Fiscal Year 2024-25 Five-Year Water System Capital Improvement Plan

June 2023

ZONE 7
ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BOARD OF DIRECTORS

RESOLUTION NO. 23-50

INTRODUCED BY DIRECTOR NARUM
SECONDED BY DIRECTOR BENSON

Fiscal Year 2024-25 Five-Year Water System Capital Improvement Plan

WHEREAS, Zone 7 has developed the proposed Fiscal Year 2024-25 Five-Year Water System Capital Improvement Plan (CIP) to support Zone 7's mission to deliver a safe and reliable supply of high-quality water for the Valley; and

WHEREAS, the proposed CIP is in support of Strategic Plan Initiative 3 – Continue to effectively implement infrastructure projects in the Water System Capital Improvement Program, and Initiative 22 – Develop a long-range finance strategy; and

WHEREAS, the proposed Five-Year CIP covers FY 2024-25 through FY 2028-29, identifies the capital projects and programs needed to carry out the goals and policy objectives of the Agency, and describes the water system projects, costs, schedules, and priorities.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District adopts the FY 2024-25 Five-Year Water System Capital Improvement Plan.

ADOPTED BY THE FOLLOWING VOTE:

AYES: DIRECTORS BENSON, FIGUERS, GAMBS, GREEN, NARUM, PALMER, RAMIREZ HOLMES

NOES: NONE

ABSENT: NONE

ABSTAIN: NONE

I certify that the foregoing is a correct copy of a Resolution adopted by the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District on June 21, 2023.

DocuSigned by:

By: _____
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President, Board of Directors

ZONE 7 WATER AGENCY

Fiscal Year 2024-25 Five-Year Water System Capital Improvement Plan

FINAL / June 2023

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Abbreviations

Agency/Zone 7	Zone 7 Water Agency
AMP	Asset Management Program
CIP	Capital Improvement Plan
DVWTP	Del Valle Water Treatment Plant
ENR CCI	Engineering News Record Construction Cost Index
EPA	Environmental Protection Agency
Five-Year CIP	Five-Year Water System Capital Improvement Plan
FY	fiscal year
gpm	gallons per minute
HI	hazard index
HVAC	heating ventilation and air conditioning
MCL	maximum contaminant level
MG	million gallons
MGDP	Mocho Groundwater Demineralization Plant
MGD	million gallons per day
M&I	municipal and industrial
PFAS	per- and polyfluoroalkyl substances
PFBS	perfluorobutane sulfonic acid
PFHxS	perfluorohexane sulfonate
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctyl sulfonate
ppt	parts per trillion
PPWTP	Patterson Pass Water Treatment Plant
RO	reverse osmosis
SBA	South Bay Aqueduct
SCADA	supervisory control and data acquisition
VFD	variable frequency drive

INTRODUCTION

Zone 7 Water Agency (Agency or Zone 7) prepares a Water System Capital Improvement Plan (CIP) document for capital projects and programs needed to carry out the goals and policy objectives of the Agency. The last comprehensive Water System CIP update was completed in October 2017 (Ten-Year CIP).

This interim Five-Year Water System Capital Improvement Plan (Five-Year CIP) update covers fiscal year (FY) 2024-25 through FY 2028-29, resets project priorities from the previously completed Ten-Year CIP based on updated and current needs of the Agency and establishes project implementation schedules. The Five-Year CIP also defines annual fiscal year funding requirements and financing methods to comply with the requirements for the Agency's proposed upcoming bond offering.

This document summarizes the proposed interim Five-Year CIP, key projects, and the corresponding cash-flow analysis of the Water System capital funds. It is anticipated that the Ten-Year CIP will be completed next fiscal year.

DRIVERS FOR THE FIVE-YEAR CIP

Zone 7 has recently completed two major surface water treatment plant upgrade and ozone projects and is now constructing two per- and polyfluoroalkyl substances (PFAS) treatment plants which were not contemplated in the FY 2018-19 Ten-Year CIP. The PFAS projects represent significant capital expenditures over the next five years. Staff has completed this interim Five-Year CIP update to re-assess project priorities, establish a project implementation schedule, and develop a funding plan.

The Agency has historically relied on Water System reserves to fund capital projects on a pay-as-you-go (pay-go) basis. Bond financing has recently been used for System-Wide Improvement projects of larger scope, cost, impacts on water rates, and benefits to account for generational equity among rate payers. In addition, the Agency pursues grants as a funding strategy for projects. The pay-go approach works well during periods in which net revenues are strong and capital funding needs are modest. The recent drought and PFAS regulatory requirements have accelerated certain capital projects (e.g., construction of the Valley Booster Pump Station), and prompted the addition of new improvement projects (e.g., Chain of Lakes and Stoneridge PFAS Treatment Facility projects) not originally planned for in the Ten-Year CIP.

The urgency of completing the PFAS projects has accelerated the need for the Agency to secure bond financing through a proposed debt issuance. The Agency is conducting this Five-Year CIP update to satisfy the bond issuance disclosure requirement of

providing an accurate financial plan that includes a five-year CIP outlook in the Official Statement.

SUMMARY

The proposed Five-Year CIP supports Strategic Plan Initiative 3 – Continue to effectively implement infrastructure projects in the Water System Capital Improvement Program and Initiative 22 – Develop a long-range finance strategy. In carrying out these goals and objectives, staff proposes a Five-Year CIP for Board approval. This proposed Five-Year CIP covers FY 2024-25 through 2028-29, and includes 28 capital projects and 15 projects and programs with recurring costs, including payments to other agencies. Since the adoption of the Ten-Year CIP, Zone 7 completed approximately 22 projects (Appendix D).

Projects in the proposed Five-Year CIP are funded from the following two sources, or Funding Strategies, depending on the system(s) affected and the project beneficiaries (i.e., existing versus new customers):

- Fund 120 – Water Enterprise Renewal/Replacement (Fund 120)
  - *Revenue Source: Capital Funding from Fund 100, Water Rates)*
- Fund 120 – Water Enterprise System-Wide Improvements (Fund 120)
  - *Revenue Source: Capital Funding from Fund 100, Water Rates)*
- Fund 130 – Water Enterprise Expansion (Fund 130)
  - *Revenue Source: Connection Fees from developers*

Table 1 Proposed Fund 120 and 130 Five-Year CIP Breakdown by Funding Strategy and FY, in Millions

Fund ($M)	Strategy	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29	Total
Fund 120	Renewal/ Replacement	$9.49	$18.24	$20.24	$25.18	$23.86	**$97.01**
	System-Wide Improvements	$20.22	$15.64	$2.19	$1.48	$1.62	**$41.16**
	Subtotal	**$29.71**	**$33.89**	**$22.43**	**$26.66**	**$25.48**	**$138.17**
Fund 130	Expansion(1)	$20.70	$30.86	$35.02	$40.27	$64.24	**$191.09**
Total		$50.41	$64.75	$57.45	$66.93	$89.72	$329.26

Notes:
(1) Includes non-discretionary, contractually required payments to other agencies for previously completed projects such as South Bay Aqueduct (SBA) Enlargement Project, and debt payment for the Cawelo Groundwater Banking Program. See Table 3 for details.

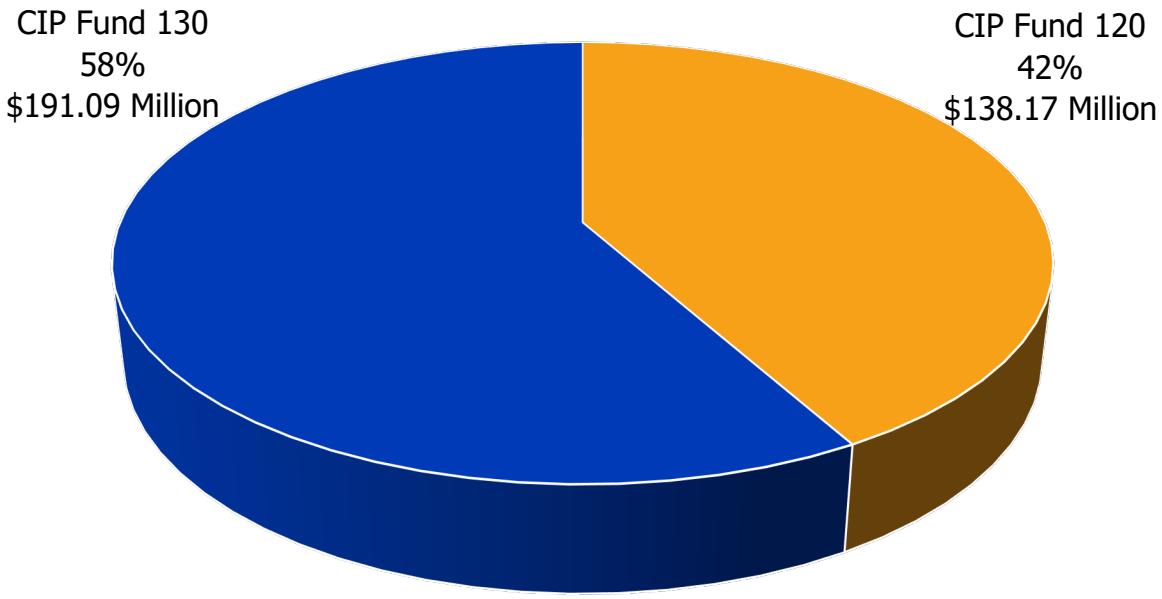

Figure 1 Proposed Fund 120 and 130 Five-Year CIP Breakdown by Funding Strategy

FIVE-YEAR CIP PREPARATION AND ADOPTION

The Five-Year CIP was prepared starting at the project level, using the Ten-Year CIP as a starting baseline.

Under each Funding Strategy, projects are grouped into the following eight capital program categories representing the major components of the Water System:

1. **Buildings and Grounds** addresses structures and support facilities that are not directly involved in flood protection or the supply, treatment, transmission or storage of water.
2. **Groundwater Basin Management** focuses on Zone 7's responsibility to manage the local groundwater basin, which includes conjunctive use of imported water (storing surplus supplies in the groundwater basin in wet years), stabilizing and reducing the buildup of minerals, minimizing pollution, and delivering high-quality water and a reliable supply to its customers.
3. **Program Management** accounts for staff time and related costs associated with managing capital programs.
4. **Regulatory Compliance Monitoring** ensures compliance with a range of existing and future regulatory and/or permitting requirements.
5. **Transmission and Distribution** consists of projects that are required for the transmission of treated water to Zone 7 retailers.

6. **Water Supply and Conveyance** focuses on the planning and purchase of new water supplies and implementation of improvements required to convey raw water to Zone 7's surface water treatment plants, to local streams for recharge, and to Zone 7's agricultural customers for their irrigation needs.
7. **Water Treatment Facilities** addresses existing and proposed surface water treatment facilities, and associated improvements.
8. **Wells** identifies facilities required to reliably maintain the production of groundwater deliveries during drought periods, peak demand periods, and planned and unplanned outages of surface water treatment plants; also identifies facilities required to optimize conjunctive use and facilitate groundwater basin management.

The process to develop the CIP included:

- Review of completed and ongoing projects.
- Review of new projects that were not previously identified in the Ten-Year CIP.
- Assessment of project prioritization to identify essential near-term projects, and what projects could be re-prioritized or re-scheduled.
- Assessment of the scope of work, cost, and preferred implementation schedule for priority near-term projects.
- Update of project descriptions to reflect total project costs, target year of completion, and the goals and initiatives from the 2020 Strategic Plan.
- Analysis of annual cash flow in consideration of Zone 7's funding reserve policy requirements and assess funding/financing needs.
- Presentation to the Retailers at a meeting on June 1, 2023.
- Presentation of the proposed draft Five-Year CIP at the Board workshop on June 6, 2023.
- Revision of the draft report to incorporate Board input.
- Potential adoption of the Five-Year CIP at the June 21, 2023 Board meeting.

Basis of Cost

The basis of costs used to develop project specific costs included engineering assessments, planning studies, and recently completed similar projects by the Agency. The basis of cost for each project was reviewed to confirm applicability for the Five-Year CIP window given recent changes in market conditions and construction cost indices since the FY 2018-19 Water System CIP was completed.

Independent review confirmed the basis of costs used to establish project costs is consistent with approaches used by other agencies implementing projects of similar scope and complexity.

To account for future cost escalation, project cost estimates were first normalized to current year (2023) dollar estimates, then adjusted to account for cost escalation over the Five-Year CIP duration. Three cost escalation factors were used:

- **Construction Cost.** Historically, Zone 7 has used a 4 percent escalation factor, which mirrors the Engineering News Record Construction Cost Index (ENR CCI) 20-year average. However, construction costs over the past several years have been impacted by a variety of market factors, and annual escalation of 12 to 16 percent has been the norm, particularly in the Bay Area. Although many of the driving factors that caused the high escalation have tempered, higher than historical escalation is expected to continue, particularly in the Bay Area. Much of the Bay Area escalation in the future is related to labor pool availability, given the large number of large-scale capital projects ongoing or yet to commence.

