOCHLORITE FEED PUMP #1 (PMP-8101) - AP52365 Maximo work order: to be created in June 2022	\$ 8,100	29
SVA SULFURIC ACID	Replacement of SVA SULFURIC ACID DESSICANT (AF-8401) - AP52579 Maximo work order: to be created in June 2022	\$ 3,600	30
	Replacement of SVA SULFURIC ACID FEED PUMP #2 (PMP-8402) - AP52591 Maximo work order: to be created in June 2022	\$ 8,100	31
SVA THRESHOLD INHIBITOR	Rehabilitation of SVA THRESHOLD INHIBITOR TANK MIXER #2 (MIX-8302) - AP52598 Maximo work order: to be created in June 2022	\$ 60,000	32
	Replacement of SVA THRESHOLD INHIBITOR RO FEED PUMP #1 (PMP-8301) - AP52610 Maximo work order: to be created in June 2022	\$ 8,100	33
SVA UV	Rehabilitation of sleeves and wipers per MFG specs of SVA UV SYSTEM REACTORS TRAIN - PHANTOM25 Maximo work order: to be created in June 2022	\$ 78,000	34
	Performance review Maximo work order: to be created in June 2022	\$ 78,000	35
SVA MF	Performance review Maximo work order: to be created in June 2022	\$ 18,000	36
SVA RO	Performance review Maximo work order: to be created in June 2022	\$ 12,000	37
SVAWPC has 37 total FY23 Renewal Projects with an estimated cost of ~\$700K.			

Figure 27: FY 22 Planned Asset Renewal Work for San Felipe Reaches

System	Renewal Project Description and Maximo work order number	Estimated Cost	#
REACH 3	Rehabilitation of CPP Pump (Unit1) - AR42376	\$ 180,000	1

System	Renewal Project Description and Maximo work order number	Estimated Cost	#
CPP – MAIN PUMP	Maximo work order: to be created in June 2022		
	Rehabilitation of CPP Pump (Unit #2) - AR42376 Maximo work order: to be created in June 2022	\$ 180,000	2
<u>REACH 1</u> PPP – MAIN PUMP	Rehabilitation of PPP Pump Unit (Unit TBD) Maximo work order: to be created in June 2022	\$ 1,320,000	3
	Inspection and Rehabilitation of PPP Motor Maximo work order: to be created in June 2022	\$ 240,000	4
<u>REACH 1</u> PPP – BUILDINGS AND GROUNDS	Installation of crane remote control	\$ 12,000	5
San Felipe Reaches 1 and 3 have 5 total FY23 Renewal Projects with an estimated cost of ~\$1.932M			

Figure 28: FY23 Planned Asset Renewal Work for WSMS

System	MWP Activity Description and Maximo work order number	Estimated Cost	#
WSMS has 0 total FY23 Renewal Projects with an estimated cost of ~\$0. WSMS work orders are created by Raw Water Field Operations & Pipeline Maintenance Unit Field Operations Admin.			



Valley Water

Fiscal year 2023-2027

Water utility Enterprise Maintenance Work Plan (MWP)

APPENDIX B: REVIEW OF FISCAL YEAR 2022(FY22) PLANNED ASSET RENEWAL WORK

Program Success

The MWP program success is defined by:

- 40% or better completion rate of the MWP recommended PW.
- Ratio of corrective maintenance to preventative maintenance total cost below 0.8, which has historically exceeded 1.0.

Review

This section will be updated before the end of FY22.

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