  An independent assessment completed for this Five-Year CIP (Carollo Engineers Construction Cost Estimating Group) projected construction escalation factors from 5 to 7 percent for the Bay Area over the next five years. This assessment considered a variety of factors based on recent market data including sitework, yard piping, building trades, process equipment, petroleum-based products, piping and valves, heating ventilation and air conditioning (HVAC), and electrical systems that have been underestimated by the ENR CCI.

  Based on this assessment, a year-to-year construction cost escalation factor of 6 percent was used as the basis for this Five-Year CIP.

- **Program Cost.** Costs to administer programs such as the Asset Management Program (AMP) or Capital Improvement Program (CIP) are largely driven by labor costs.

  Accordingly, a year-to-year construction program escalation factor of 3 percent was used as the basis for this Five-Year CIP to account for annual labor cost adjustment.

- **Fixed Cost.** Costs to administer existing debt service are fixed and are not subject to escalation.

  Accordingly, a year-to-year fixed cost escalation factor of 0 percent was used as the basis for this Five-Year CIP.

WATER SYSTEM CIP BY FUNDING STRATEGY

Projects in the proposed Five-Year CIP are funded from the following two sources, or Funding Strategies, depending on the system(s) affected and the project beneficiaries (i.e., existing versus new customers):

- Fund 120 – Water Enterprise Renewal/Replacement

- Fund 120 – Water Enterprise System-Wide Improvements
- Fund 130 – Water Enterprise Expansion

Under each Funding Strategy, projects are grouped into programs (e.g., Transmission and Distribution, Water Supply and Conveyance, etc.), representing the major components of the Water System.

Funding allocations reflect the proportional benefits to existing and new customers. While some projects exclusively benefit existing customers (Fund 120) or exclusively new customers (Fund 130), some projects benefit both. In the case of dual benefit, costs are split between Fund 120 and 130 with splits reflecting proportional benefits. Proposed projects in Fund 120 and Fund 130, and their annual expenditures, are presented in Table 2 and Table 3, respectively.

Table 2 Fund 120 CIP, in Millions

CIP: Fund 120 ($ Millions)	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29	Five-Year CIP Total
Renewal/Replacement						
Buildings and Grounds						
North Canyons Renewal/Replacement and Improvements	0.05	0.05	0.05	0.06	0.06	0.27
Buildings and Grounds Subtotal	**$0.05**	**$0.05**	**$0.05**	**$0.06**	**$0.06**	**$0.27**
Groundwater Basin Management						
Monitoring Well Replacements and Abandonments	0.00	0.00	0.36	0.00	0.00	0.36
Groundwater Basin Management Subtotal	**$0.00**	**$0.00**	**$0.36**	**$0.00**	**$0.00**	**$0.36**
Program Management						
Asset Management Program Management	0.09	0.11	0.11	0.11	0.42	0.84
Capital Improvement Program Management	0.04	0.16	0.04	0.17	0.05	0.46
Contingency	0.75	0.75	0.75	0.75	0.75	3.75
Program Management Subtotal	**$0.88**	**$1.02**	**$0.90**	**$1.03**	**$1.21**	**$5.05**
Regulatory Compliance Monitoring						
Laboratory Equipment Replacement	0.11	0.17	0.15	0.19	0.09	0.71
Regulatory Compliance Subtotal	**$0.11**	**$0.17**	**$0.15**	**$0.19**	**$0.09**	**$0.71**
Transmission and Distribution						
Hopyard Pipeline Corrosion Protection Improvement Project	0.64	0.22	0.00	0.00	0.00	0.86
Transmission System Corrosion Protection Improvement Project	0.00	0.00	0.24	0.38	0.00	0.62
Kitty Hawk Pump Station Equipment and Electrical Renewal/Replacement	0.00	0.00	0.50	2.10	0.00	2.60
Silver Oaks Pump Station Replacement	2.12	1.51	5.99	2.12	0.00	11.74
On-call Design and Construction Services	0.82	0.85	0.87	0.90	0.93	4.37
Patterson Pass Pipeline Enlargement and Replacement	0.00	0.00	0.00	1.80	8.26	10.06
Transmission and Distribution Subtotal	**$3.58**	**$2.58**	**$7.60**	**$7.30**	**$9.19**	**$30.25**
Water Treatment Facilities						
DVWTP Drying Bed 1-4 Rehabilitation Project	0.00	0.00	0.00	0.00	1.53	1.53
DVWTP and PPWTP HVAC Replacement	0.42	2.30	0.00	0.00	0.00	2.73
DVWTP Sewer Line Connection and Access Road Modifications	0.00	0.24	1.25	0.00	0.00	1.49
DVWTP Washwater Recovery Ponds Rehabilitation	0.00	0.00	0.00	0.00	1.81	1.81
Maintenance Yard and Building	0.00	0.00	2.97	9.94	0.00	12.90
Minor Renewal/Replacement Projects	0.80	0.84	0.89	0.95	1.00	4.48
PPWTP Anionic System Replacement	0.00	0.00	0.00	0.10	0.72	0.82

CIP: Fund 120 ($ Millions)	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29	Five-Year CIP Total
PPWTP Chemical Tanks Replacement	0.00	0.00	0.00	0.28	1.62	1.90
SCADA Upgrades and Replacements	0.85	0.34	0.36	0.38	2.41	4.35
DVWTP Coagulant System Replacement	0.00	0.00	1.19	3.79	0.00	4.98
PPWTP Improvements and Replacements	1.80	7.53	0.00	0.00	0.00	9.33
PPWTP Sludge Handling Rehabilitation	0.59	0.00	0.00	0.00	0.00	0.59
Water Treatment Facilities Subtotal	**$4.47**	**$11.25**	**$6.66**	**$15.43**	**$9.09**	**$46.90**
Wells						
MGDP HVAC System Replacement	0.00	0.45	1.67	0.00	0.00	2.12
MGDP RO Membrane Replacement	0.00	1.91	0.00	0.00	0.00	1.91
Mocho 2 Building and VFD Installation and Electrical Systems Relocation	0.00	0.00	0.00	0.69	3.71	4.40
Mocho 3 and 4 Switchgear Replacement Project	0.00	0.39	2.38	0.00	0.00	2.78
Production Well Pump Replacement Project	0.40	0.43	0.45	0.48	0.51	2.27
Wells Subtotal	**$0.40**	**$3.18**	**$4.50**	**$1.17**	**$4.22**	**$13.47**
Total (Fund 120 – Renewal/Replacement)	*$9.49*	*$18.24*	*$20.24*	*$25.18*	*$23.86*	*$97.01*
System-Wide Improvements						
Buildings and Grounds						
Energy Master Plan Priority Projects	0.11	0.39	0.00	0.00	0.00	0.50
Buildings and Ground Subtotal	**$0.11**	**$0.39**	**$0.00**	**$0.00**	**$0.00**	**$0.50**
Transmission and Distribution						
Chain of Lakes Conveyance System	0.60	1.76	1.95	1.48	1.49	7.28
System-Wide Installation of Line Valves	0.11	0.00	0.12	0.00	0.13	0.36
Transmission and Distribution Subtotal	**$0.71**	**$1.76**	**$2.07**	**$1.48**	**$1.62**	**$7.64**
Water Supply and Conveyance						
Chain of Lakes Facilities and Improvements - Water Supply	0.11	0.12	0.13	0.00	0.00	0.35
Water Supply and Conveyance Subtotal	**$0.11**	**$0.12**	**$0.13**	**$0.00**	**$0.00**	**$0.35**
Wells						
Mocho Wellfield PFAS Treatment Facility Project	19.29	13.37	0.00	0.00	0.00	32.66
Wells Subtotal	**$19.29**	**$13.37**	**$0.00**	**$0.00**	**$0.00**	**$32.66**
Total (Fund 120 – System-Wide Improvements)	*$20.22*	*$15.64*	*$2.19*	*$1.48*	*$1.62*	*$41.16*
Total	$29.71	$33.89	$22.43	$26.66	$25.48	$138.17

Abbreviations: DVWTP – Del Valle Water Treatment Plant; MGDP – Mocho Groundwater Demineralization Plant; PPWTP – Patterson Pass Water Treatment Plant; RO – reverse osmosis; SCADA – supervisory control and data acquisition; VFD – variable frequency drive.
The three newly proposed projects are highlighted in orange.

Table 3 Fund 130 CIP, in Millions

CIP: Fund 130 ($ Millions)	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29	Five-Year CIP Total
Buildings and Grounds						
North Canyons Renewal/Replacement and Improvements	0.002	0.002	0.002	0.004	0.004	$0.015
Building and Grounds Subtotal	**$0.002**	**$0.002**	**$0.002**	**$0.004**	**$0.004**	**$0.01**
Program Management						
Capital Improvement Program Management	0.04	0.16	0.04	0.17	0.05	$0.46
Contingency	0.50	0.50	0.05	0.05	0.05	$1.15
Program Management Subtotal	**$0.54**	**$0.66**	**$0.09**	**$0.22**	**$0.10**	**$1.61**
Transmission and Distribution						
Chain of Lakes Conveyance System	0.46	1.56	1.73	1.31	1.60	$6.66
El Charro Pipeline Phase 2	0.00	2.47	7.23	7.97	0.88	$18.55
Patterson Pass Pipeline Enlargement and Replacement	0.00	0.00	0.00	3.66	16.77	$20.43
Transmission and Distribution Subtotal	**$0.46**	**$4.04**	**$8.96**	**$12.94**	**$19.25**	**$45.64**
Water Supply and Conveyance						
Cawelo Groundwater Banking Program Debt Service	1.09	1.10	1.09	1.10	1.10	$5.48
Chain of Lakes Facilities and Improvements - Water Supply	0.25	0.26	0.27	0.00	0.00	$0.78
Fourth Contractor's Share of the SBA – Payments to DWR	3.00	3.00	3.00	3.00	3.00	$15.00
South Bay Aqueduct Enlargement Project – Payments to DWR	13.79	14.40	14.80	15.70	15.60	$74.29
Sites Reservoir	0.38	2.56	4.10	5.84	7.29	$20.16
Los Vaqueros Reservoir Expansion	0.06	0.07	0.07	0.07	0.07	$0.33
City Reach Pipeline Mitigation Planning (formerly Walker Ranch)	0.41	0.00	0.00	0.00	0.00	$0.41
Water Supply and Conveyance Subtotal	**$18.99**	**$21.38**	**$23.33**	**$25.70**	**$27.05**	**$116.45**
Water Treatment Facilities						
PPWTP Centrifuge Facility (formerly Solids Handling Expansion)	0.71	4.79	0.00	0.00	0.00	$5.50
Water Treatment Facilities Subtotal	**$0.71**	**$4.79**	**$0.00**	**$0.00**	**$0.00**	**$5.50**
Wells						
Bernal Wells 1 and 2 and Pipeline	0.00	0.00	2.64	1.40	17.84	$21.88
Wells Subtotal	**$0.00**	**$0.00**	**$2.64**	**$1.40**	**$17.84**	**$21.88**
Total (Fund 130 – Expansion)	$20.70	$30.86	$35.02	$40.27	$64.24	$191.09

Fund 120 – Water Enterprise Renewal/Replacement and System-Wide Improvements

Fund 120 supports CIP projects required to maintain, replace, or improve water system infrastructure for the existing water system. The primary source of revenue for Fund 120 is the annual funding from water rates per the Asset Management Plan Resolution 17-81 and the 2017 AMP Update. Projects to be completed under Fund 120 are primarily funded using one of two funding methods:

1. Pay-go from cash reserves
2. Debt financing from bond proceeds or State/Federal loans

Historically, the Agency has used pay-go for Fund 120 projects. Bond financing has recently been used for System-Wide Improvement projects of larger scope, cost, impacts on water rates, and benefits to account for generational equity among rate payers. In addition, the Agency pursues grants as a funding strategy for projects.

Objectives

Projects under Fund 120 target two specific objectives for Zone 7:

- **Renewal/Replacement.** This project grouping includes existing facilities that require upgrade or replacement to maintain Zone 7 target level of service.

  Key drivers for renewal and replacement projects include age, condition, reliability of operation, and required level of maintenance are outlined in the Asset Management Plan.

- **System-Wide Improvements.** This project grouping addresses new regulatory requirements and enhancements to existing facilities to improve operational reliability, cost efficiency, maintenance, and safety.

  Key drivers for system-wide improvements include changes to regulatory requirements (e.g., new PFAS regulations) and meeting strategic objectives (e.g., ozone upgrades to improve water quality and operational reliability).

Key Completed/In-Progress Projects

Following is a list of key projects completed or in progress since the adoption of the Ten-Year CIP:

- *DVWTP Ozonation Project (approximately $50 million) was completed in the fall of 2020, and the ozone system has been operational since that time.*
- *PPWTP Upgrades and Ozonation Project (approximately $110 million) improves quality, taste, and odor in the water provided by the treatment plant, increases the plant's production capacity from 12 to 24 million gallons per day (MGD), and provides for the renewal, replacement, and rehabilitation of aging components of*

the plant. Decades in the planning, this project highlights the agency's efforts in long-term planning, fiscal responsibility, and commitment to water quality and public health. The new facilities are largely complete and operational, with remaining minor work finishing in 2023.

- *California Water Turnout 5 Replacement*
- *Chain of Lakes 1 Facility Stabilization*
- *Dougherty Recoating and Rehabilitation*
- *DVWTP Interior Coating Improvements to the 4.5-million-gallon (MG) Steel Clearwell*
- *DVWTP Polymer Mixing System Replacement Project*
- *DVWTP Roof Replacement and Rehabilitation for 3.0 MG Clearwell*
- *Hopyard Well 6 and Stoneridge Well Sodium Hypochlorite System Replacements*
- *MGDP Concentrate Pipeline Batch Cleaning*
- *North Canyons Building HVAC Renewal/Replacement*
- *Valley Booster Pump Station Project*

Following is a list of key projects in progress:

- *Chain of Lakes PFAS Treatment Facility Project – anticipated online August 2024*
- *DVWTP Roadway/Parking Lot Repairs and Post-Ozone Project – anticipated completion August 2023*
- *MGDP Concentrate Conditioning System Project - anticipated completion November 2024*
- *Stoneridge PFAS Treatment Facility Project – anticipated online August 2023 and fully completed February 2024*
- *Wells and MGDP Electrical Upgrades/Replacement Project – anticipated completion February 2024*
- *SCADA Upgrades and Replacements - anticipated completion June 2024*
- *Well Master Plan Update – anticipated completion June 2025*

Key Proposed Projects

A summary of key renewal/replacement and system-wide improvement projects that have been prioritized for completion in the Five-Year CIP include:

1. **Chain of Lakes Conveyance System**

   This dual conveyance project improves water supply reliability by improving groundwater recharge capability by providing conveyance to deliver water from the SBA to the Chain of Lakes and by providing facilities to pump water stored in the Chain of Lakes to DVWTP during critical droughts and/or during Delta/SBA outages. (Note: This project is funded 53 percent from Fund 120 and 47 percent from Fund 130.)

2. **DVWTP Washwater Recovery Ponds Rehabilitation**

   The ponds were initially constructed in 1973 and expanded in 1988. Implementation of this project provides improved system reliability, reduced maintenance costs, and enables Zone 7 to take advantage of the maximum water production capacity of DVWTP.

3. **Energy Master Plan Priority Projects**

   This project consists of energy-related investments in Zone 7's structures and support facilities. Specific projects will be identified through the Energy Master Plan and will be cost-effective projects that reduce energy use, increase energy efficiency, improve energy resilience, and reduce Zone 7's carbon footprint.

4. **Maintenance Yard and Building**

   Currently, spare parts are stored in storage containers without any organized system and some of the Maintenance staff work in trailers. This project provides necessary storage to effectively and properly store spare, critical water system components with long lead times to provide ability to perform critical repairs in a timely manner to avoid water supply disruptions to customers.

5. **Mocho Wellfield PFAS Treatment Facility Project**

   While the Environmental Protection Agency (EPA) PFAS maximum contaminant levels (MCLs) have not been finalized yet, EPA has proposed draft MCLs for six PFAS, including individual MCLs for perfluorooctanoic acid (PFOA) and perfluorooctyl sulfonate (PFOS) at 4 parts per trillion (ppt) and an MCL for a mixture of four PFAS (perfluorohexane sulfonate [PFHxS], GenX Chemicals, perfluorononanoic acid [PFNA], and perfluorobutane sulfonic acid [PFBS]) at no greater than a Hazard Index (HI) of 1.0. It is anticipated that the MCLs will be finalized by the end of 2023. Once the rule is finalized, water systems would have three years to be in compliance with the MCLs. The existing RO capacity of approximately 5,300 gpm (approximately 7.5 MGD) at the MGDP will only be able to treat approximately half of the production from the three wells to the proposed MCL of 4 ppt for PFOS. MGDP can treat the production from the three Mocho Wells (approximately 11,000 gallons per minute [gpm] capacity or 16 MGD) down to a PFOS level of approximately 22 ppt only vs. the proposed MCL of 4 ppt. Mocho Wellfield provides approximately 37 percent of Zone 7's groundwater production capacity. These wells are critical to Zone 7 meeting water demand during drought years and/or during Delta/SBA outages. During the recent drought, over the three-year period, Mocho Wellfield provided approximately 46 percent of Zone 7's total groundwater production, which accounts for approximately 18 percent of Zone 7's treated water production. Without the project, Mocho Wellfield capacity will be reduced by approximately 50 percent. Implementation of this project is necessary for water quality and water supply reliability.

The cost estimate for this proposed project was developed using the recent Chain of Lakes PFAS Treatment Facility Project bid as the basis and includes property acquisition. The cost estimate will continue to be refined during the planning and design phases of the project.

6. **Patterson Pass Pipeline Enlargement and Replacement**

   The existing pipeline, installed in 1962, does not have the capacity to convey the increased production from PPWTP provided by the recent plant expansion from 12 MGD to 24 MGD, especially when demand from the Livermore Turnout 10 located adjacent to the plant is low. Replacing and upsizing the pipeline will provide improved reliability by replacing an aging pipeline, providing redundancy to convey full capacity of PPWTP during DVWTP outages, and will accommodate future demand growth. (Note: This project is funded 33 percent from Fund 120 and 67 percent from Fund 130.)

7. **Silver Oaks Pump Station Replacement**

   Silver Oaks Pump Station was constructed in 1991 as an emergency project during drought conditions. Never built as a permanent project, this pump station is skid-mounted without a building canopy of any sort and is well past its useful life. During PPWTP outages or during limited surface water availability, this pump station is critical for supplying water from the west end of the system to the east side of the system. This project provides improved water system reliability.

Figure 2 shows the breakdown of the Five-Year CIP expenditures by project category.

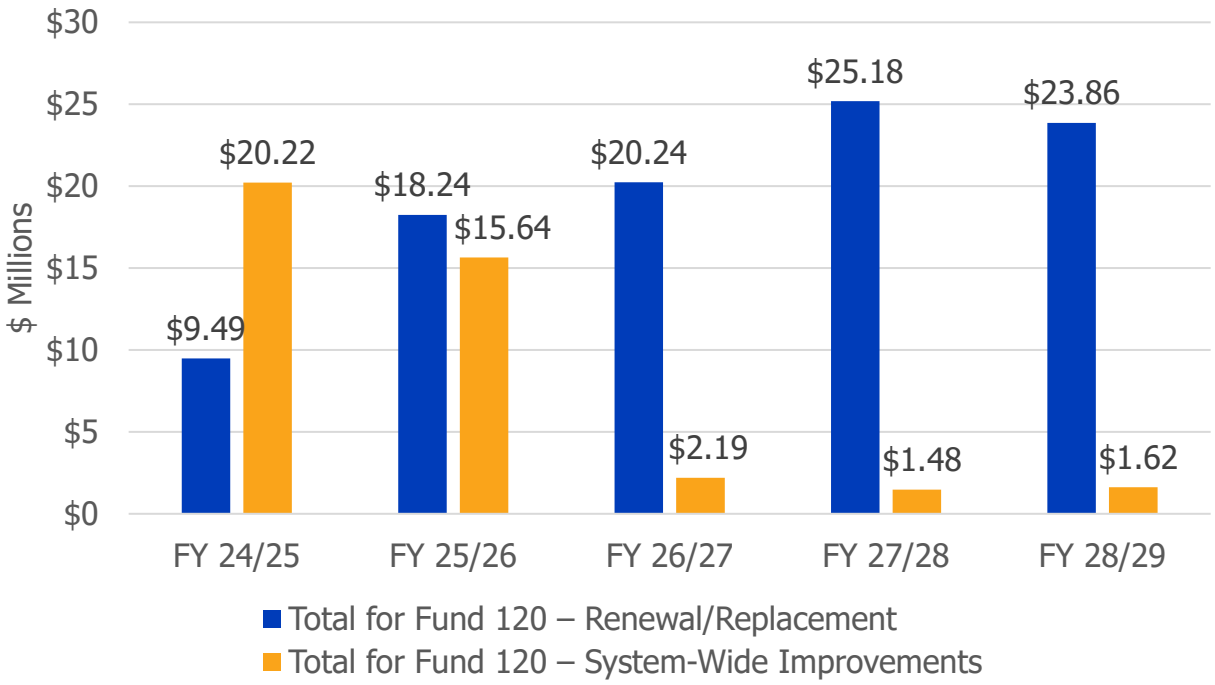

Figure 2 Fund 120 Renewal/Replacement and System-Wide Improvement CIP

Fund 130 – Water Enterprise Expansion

Fund 130 supports CIP expenditures needed because of additional demands on the Water System from new development. Projects under Fund 130 include water purchases, conveyance facilities, treatment, and transmission facilities.

Historically, Zone 7 has used pay-go financing for discreet growth-related projects with revenue from connection fees established in the Municipal and Industrial (M&I) Treated Water Connection Fee Program. In addition, this CIP proposes debt financing as a funding strategy for Fund 130.

Objectives

Projects under Fund 130 target a specific objective for Zone 7:

- **Expansion.** This project grouping includes new projects needed to meet the needs of future customers within the Zone 7 service area.

Key drivers for expansion projects include type (i.e., residential, commercial, etc.) and timing of growth.

Key Completed Projects

Key expansion projects completed since the Ten-Year CIP was adopted include:

- PPWTP Upgrades and Ozonation
- North Canyons Building HVAC Renewal/Replacement

(Note: these projects are funded by Fund 120 and 130.)

Key Proposed Projects*

A summary of key expansion projects that have been prioritized for ongoing funding in the Five-Year CIP update include:

1. **Chain of Lakes Conveyance System**

   This dual conveyance project improves water supply reliability by improving groundwater recharge capability by providing conveyance to deliver water from the SBA to the Chain of Lakes and by providing facilities to pump water stored in the Chain of Lakes to DVWTP during critical droughts and/or during Delta/SBA outages. (Note: This project is funded 53 percent from Fund 120 and 47 percent from Fund 130.)

2. **Patterson Pass Pipeline Enlargement and Replacement**

   The existing pipeline, installed in 1962, does not have the capacity to convey the increased production from PPWTP provided by the recent plant expansion from 12 MGD to 24 MGD, especially when demand from the Livermore Turnout 10 located adjacent to the plant is low. Replacing and upsizing the pipeline will provide

improved reliability by replacing an aging pipeline, providing redundancy to convey full capacity of PPWTP during DVWTP outages, and will accommodate future demand growth. (Note: This project is funded 33 percent from Fund 120 and 67 percent from Fund 130.)

3. **Sites Reservoir**

   Provides up to 10,000 acre-feet of additional annual supply for improved groundwater recharge and improved supply reliability.

4. **Los Vaqueros Reservoir Expansion**

   Provides up to 10,000 acre-feet of storage, alternative conveyance through the Transfer-Bethany Pipeline, emergency water supply, operational flexibility, and improved water reliability.

5. **PPWTP Centrifuge Facility (Solids Handling Expansion)**

   The existing sludge beds lack the capacity to provide residual management for the increased plant production of 24 MGD. This project will install a new centrifuge facility to supplement the sludge bed capacity. The project will provide improved treatment capacity and reliability.

6. **El Charro Pipeline Phase 2**

   This project includes construction of a pipeline that provides an additional loop in the transmission system in the vicinity of the Chain of Lakes wells for reliability and increased capacity to accommodate demand from new development.

7. **Bernal Wells 1 and 2 and Pipeline**

   This project is part of the Well Master Plan and consists of two new municipal water supply well facilities, pipelines to connect to Zone 7's transmission system, and treatment facilities for chloramination. The Well Master Plan Update is anticipated to be completed in FY 2024-25 and will inform the location of the wells. The installation of the new wells will maximize access to existing local storage in the Livermore-Amador Valley Groundwater Basin during droughts and/or Delta/SBA outages.

* The Delta Conveyance Project, which is key to water supply reliability for the Valley, would be implemented and financed by the California Department of Water Resources through bonds. The Delta Conveyance Project is not planned to be funded out of Fund 120 nor Fund 130 and is therefore not included in the Five-Year CIP. Completion of the Delta Conveyance project is anticipated for 2040.

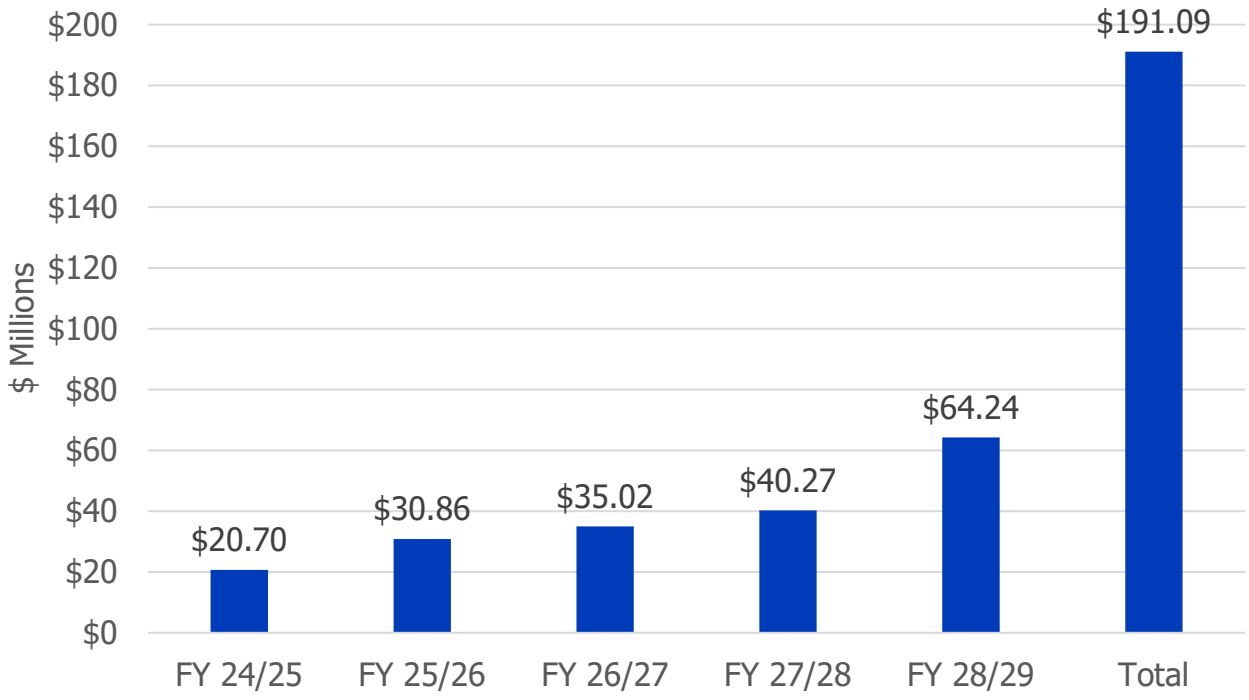

Figure 3 Fund 130: CIP Expenditures

Five-Year CIP Cash Flow Analysis

The Agency's current Reserve Policy was adopted via Resolution No. 19-37, dated May 15, 2019. The Agency Reserve Policy sets minimum, target, and maximum reserve levels for Agency funds.

- **Fund 120** - the Reserve Policy establishes a minimum Capital Reserve of 100 percent (100%) of the following year's planned pay-go expenditures.
- **Fund 130** - the Reserve Policy establishes a minimum Capital Reserve equal to 60 percent (60%) of the estimated non-discretionary amount budgeted annually. Non-discretionary obligations are contractually required payments to other agencies (e.g., Department of Water Resources) for debt incurred by Zone 7, such as the SBA Improvement and Enlargement Project.

Planned CIP projects are reviewed and updated every year through the budget process; any necessary project cash flow adjustments to improve reserve levels can be incorporated at that time.

Fund 120

The projects identified in Table 2 were found to be necessary and appropriate to continue to meet the Agency's mission. However, as shown in Figure 4, the planned

projects present funding gaps due to lack of available reserves to fund the projects using the pay-go method.

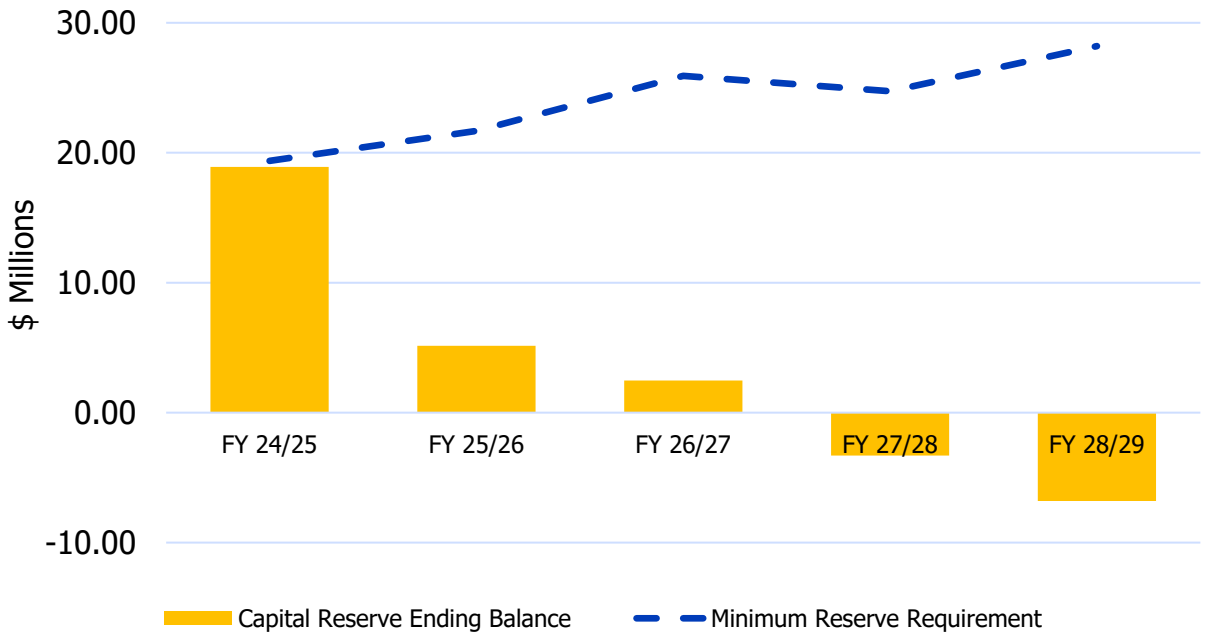

Figure 4 Fund 120: Projected Capital Reserves without Future Debt Financing

Figure 4 illustrates the ending Capital Reserve balance each year when pay-go is the only funding method used. The graph shows Fund 120 will not comply with the Agency's Reserve Policy starting in FY 2024-25 if no additional funding sources (i.e., grants, loans, or bonds) are assumed.

Debt financing can provide a solution to overcome funding gaps in future years. Table 4 identifies larger, system-wide improvement projects that are ideal candidates for a debt financing based on the cost, scope, and useful life of the projects.

Table 4 Debt Financing Project Candidates

Debt-Financed Project Candidates ($ Millions)	Amount	FY
Chain of Lakes PFAS Project **(2023 Bonds)**(1)	$30M	FY 23-24
Mocho Wellfield PFAS Treatment Facility Project **(2024 Bonds)**(2)	$33M	FY 24-25
Total	**$63M**	

Notes:
(1) The Chain of Lakes PFAS Project is approximately $22M. The remaining unused debt authorization of $8M can be used to fund other water system improvement projects in FY 2024-25. The estimated annual debt service for the $30M bond issuance is $1.9M.
(2) The Mocho Wellfield PFAS Treatment Facility project is a conceptual project. Bonds will only be issued once the project has been approved by the Board of Directors. The estimated annual debt service for the $33M bond issuance is $2M.

Figure 5 breaks out the Five-Year CIP by funding method.

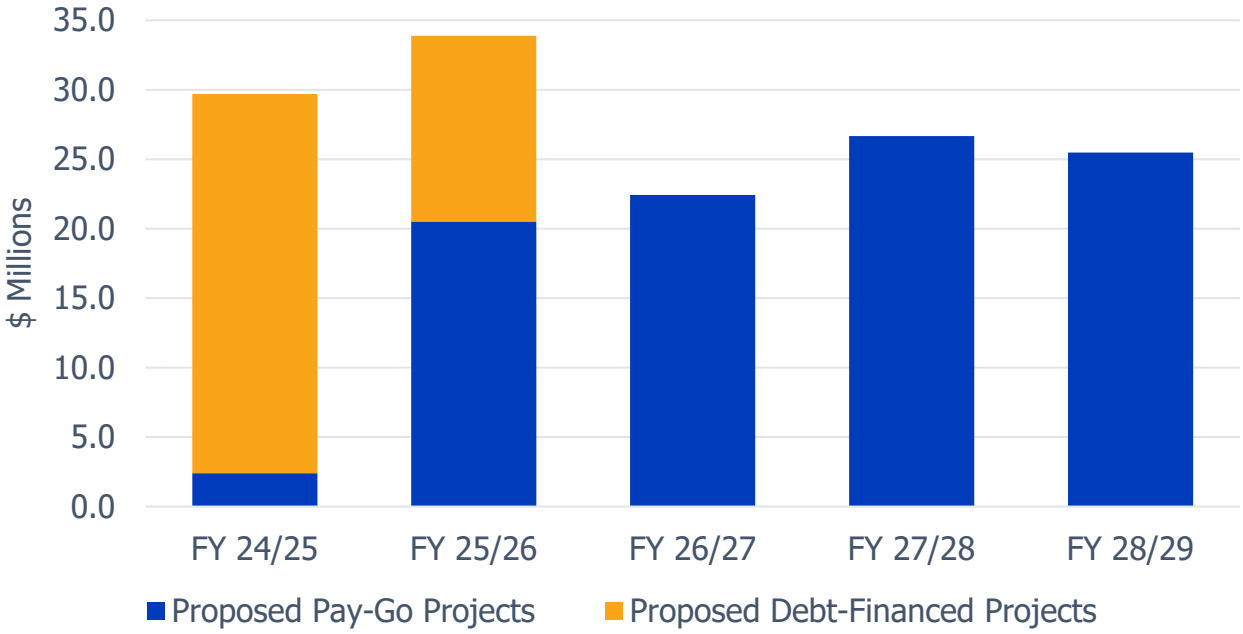

Figure 5 Fund 120: Proposed CIP Projects by Funding Method

In January 2023, the Board approved a reimbursement resolution (Resolution No. 23-05) authorizing staff to start the bond financing process for up to $30M to fund the Chain of Lakes PFAS Facility Project. The authorizing debt issuance amount was established before the construction bids were received. Based on the bids received and contract awarded, the construction phase costs are $22M, leaving an additional $8M in authorized bond proceeds to fund other water system projects.

Capital Funding and Other Revenue Growth Assumptions

Fund 120 is funded annually by water rates via the AMP capital funding. The actual capital funding amount is adjusted annually based on the change in ENR CCI. This Five-Year CIP update assumes an inflation factor of six percent (6%) each year, consistent with the construction escalation used for project costs. Other sources of revenue include interest earnings with an assumed two percent (2%) rate of return, and other miscellaneous revenues.

Figure 6 and Table 5 show the annual minimum reserve requirement as compared to the projected Capital Reserve ending balances. Based on capital funding and other debt financing revenue assumptions, the Five-Year CIP has adequate funding and complies with the Capital Reserve requirements for Fund 120 under the proposed funding plan.

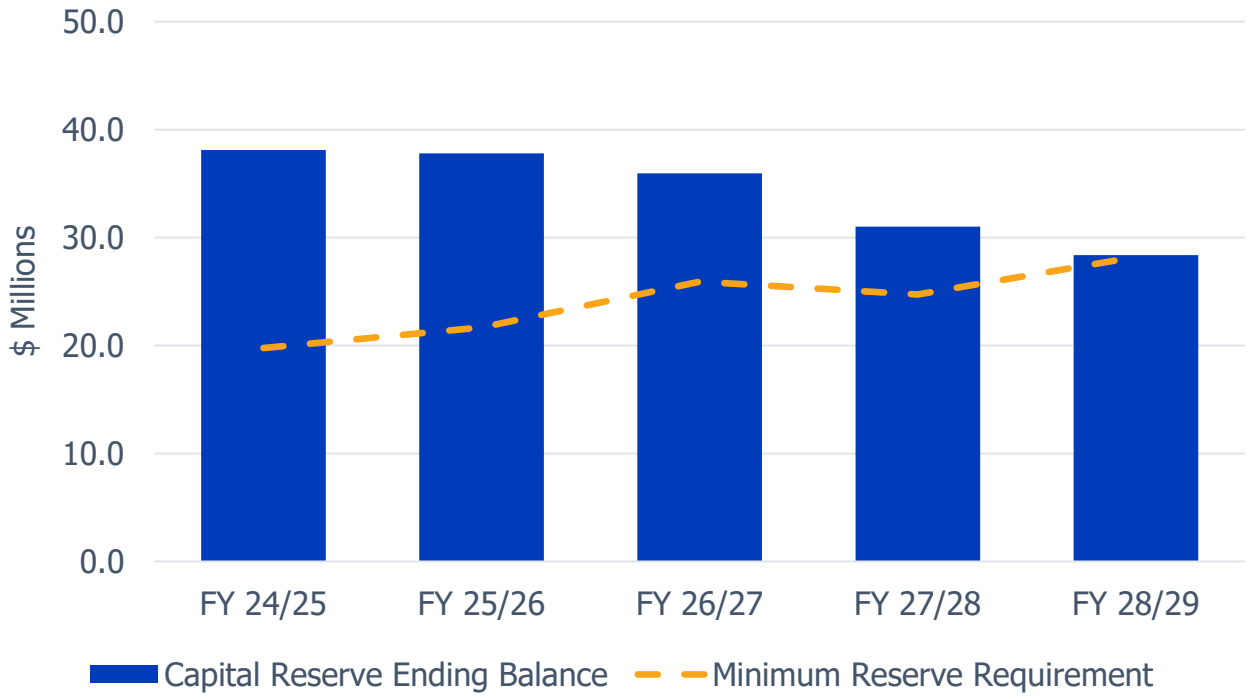

Figure 6 Comparison of Fund 120 Annual Expenditures vs. Capital Reserve Requirements

Table 5 Comparison of Fund 120 Annual Expenditures vs. Capital Reserve Requirements, in Millions

Fund 120 ($ Millions)		FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29
Capital Reserve Beginning Balance(1)		**$21.8**	**$38.1**	**$37.8**	**$35.9**	**$31.0**
Revenue	Capital Funding(2)	$18.2	$19.3	$19.6	$20.8	$22.1
	2023 Bond Proceeds(3)	$8.0				
	2024 Bond Proceeds(4)	$19.3	$13.4			
	Interest Earnings(5) and Other Income	$0.5	$1.0	$1.0	$0.9	$0.8
	Total Revenue	**$46.0**	**$33.6**	**$20.6**	**$21.7**	**$22.9**
Expenses	CIP Budget Pay-Go	$2.4	$20.5	$22.4	$26.7	$25.5
	CIP Budget Debt Financed	$27.3	$13.4			
	Total Expenses	**$29.7**	**$33.9**	**$22.4**	**$26.7**	**$25.5**
Capital Reserve Ending Balance		$38.1	$37.8	$35.9	$31.0	$28.4
Minimum Reserve Requirement(6)		$19.8	$21.7	$25.9	$24.7	$28.2
Above/(Below) Reserve Target		**$18.3**	**$16.1**	**$10.0**	**$6.3**	**$0.2**

Totals may not add due to rounding.
Notes:
(1) FY 2024-25 capital reserve beginning fund balance is based on the Agency's FY 2023-24 Amended Budget.
(2) Capital funding is made up of the annual AMP capital funding from Fund 100 to Fund 120. The FY 2024-25 capital funding amount includes additional funding of $725K for the Stoneridge PFAS project which sunsets in FY 2025-26. The remaining ongoing capital funding is adjusted annually by six percent (6%).
(3) The Chain of Lakes PFAS Project is approximately $22M. Assumes the remaining unused debt authorization of $8M can be used to fund other water system improvement projects in FY 2024-25. The estimated annual debt service for the $30M bond issuance is approximately $1.9M.
(4) The 2024 Bonds are an assumed revenue source to fund the Mocho Wellfield PFAS Treatment Facility Project. The estimated annual debt service for the $33M bond issuance is approximately $2M.
(5) Assumes two percent (2%) annual interest earnings.
(6) The Agency's Reserve Policy establishes a minimum Capital Reserve of 100 percent (100%) of the following year planned pay-go expenditures.

Fund 130

The projects identified in Table 3 were found to be necessary and appropriate to continue to meet the Agency's mission. Figure 7 breaks out the Fund 130 proposed projects in Table 3 by funding method.

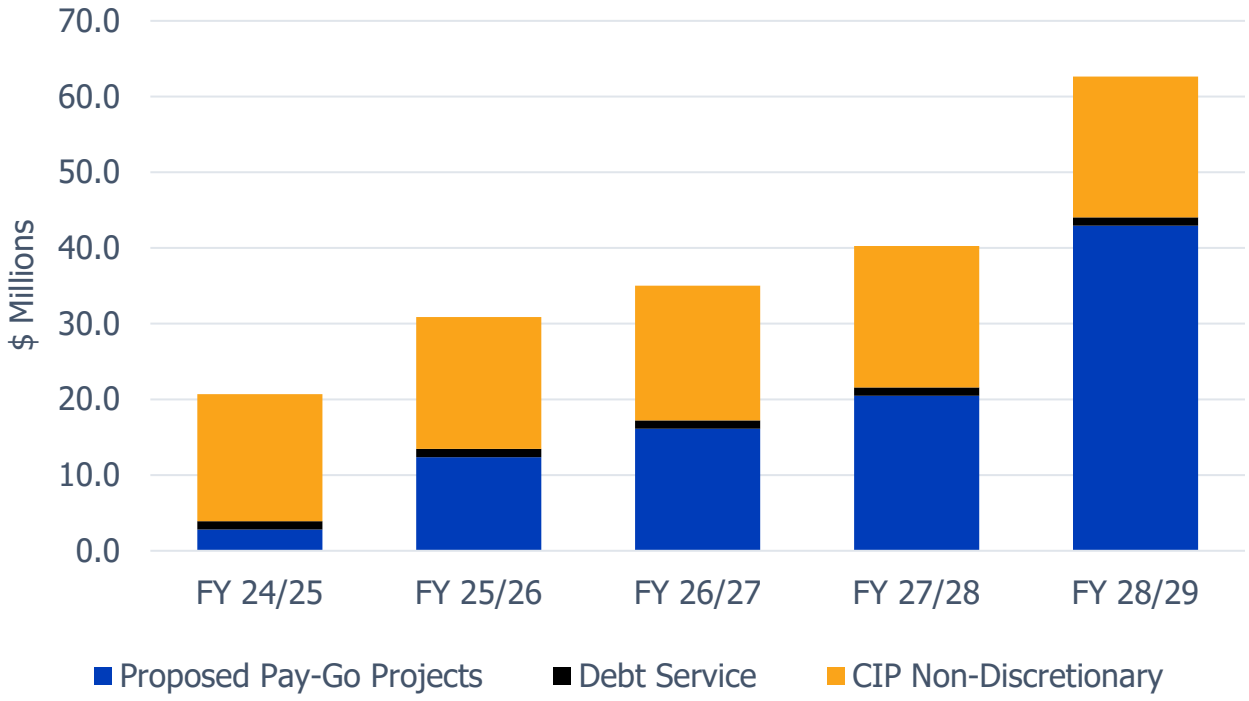

Figure 7 Comparison of Fund 130 Annual Expenditures and Funding Method

Figure 8 and Table 6 show the annual minimum reserve requirement compared to projected Capital Reserve ending balances and confirm adequate funding and compliance with the Capital Reserve requirements for Fund 130 under the proposed funding plan.

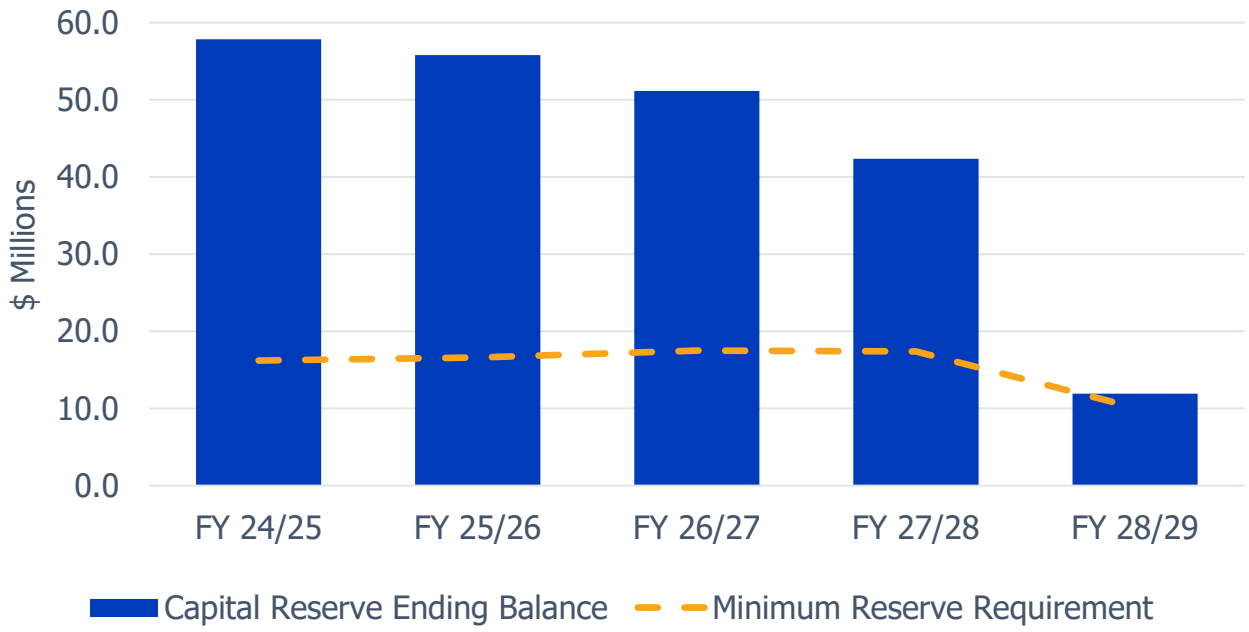

Figure 8 Comparison of Fund 130 Annual Expenditures vs. Capital Reserve Requirements

Table 6 Comparison of Fund 130 Annual Expenditures vs. Capital Reserve Requirements, in Millions

Fund 130 – Water System Expansion ($ Millions)		FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29
Capital Reserve Beginning Balance(1)		**$82.2**	**$87.0**	**$87.3**	**$85.2**	**$78.9**
Revenue	Connection Fees(2)	$20.5	$25.9	$27.4	$28.4	$29.4
	DWR Refunds	$3.4	$3.6	$3.7	$3.9	$3.9
	Interest Earnings(3) and Other Income	$1.6	$1.7	$1.7	$1.7	$1.6
	Total Revenue	**$25.6**	**$31.2**	**$32.8**	**$34.0**	**$34.9**
Expenses	CIP Pay-Go	$2.8	$12.4	$16.1	$20.5	$44.5
	CIP Non-Discretionary(4)	$16.8	$17.4	$17.8	$18.7	$18.6
	Debt Service(5)	$1.1	$1.1	$1.1	$1.1	$1.1
	Total Expenses	**$20.7**	**$30.9**	**$35.0**	**$40.3**	**$64.2**
Capital Reserve Ending Balance		$87.0	$87.3	$85.2	$78.9	$49.5
Designation for Capital Reserves		$57.9	$55.8	$51.2	$42.4	$10.3
Sinking Fund Balances		$29.2	$31.5	$34.0	$36.6	$39.2
Minimum Reserve Requirement(6)		$16.2	$16.6	$17.5	$17.4	$10.1
Above/Below Reserve Target		**$41.7**	**$39.2**	**$33.7**	**$25.0**	**$0.2**

Totals may not add due to rounding.
Notes:
(1) FY 2024-25 capital reserve beginning fund balance is based on the Agency's FY 2023-24 Proposed Amended Budget.
(2) Connection fee revenue is conservatively projected to be steady from FY 2024-25 through 2028-29. The projection also assumes annual inflationary adjustment of four percent (4%) to the water connection fee each year.
(3) Assumes two percent (2%) annual interest earnings.
(4) Non-discretionary obligations are contractually required payments to other agencies (e.g., Department of Water Resources) for debt incurred by Zone 7, such as the SBA Improvement and Enlargement Project.
(5) Represents the refunded Cawelo capital portion of the Water Revenue Bonds, Series 2018A.
(6) Reserve Policy establishes a minimum Capital Reserve equal to 60 percent of the estimated non-discretionary amount budgeted annually.

Following this proposed Five-Year CIP, the Agency plans to complete its long-range financial plan to incorporate this proposed CIP and to analyze the Agency's debt capacity, annual debt service requirements, and impact on water rates. The preparation of the proposed Five-Year CIP is necessary to proceed with the bond financing and will be the basis for the following future planning efforts:

- Asset Management Program Update
- Connection Fee Study
- Ten-Year CIP Update
- Water Rates Review - per Resolution No. 22-93, the Board shall revisit the rate schedule for calendar years 2025 and 2026, through a public process, with any changed rates adopted by November 2024.

Appendix A Water System Project Summary Reports

Table of Contents

The following table shows the project title and page number for each Water System capital project in this Five-Year CIP.

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Program Management
Project	**Asset Management Program Management**
Project ID:	SP18
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	Ongoing program management of the Asset Management Program (AMP). Activities include facilitating condition assessments, maintaining the asset database, regular updates of the AMP, and other ongoing implementation tasks.
Justification	Assures that assets in need of repair or replacement are identified and corrected.
Origin	Asset Management Program
Responsible Section	WSE Water Supply Engineering
Operating Impact	Increased operational effectiveness and reliability.
In Service Date	**Year**: Ongoing
Total Project Cost	$840,000 (1) (1) Five-year total is provided for projects with annually recurring costs.
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Expansion
Program	Wells
Project	**Bernal Wells 1 & 2 and Pipeline**
Project ID:	W50
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project is part of the Well Master Plan and consists of two new municipal water supply well facilities. The estimated project cost includes planning, land acquisition, permitting, well design and drilling, facility design and construction which includes treatment facilities for chloramination of the well water, pipeline additions, and miscellaneous site work. The project also includes a pipeline connection along Valley Avenue to the Zone 7 water transmission system at the Hopyard Pipeline near Parkside Drive.
Justification	Additional municipal water supply wells could maximize access to existing local storage in the Livermore-Amador Valley Groundwater Basin during droughts and facility outages. Maximizing access to local storage improves water supply reliability as demand grows, as established in Zone 7 Resolutions 04-2662 and 06-2786. These wells will also provide Zone 7 more control over groundwater levels, groundwater flow, and dissolved salt build-up/removal.
Origin	2003 Well Master Plan and 2016 Water Supply Evaluation Update
Responsible Section	WSE Water Supply Engineering
Operating Impact	Improves system reliability.
In Service Date	**Year**: 2029
Total Project Cost	$28,800,000
Source of Funds	Fund 130 Expansion 100%

Capital Improvement Project Summary

Strategy	Expansion Renewal/Replacement
Program	Program Management
Project	**Capital Improvement Program Management**
Project ID:	SP13
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	Ongoing program management of the Capital Improvement Program (CIP) including annual report preparation, Zone 7 labor, and other CIP related efforts.
Justification	Provides for better tracking and control of program management costs.
Origin	Capital Improvement Program
Responsible Section	WSE Water Supply Engineering
Operating Impact	None.
In Service Date	**Year**: Ongoing
Total Project Cost	$920,000 (1) (1) Five-year total is provided for projects with annually recurring costs.
Source of Funds	Fund 120 Improvement, Renewal & Replacement 50% Fund 130 Expansion 50%

Capital Improvement Project Summary

Strategy	Expansion
Program	Water Supply & Conveyance
Project	**Cawelo Groundwater Banking Program – Debt Service**
Project ID:	WP11
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 1
Project Description	On June 21, 2006, the Zone 7 Board of Directors approved an agreement with the Cawelo Water District for a water banking and exchange program. The banking program increased Zone 7's dry-year water supply by up to 10,000 acre-feet per year. Zone 7 is able to store up to 120,000 acre-feet of water within the Cawelo Water District area. Cawelo financed this program by a $21.055 million sale of Certificates of Participation (COP) on August 15, 2006. In 2018, the COPS were refunded with Livermore Valley Water Financing Authority Series A Revenue Bonds. The Agency was paying an average interest rate of 4.5% on the Cawelo capital payment. The rate on the refunded portion reduced to 2.9%, saving the Agency over $0.2M per year.
Justification	Increases reliability by providing additional water supplies during drought years.
Origin	1999 Water Supply Plan
Responsible Section	FIN Finance
Operating Impact	Increased operational reliability.
In Service Date	**Year**: Ongoing 2035
Total Project Cost	$32,925,300
Source of Funds	Fund 130 Expansion 100%

Capital Improvement Project Summary

Strategy	System-Wide Improvements Expansion
Program	Transmission & Distribution
Project	**Chain of Lakes Conveyance System (previously known as Chain of Lakes – Cope Lake to DVWTP Pipeline)**
Project ID:	COL16
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 1
Project Description	This project consists of a new multi-purpose 36-in conveyance pipeline and 12-MGD pump station connecting DVWTP/SBA with Lakes H/I/Cope. Active gravel mining operations may continue until 2060, delaying completion of the Chain of Lakes (COLs) by 30 years beyond the previous planning horizon. This means that previously planned groundwater recharge, local water right perfection, and other key water management strategies (e.g., to reduce salt loading) are also potentially delayed because they are tied to the COLs. Zone 7 is therefore planning to construct this project to allow Zone 7 to proceed with planned and potential uses of the COLs regardless of when the remaining projects are turned over to Zone 7.
Justification	Even with the delay of the turnover of Lakes A to G to Zone 7, this project will improve recharge of the local groundwater basin, help perfect local water rights, allow Zone 7 to meet demands with stored water in the COLs during catastrophic events (e.g., loss of the Delta), and increase options for new water supplies (e.g., potential potable reuse implementation).
Origin	2016 Water Supply Evaluation Update
Responsible Section	IP Integrated Planning
Operating Impact	Increased water supply reliability and operational flexibility. Increased O&M costs.
In Service Date	**Year**: 2032
Total Project Cost	$175,600,000

Source of Funds			
	Fund 120	Improvement, Renewal & Replacement	53%
	Fund 130	Expansion	47%

Capital Improvement Project Summary

Strategy	System-Wide Improvements Expansion		
Program	Water Supply & Conveyance		
Project	**Chain of Lakes Facilities and Improvements - Water Supply**		
Project ID:	COL10		
Strategic Plan Goal	C – Groundwater Management, Initiative 7		
Project Description	This project consists of the design and construction of elements of the Chain of Lakes facilities needed for water supply as identified in near-term and long-term planning efforts. Project components include, but are not limited to, pipelines, fencing, access roads and ramps, slope re-grading and landscaping. The costs included under this project represent only the water supply portion; the flood control-related costs are included in the CIP as a separate project.		
Justification	The COLs is a series of gravel mining pits that will be dedicated to Zone 7 over the next 40 years or more for water management purposes. More specifically, the COLs will allow Zone 7 to implement mitigative measures for salt loading in the Livermore Valley Groundwater Basin, enhance artificial recharge, provide surface water storage, and support flood protection activities. This project will allow Zone 7 to design and implement the projects necessary for Zone 7 to use the COLs for water management after dedication.		
Origin	Capital Improvement Program		
Responsible Section	WSE	Water Supply Engineering	
Operating Impact	Increases water supply reliability. Increased O&M costs.		
In Service Date	**Year**: 2027		
Total Project Cost	$1,300,000		
Source of Funds	Fund 120 Fund 130	Improvement, Renewal & Replacement Expansion	30% 70%

Capital Improvement Project Summary

Strategy	Expansion
Program	Water Supply & Conveyance
Project	**City Reach Pipeline Mitigation (previously known as Walker Ranch)**
Project ID:	TBD
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	The Walker Ranch Conservation Easement was intended as the mitigation for the Altamont Water Treatment Plant and Altamont Pipeline construction projects. Since the treatment plant was not constructed, the mitigation need is limited to the City Reach of Altamont Pipeline. Consequently, the project name is changed from the Walker Ranch Conservation Easement to the City Reach Pipeline Mitigation. This limited mitigation need can be fulfilled by purchasing mitigation credits at a suitable mitigation bank or by developing a Zone 7 mitigation project. The funding for this City Reach Pipeline Mitigation will be used to either develop our own mitigation projects or purchase mitigation credits, or a combination of both.
Justification	Zone 7 routinely conducts capital improvement projects that may require environmental permits and sometimes mitigation to offset project impacts. The construction of City Reach Pipeline requires mitigation.
Origin	Altamont Water Treatment Plant project permits
Responsible Section	IP Integrated Planning
Operating Impact	Meets regulatory requirements. No other operating impact.
In Service Date	**Year**: 2025
Total Project Cost	$410,000
Source of Funds	Fund 130 Expansion 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Water Treatment Facilities
Project	**DVWTP Coagulant System Replacement**
Project ID:	TBD
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	Key systems to be replaced include, but are not limited to, coagulant metering pumps and storage tanks, as well as ancillary chemical feed equipment such as piping and valving.
Justification	These systems were installed in the 1980s and have either reached or are nearing the end of their useful lives. These systems are critical to the operation of the Del Valle Water Treatment Plant.
Origin	Asset Management Program
Responsible Section	WSE Water Supply Engineering
Operating Impact	Increases ability to comply with regulatory requirements, increases operational effectiveness and reliability, and decreases maintenance.
In Service Date	**Year**: 2028
Total Project Cost	$4,980,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Water Treatment Facilities
Project	**DVWTP Drying Beds 1-4 Rehabilitation Project**
Project ID:	DV157
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This is a project that would rebuild/rehab drying beds 1-4. Due to their proximity, these beds have a history of affecting adjacent properties as their poor underdrain system does not properly contain percolated flows. This project will pave the beds and make modifications to the underdrain system to minimize percolation while still providing underdrain use for other drying beds.
Justification	Sludge beds are still frequently used in conjunction with the centrifuge mostly during times when minimal operations staff (swing shift, graveyard shift, and weekends) is on-site and the consistency of solids is difficult to maintain for centrifuge processing. Sludge beds also provide redundancy for handling sludge if the centrifuge becomes inoperable as well as provide needed temporary storage for draining of other treatment facilities (clearwells, super-pulsators, gravity thickener, etc.) during periodic maintenance events so the plant can be managed for compliance with state discharge permits.
Origin	2014 Condition Assessment
Responsible Section	WSE Water Supply Engineering
Operating Impact	Improved operational reliability and lower maintenance cost.
In Service Date	**Year**: 2029
Total Project Cost	$1,530,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Water Treatment Facilities
Project	**DVWTP & PPWTP HVAC Replacement**
Project ID:	DV146
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	Key equipment to be replaced include, but are not limited to, the following: boilers and appurtenances; air handling units and exhaust fans; air cooled chiller for the Laboratory Building; associated system control and pressure valves, switches, appurtenances; etc., and digital control systems for the HVAC.
Justification	The heating, ventilation, and air conditioning systems are near the end of their useful life and need to be replaced. It is expected that more state-of-art technology and more efficient compressors and boilers, etc., will replace the equipment installed in the DVWTP 2003 HVAC project. The project will continue to provide comfortable, safe and energy efficient operations and protect plant and laboratory personnel, equipment and instrumentation, SCADA system and servers against higher heating and colder temperatures throughout the year.
Origin	Asset Management Program
Responsible Section	WSE Water Supply Engineering
Operating Impact	Increases operational reliability.
In Service Date	**Year**: 2026
Total Project Cost	$2,730,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Water Treatment Facilities
Project	**DVWTP Sewer Line Connection and Access Road Modifications**
Project ID:	DV161
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	A private development has proposed a sewer extension across Arroyo Valle then along Foley Road to Kalthoff Commons. The scope of this work is to connect and extend the proposed sewer line to DVWTP. The scope may also include working with the developer and the City for upsizing the proposed sewer line and capacity of the proposed sewer lift station. The project implementation schedule will be dependent on the private development schedule.
Justification	This project will allow DVWTP to connect to a sanitary sewer and eliminate the septic system. Connecting to a sanitary sewer also helps provide additional disposal options to improve efficiency of operations and maintenance work at DVWTP.
Origin	Operations and Water Supply Engineering
Responsible Section	WSE Water Supply Engineering
Operating Impact	Improves plant operations and maintenance efficiencies.
In Service Date	**Year**: 2027
Total Project Cost	$1,490,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Water Treatment Facilities
Project	**DVWTP Washwater Recovery Ponds Rehabilitation**
Project ID:	DV156
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project would redesign the washwater recovery ponds to allow for better decanting as well as better sludge concentration at the bottom of the ponds. New valves and actuators, electrical, and SCADA would also be a part of the project to allow for automated decanting and sludge discharge to the equalization basin.
Justification	The original recovery ponds were constructed in 1973 and were not designed to handle filter backwashes for the full 40 MGD plant capacity. Without adequate time in the washwater recovery ponds for removal of solids from the filter backwashes, plant production is reduced and/or additional efforts from Operations staff is needed to manage filter backwash recycled flows back to the headworks.
Origin	2014 Condition Assessment
Responsible Section	WSE Water Supply Engineering
Operating Impact	Improve system reliability and enable Zone 7 to take advantage of the maximum water production capacity, also reduce maintenance costs.
In Service Date	**Year**: 2030
Total Project Cost	$12,760,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Expansion
Program	Wells
Project	**El Charro Pipeline Phase 2**
Project ID:	W42
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project includes planning, land/easement acquisition, design, and construction of a pipeline that loops the transmission system in the vicinity of the Chain of Lakes wells.
Justification	This project improves transmission system reliability by providing an additional loop in Zone 7's transmission system and provides additional treated water conveyance capacity to accommodate demand growth from new development. The implementation schedule may depend either on the development schedule in east Pleasanton to install the pipeline during construction of new roads for the development to minimize cost or to install the pipeline during installation of Chain-of-Lakes Conveyance Project due to similar alignment.
Origin	2003 Well Master Plan, 2016 Transmission System Planning Update
Responsible Section	WSE Water Supply Engineering
Operating Impact	Improved treated water conveyance reliability.
In Service Date	**Year**: 2029
Total Project Cost	$18,550,000
Source of Funds	Fund 130 Expansion 100%

Capital Improvement Project Summary

Strategy	System-Wide Improvements
Program	Building and Grounds
Project	**Energy Master Plan Priority Projects**
Project ID:	TBD
Strategic Plan Goal	E – Effective Operations, Initiative 16
Project Description	This project consists of energy-related investments in Zone 7's structures and support facilities. Specific projects will be identified through the Energy Master Plan and will be cost-effective projects that reduce energy use, increase energy efficiency, improve energy resilience, and reduce Zone 7's carbon footprint.
Justification	Reductions in energy use, increases in energy efficiency, and increases in energy resilience will result in energy cost savings to Zone 7, thereby reducing operational costs. Energy improvements will also contribute to reduction of Zone 7's carbon footprint.
Origin	Strategic Plan
Responsible Section	IP Integrated Planning
Operating Impact	Impacts will include operational cost savings via reduced energy use and increased energy efficiency. Impacts will also include reduction of Zone 7's carbon footprint.
In Service Date	**Year**: 2026
Total Project Cost	$500,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Expansion
Program	Water Supply & Conveyance
Project	**Fourth Contractor's Share of the SBA – Payments to DWR**
Project ID:	WP7
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 1
Project Description	Zone 7 contracted to purchase 22,000 AFA of previously-unallocated capacity in the South Bay Aqueduct under Amendments 19 and 20 to its water supply contract with DWR. This project reflects Fund 130's share of the Water System Revenue Bond and Transportation Capital Cost Component charges associated with this capacity per Amendments 19 and 20. A separate fund (Fund 110) pays for the Transportation Minimum (OMPR) Cost Component of this capacity.
Justification	Purchase of this unallocated share of the SBA was to allow Zone 7 to meet the water supply and peaking needs of new customers.
Origin	Amendments 19 and 20 to Zone 7's water supply contract with DWR
Responsible Section	FIN Finance
Operating Impact	The purchases were required to meet Zone 7's long-term water supply needs, and thus allow Zone 7 to continue to meet its treated and untreated water customer demands, while preserving system reliability.
In Service Date	**Year**: Ongoing 2035
Total Project Cost	$54,000,000
Source of Funds	Fund 130 Expansion 100%

Capital Improvement Project Summary

Strategy	Expansion
Program	Water Supply & Conveyance
Project	**Fourth Contractor's Share of the SBA – Sinking Fund**
Project ID:	WP14
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 1
Project Description	Zone 7 contracted to purchase 22,000 AFA of previously-unallocated capacity in the South Bay Aqueduct under Amendments 19 and 20 to its contract with the Department of Water Resources. In addition to the scheduled payments for the 22,000 AFA which will carry through 2035, Zone 7 contributes annually into this sinking fund (beginning FY 2004/05 until FY 29/30), in order to cover contractual costs from the year 2030 to 2035 when connection fee revenue is projected to decline with the approach of buildout. The annual contributions to the sinking fund are funded by connection fees.
Justification	This sinking fund is to cover contractual costs from the year 2030 to 2035.
Origin	Amendments 19, 20, 21, 23, and 25 to Zone 7's water supply contract with DWR
Responsible Section	FIN Finance
Operating Impact	None.
In Service Date	**Year**: Ongoing 2030
Total Project Cost	$8,900,000
Source of Funds	Fund 130 Expansion 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Transmission & Distribution
Project	**Hopyard Pipeline Corrosion Protection Improvement Project**
Project ID:	TBD
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project is to upgrade cathodic protection for Hopyard Pipeline as recommended in the annual survey and cathodic protection condition assessment. Cathodic protection uses a low electrical current to control corrosion of metal structures, such as pipelines. The project includes design and installation of impressed current cathodic protection and approximately 15 test stations on Hopyard Pipeline. The project will provide corrosion control to significant lengths of the buried pipeline, provide a means to monitor the function of the corrosion protection system, and allow additional testing for locating existing electrical discontinuities on the pipeline.
Justification	Implementation of the cathodic protection recommendations from the annual survey and condition assessment is necessary to protect existing facilities from corrosion, which extends their service life and minimizes disruption of service. The buried pipeline is currently known to have developed electrical discontinuities, likely resulting from repairs and improvements to sections of the pipeline over years of operation.
Origin	Annual Survey and Cathodic Protection Condition Assessment, updated March 2023
Responsible Section	WSE Water Supply Engineering
Operating Impact	Lengthens service life and improves operational reliability.
In Service Date	**Year**: 2026
Total Project Cost	$860,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Transmission & Distribution
Project	**Kitty Hawk Pump Station Equipment & Electrical Renewal/Replacement**
Project ID:	DS59
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	The project includes planning, design, and construction to renew/replace the following existing assets at the 8 MGD Kitty Hawk Pump Station: pump and piping; and electrical.
Justification	The pumps, motors, and electrical equipment are from 1991, and are reaching the end of their useful life. These assets are critical to the reliable operation of the Kitty Hawk Pump Station. Kitty Hawk Pump Station must be operated in tandem with Silver Oaks Pump Station to meet summer water supply demands to eastern Livermore when Patterson Pass Water Treatment Plant is out of service. The electrical equipment is obsolete and parts are not available, so a failure could result in the pump station out of service indefinitely.
Origin	Asset Management Program
Responsible Section	WSE Water Supply Engineering
Operating Impact	Increases system reliability
In Service Date	**Year**: 2028
Total Project Cost	$2,600,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Regulatory Compliance Monitoring
Project	**Laboratory Equipment Replacement**
Project ID:	LAB2
Strategic Plan Goal	B – Safe Water, Initiative 5
Project Description	Replacement of various monitoring and analytical laboratory equipment and components in the water quality laboratory. This equipment includes gas chromatography/mass spectrometry (GC/MS) instruments, total organic carbon (TOC) analyzer, cyanotoxin analyzer, ion chromatography (IC) instruments, and turbidimeters.
Justification	This program replaces existing laboratory equipment that will be reaching the end of their useful life. Current equipment in use was purchased in 1991 to 2023, and has an operating life of 5-15 years, depending on the equipment. Over the years, staff have been able to extend the life of some of the equipment by replacing consumable components. This equipment is required for regulatory compliance monitoring and groundwater water quality management.
Origin	Capital Improvement Program
Responsible Section	WQ Water Quality
Operating Impact	Procures equipment required to meet regulatory compliance.
In Service Date	**Year**: Ongoing
Total Project Cost	$710,000 (1) (1) Five-year total is provided for projects with annually recurring costs.
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Expansion
Program	Water Supply and Conveyance
Project	**Los Vaqueros Reservoir Expansion**
Project ID:	TBD
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 2
Project Description	This project will expand the existing Los Vaqueros Reservoir by an additional 115,000 acre-feet of storage capacity and construct the Transfer-Bethany Pipeline and other supporting facilities. The reservoir is owned by Contra Costa Water District and is located in Contra Costa County. The project will use existing infrastructure to divert water from the Delta and Sacramento River. Diverted water may also be directly delivered to project participants. Zone 7 has been participating in the project planning phase for a storage allocation of up to 10,000 acre-feet. The project is expected to begin full operation in 2031.
Justification	The 2022 Water Supply Evaluation Update found that a diversified portfolio of multiple water supply reliability projects would be needed to maintain Zone 7's long-term reliability. Additionally, the study recommended continued participation in Los Vaqueros Reservoir Expansion.
Origin	Participation in the Los Vaqueros Reservoir Expansion Project Planning memo dated September 21, 2016; 2011 Water Supply Evaluation; 2016 Water Supply Evaluation Update; 2019 Water Supply Evaluation Update; 2022 Water Supply Evaluation Update
Responsible Section	IP Integrated Planning
Operating Impact	Increases water reliability. Provides water storage, alternative conveyance, emergency water supply, and operational flexibility.
In Service Date	**Year:** 2030
Total Project Cost	$48,000,000 (1) (1) Current estimate of Zone 7 share of total project cost.

Source of Funds			
	Fund 100	Water Enterprise	80%
	Fund 130	Expansion	20%

Capital Improvement Project Summary

Strategy	Expansion Renewal/Replacement
Program	Water Treatment Facilities
Project	**Maintenance Yard and Building**
Project ID:	PP67
Strategic Plan Goal	E – Effective Operations, Initiative 14
Project Description	This project scope includes design and construction of maintenance yard and building that includes: 1) additional outdoor material storage and stockpile areas, 2) office building for Maintenance staff including amenities such as lunch area and file storage, 3) storage area for equipment that needs to be stored in a climate controlled area, 4) warehouse storage and work areas for various maintenance disciplines such as electrical, SCADA/instrumentation, mechanical, general/carpentry, and mechanics, and, 5) covered areas for maintenance vehicles and various equipment.
Justification	The existing maintenance yard and maintenance shop at Del Valle Water Treatment Plant are not adequate for current and future needs of the agency. Currently, sparts parts are stored in storage containers without any organized system and some of the Maintenance staff work in trailers. This project provides necessary storage to effectively and properly store spare, critical water system components with long lead times to provide ability to perform critical repairs in a timely manner to avoid water supply disruptions to customers.
Origin	ESR No. Z7-11-01
Responsible Section	WSE Water Supply Engineering
Operating Impact	Provides operational and maintenance efficiency. Improves reliability of water system operations.
In Service Date	**Year**: 2028
Total Project Cost	$12,900,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Wells
Project	**MGDP HVAC Replacement**
Project ID:	W59
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project includes planning, design, and construction to replace the heating, ventilation, and air conditioning (HVAC) system at Mocho Groundwater Demineralization Plant (MGDP). There are three separate systems at MGDP that comprise the entire HVAC system: one for the electrical room area housing all the electrical gear and variable frequency drives (VFDs) for the plant; one for the office area where Operations staff operate the plant; and one for the main building area where the reverse osmosis (RO) system is located.
Justification	These assets were installed in 2009 and are reaching the end of their useful life. Without a functioning HVAC system, condensation builds up in the main RO building area, which can accelerate equipment failure. The HVAC system is also critical for the electrical room area, as electrical gear generates significant amounts of heat and electrical reliability and function can be negatively impacted by excessive heat. These assets are therefore critical to the reliable operation of the MGDP.
Origin	Asset Management Program
Responsible Section	WSE Water Supply Engineering
Operating Impact	Maintains operational functionality and reliability.
In Service Date	**Year**: 2027
Total Project Cost	$2,120,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Wells
Project	**MGDP RO Membrane Replacement**
Project ID:	W43
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project consists of the replacement of the reverse osmosis membranes (RO) at the Mocho Groundwater Demineralization Plant (MGDP). Membranes reach their useful lives and need to be replaced.
Justification	The replacement of these membranes is scheduled every ten years, based on the useful life estimate, to maintain effective plant operation. The timing of membrane replacements would be adjusted based on actual performance. In the case of the original membranes, a condition assessment shows them to be in good shape such that their replacement has been extended. The membrane condition is partly attributed to lack of MGDP use to avoid water loss during the prolonged drought period.
Origin	Asset Management Program
Responsible Section	WSE Water Supply Engineering
Operating Impact	Increase operating reliability and effectiveness
In Service Date	**Year**: 2026
Total Project Cost	$1,910,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Water Treatment Facilities
Project	**Minor Renewal/Replacement Projects**
Project ID:	DS36
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	As needed replacement and repair of water system assets which individually are not large enough to implement as a capital project. In the past, this project has included emergency pipeline repair leaks on the Hopyard and Cross Valley pipelines, pump replacements at the various pump stations in the distribution system, and a line valve replacement.
Justification	Ongoing maintenance associated with the reliable supply of high-quality water.
Origin	Capital Improvement Program
Responsible Section	OPS Operations & Maintenance
Operating Impact	Increases system operational reliability.
In Service Date	**Year**: Ongoing
Total Project Cost	$4,480,000 (1) (1) Five-year total is provided for projects with annually recurring costs.
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Wells
Project	**Mocho 2 Building and VFD Installation and Electrical Systems Relocation**
Project ID:	W58
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	Project consists of replacing existing old wooden structure with standard block building, installing a variable frequency drive (VFD), and relocating external electrical equipment indoors. Project would increase building footprint to include existing external electrical equipment, future VFD, and a new HVAC system.
Justification	Mocho 2 was constructed in 1964 with external electrical equipment and a modest wooden structure covering the well/discharge head only. Temperature control is provided by a portable fan. In order to increase long term reliability of the facility, the existing outdoor electrical equipment should be brought inside the building. The addition of a new VFD also necessitates being installed inside a temperature-controlled building. A new building would extend the life of the existing electrical equipment and the new VFD by bringing the equipment within a new, larger building footprint.
Origin	Asset Management Program
Responsible Section	WSE Water Supply Engineering
Operating Impact	Increases operational service life of the facility, including the electrical equipment.
In Service Date	**Year**: 2029
Total Project Cost	$4,400,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Wells
Project	**Mocho 3 and 4 Switchgear Replacement Project**
Project ID:	TBD
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project is to replace electrical switchgear responsible for feeding all power at the Mocho 3 and Mocho 4 well sites. Major components to be replaced include switchboards and motor control centers (MCCs).
Justification	Existing equipment was installed in 2002 and is nearing the end of their useful life. As these wells are critical to Zone 7 meeting water demand especially during drought years, reliable operation of these wells is necessary. The switchgear is critical to the proper operation and function of the production wells.
Origin	Asset Management Program
Responsible Section	WSE Water Supply Engineering
Operating Impact	Provides needed water production and operational reliability and flexibility.
In Service Date	**Year**: 2027
Total Project Cost	$2,780,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	System-Wide Improvements
Program	Wells
Project	**Mocho Wellfield PFAS Treatment Facility Project**
Project ID:	TBD
Strategic Plan Goal	B – Safe Water, Initiative 6
Project Description	This project is to install additional PFAS treatment system to treat water from the Mocho wells that does not get treated with the existing reverse osmosis (RO) membranes (i.e., bypass groundwater). A PFAS treatment system to treat the bypass groundwater will likely be installed in the area of the Mocho wellfield. Although the cost estimate is based on an ion exchange system, a study to assess treatment options will be conducted prior to proceeding with the project.
Justification	While the EPA's PFAS maximum contaminant levels (MCLs) have not been finalized yet, EPA has proposed draft MCLs for six PFAS, including individual MCLs for PFOA and PFOS at 4 parts per trillion (ppt) and an MCL for a mixture of four PFAS (PFHxS, GenX Chemicals, PFNA, and PFBS) at no greater than a Hazard Index (HI) of 1.0. It is anticipated that the MCLs will be finalized by the end of 2023. Once the rule is finalized, water systems would have three years to be in compliance with the MCLs. The existing reverse osmosis (RO) capacity of approximately 5,300 gpm (approximately 7.5 MGD) at the Mocho Groundwater Demineralization Plant (MGDP) will only be able to treat approximately half of the production from the three wells to the proposed MCL of 4 ppt for PFOS. MGDP can treat the production from the three Mocho Wells (approximately 11,000 gpm capacity or 16 MGD) down to a PFOS level of approximately 22 ppt only vs. the proposed MCL of 4 ppt. Mocho Wellfield provides approximately 37% of Zone 7's groundwater production capacity. These wells are critical to Zone 7 meeting water demand during drought years and/or during Delta/South Bay Aqueduct (SBA) outages. During the recent drought, over the three-year period, Mocho Wellfield provided approximately 46% of Zone 7's total groundwater production, which accounts for approximately 18% of Zone 7's total treated water production. Without the project, Mocho Wellfield capacity will be reduced by approximately 50%.

Capital Improvement Project Summary

Origin	Draft PFAS and Hexavalent Chromium Treatment Feasibility Study, June 2020, and the proposed federal draft PFAS MCLs		
Responsible Section	WSE	Water Supply Engineering	
Operating Impact	Provides regulatory compliance and maintains necessary water supply reliability.		
In Service Date	**Year**: 2026		
Total Project Cost	$32,660,000		
Source of Funds	Fund 120	Improvement, Renewal & Replacement	100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Groundwater Basin Management
Project	**Monitoring Well Replacements & Abandonments**
Project ID:	GW4
Strategic Plan Goal	C – Groundwater Management, Initiative 7
Project Description	This project provides for, on an as-needed basis, the replacement of old and damaged monitoring wells which are currently in Zone 7's monitoring network. In addition, it provides for the relocation of other Zone 7-monitored wells which need to be destroyed to allow for future development of land. The replacement wells will have various completion depths depending on their location. In some cases, nested monitoring wells having multiple completion intervals may be desirable. It is estimated that up to one multi-zone monitoring well will need to be replaced and/or destroyed year.
Justification	Zone 7 operates an extensive monitoring well network for the monitoring of basin-wide groundwater levels and groundwater quality as part of the Groundwater Management Program. In order for Zone 7 to continue to protect and manage the groundwater basin as a viable water supply, some monitoring wells will need to be added and others will need to be replaced.
Origin	Capital Improvement Program
Responsible Section	GP Groundwater Protection
Operating Impact	Facilitate better monitoring of Zone 7's underlying groundwater basins consistent with SGMA.
In Service Date	**Year**: Ongoing
Total Project Cost	$370,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Program	Buildings & Grounds
Project	**North Canyons Renewal/Replacement and Improvements**
Project ID:	SP50
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project includes small repairs/improvement projects, including but not limited to phone system replacements, audio-visual system improvements, roof repairs and other building repairs as needed.
Justification	As the owners of the building, Zone 7 is responsible for repairs and maintenance.
Origin	Capital Improvement Program
Responsible Section	MTNC Maintenance
Operating Impact	Provides more efficient and effective operations of administrative and engineering functions because staff is located at one building. Cost savings of $1M annually on lease payments.
In Service Date	**Year**: Ongoing
Total Project Cost	$285,000 (1) (1) Five-year total is provided for projects with annually recurring costs.
Source of Funds	Fund 120 Improvement, Renewal & Replacement 95% Fund 130 Expansion 5%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Water Treatment Facilities
Project	**On-Call Design and Construction Services**
Project ID:	TBD
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project provides funding for on-call as-needed contracts for unforeseen and unplanned repairs for replacement and rehabilitation of existing water system infrastructure.
Justification	In the event of unforeseen or unplanned work, on-call engineering and construction services provide the ability to procure materials/equipment and repair, replace, or rehabilitate existing infrastructure in a prompt, efficient, and cost-effective manner.
Origin	Capital Improvement Program
Responsible Section	WSE Water Supply Engineering
Operating Impact	Increases system operational reliability.
In Service Date	**Year**: Ongoing 2034
Total Project Cost	$4,370,000 (1) (1) Five-year total is provided for projects with annually recurring costs.
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement Expansion
Program	Transmission & Distribution
Project	**Patterson Pass Pipeline Enlargement and Replacement**
Project ID:	DS54
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project is an upgrade of the transmission pipeline from the Patterson Pass Water Treatment Plant (PPWTP) site to Zone 7's existing transmission system (PPWTP to the Livermore 1 Pipeline (PL)/Vasco 1 PL connection). Project implementation would be timed to accommodate demand growth. This project involves upsizing and replacing the existing section of the undersized Livermore 1 PL constructed in 1962.
Justification	The existing pipeline, installed in 1962, does not have the capacity to convey the increased production from PPWTP provided by the recent plant expansion from 12 MGD to 24 MGD, especially when demand from the Livermore Turnout 10 located adjacent to the plant is low. Replacing and upsizing the pipeline will provide improved reliability by replacing an aging pipeline, providing redundancy to convey full capacity of the PPWTP during DVWTP outages, and will accommodate future demand growth.
Origin	2016 Transmission System Master Plan Update
Responsible Section	WSE Water Supply Engineering
Operating Impact	Provides operational reliability and increased water system transmission capacity to accommodate demand growth.
In Service Date	**Year**: 2030
Total Project Cost	$25,260,000

Source of Funds			
	Fund 120	Improvement, Renewal & Replacement	33%
	Fund 130	Expansion	67%

Capital Improvement Project Summary

Strategy	Renewal/Replacement		
Program	Water Treatment Facilities		
Project	**PPWTP Anionic System Replacement**		
Project ID:	TBD		
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3		
Project Description	This project consists of the replacement of the anionic chemical storage and feed system at the Patterson Pass Water Treatment Plant.		
Justification	The anionic chemical system was installed in 1984 and is approaching the end of its useful life. This system is critical to the operation of the Patterson Pass Water Treatment Plant and for ensuring water quality of the water delivered.		
Origin	Asset Management Program		
Responsible Section	WSE	Water Supply Engineering	
Operating Impact	Increases plant reliability and decreases maintenance.		
In Service Date	**Year**: 2029		
Total Project Cost	$720,000		
Source of Funds	Fund 120	Improvement, Renewal & Replacement	100%

Capital Improvement Project Summary

Strategy	Expansion
Program	Water Treatment Facilities
Project	**PPWTP Centrifuge Facility (previously known as Solids Handling Expansion)**
Project ID:	PP43
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	The existing sludge beds lack the capacity needed to keep up with the expanded treatment plant production of 24 MGD. This project will provide the needed residual management capacity by installing a new centrifuge facility.
Justification	This project will construct a centrifuge facility to support plant operations of the expanded 24 MGD capacity.
Origin	2011 Solids Handling at DVWTP and PPWTP Memo
Responsible Section	WSE Water Supply Engineering
Operating Impact	Increased operational reliability, flexibility, and effectiveness.
In Service Date	**Year**: 2026
Total Project Cost	$5,500,000
Source of Funds	Fund 130 Expansion 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Water Treatment Facilities
Project	**PPWTP Chemical Tanks Replacement**
Project ID:	TBD
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project consists of the replacement of chemical tanks at the Patterson Pass Water Treatment Plant. These assets include, but are not limited to, the storage tanks for coagulant, caustic soda, and sodium hypochlorite.
Justification	The coagulant and caustic soda storage tanks were installed in 1984 and the sodium hypochlorite tanks were installed in 2009 and are approaching the end of their useful lives. These tanks are critical to the operation of the Patterson Pass Water Treatment Plant and for ensuring water quality of the water delivered.
Origin	Asset Management Program
Responsible Section	WSE Water Supply Engineering
Operating Impact	Increases plant reliability and decreases maintenance.
In Service Date	**Year**: 2029
Total Project Cost	$1,900,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Water Treatment Facilities
Project	**PPWTP Improvements and Replacements**
Project ID:	TBD
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project consolidates existing PPWTP renewal/replacement projects and addresses modifications for operational and maintenance needs, safety, and regulatory compliance. This project includes Clarifier 1 anode replacement, Clarifier 2 recoating and anode replacement, Chlorine Contract Basin modifications to the access hatches, level sensor location, and valves/actuators, and Clearwell 2 leak repair and replacement or seismic retrofit of the roof. This project will also remove the backwash tank and washwater pipe that were constructed on Department of Water Resources (DWR) property and are now obsolete; this work has no operating impact.
Justification	These facilities at the Patterson Pass Water Treatment Plant are critical to the operation of the plant. Some components have either reached or are nearing the end of their useful lives or require modifications for regulatory compliance and safety.
Origin	Asset Management Program, Capital Improvement Program
Responsible Section	WSE Water Supply Engineering
Operating Impact	Increases ability to comply with regulatory requirements, increases operational reliability and safety, and decreases maintenance.
In Service Date	**Year**: 2026
Total Project Cost	$9,330,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Water Treatment Facilities
Project	**PPWTP Sludge Handling Rehabilitation**
Project ID:	TBD
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project consists of the rehabilitation of the sludge drying beds. There are a total of six beds. It is anticipated that at least two beds will be rehabilitated prior to this project, such that this project is planning for the rehabilitation of the remaining four beds. The rehabilitation consists of replacing the media, underdrain system, and inlet valves.
Justification	Sufficient residual management capacity is a critical component to the operation of Patterson Pass Water Treatment Plant. With the recent increased production capacity of the plant from 12 MGD to 24 MGD, additional sludge handling capacity is needed, which would be provided by the PPWTP Centrifuge Project. In conjunction with the PPWTP centrifuge, rehabilitation of the existing sludge beds to restore their original functionality would provide the needed residual management capacity for the expanded plant.
Origin	Asset Management Program
Responsible Section	WSE Water Supply Engineering
Operating Impact	Increases operational reliability, flexibility, and effectiveness, and decreases maintenance.
In Service Date	**Year**: 2025
Total Project Cost	$590,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Wells
Project	**Production Well Pump Replacement Project**
Project ID:	TBD
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	Repair or replace existing water production well pumps, shafts, column piping and accessories. Zone 7 currently has ten production wells, and this project assumes replacing approximately one pump per year based on typical useful life.
Justification	Existing water production well pumps, shafts, column piping and accessories require periodic repairs and replacement in order to keep them operational. As the production wells are critical to Zone 7 meeting water demand especially during drought years, reliable operation of these wells is necessary.
Origin	Asset Management Program
Responsible Section	WSE Water Supply Engineering
Operating Impact	Increases operational reliability and service life of the facilities.
In Service Date	**Year**: Ongoing 2034
Total Project Cost	$2,270,000 (1) (1) Five-year total is provided for projects with annually recurring costs.
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Water Treatment Facilities
Project	**SCADA Upgrades and Replacements**
Project ID:	WTP103
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	There is an ongoing need for reprogramming, installation of additional devices, and upgrading of the existing devices to continue to provide a reliable SCADA system for the plants and transmission system operation. The SCADA system will also require major software and hardware upgrades about every five years.
Justification	This project will enable operators to continue providing reliable control and monitoring capability of the production and transmission facilities using SCADA.
Origin	Capital Improvement Program
Responsible Section	OPS Operations
Operating Impact	Maintains and improves control, monitoring, and reporting of process equipment through SCADA.
In Service Date	**Year**: Ongoing 2034
Total Project Cost	$4,350,000 (1) (1) Five-year total is provided for projects with annually recurring costs.
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Transmission & Distribution
Project	**Silver Oaks Pump Station Replacement**
Project ID:	DS57
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project consists of replacement of the existing pump station in total, including land acquisition, rebuilding the pump station, and constructing a standard block building structure.
Justification	Silver Oaks Pump Station was constructed in 1991 as an emergency project during drought conditions. Never built as a permanent project, this pump station is skid-mounted without a building canopy of any sort and is well past its useful life. During PPWTP outages or during limited surface water availability, this pump station is critical for supplying water from the west end of the system to the east side of the system.
Responsible Section	WSE Water Supply Engineering
Operating Impact	Improves water system reliability during PPWTP outages and/or periods of limited surface water availability.
Origin	Asset Management Program
In Service Date	**Year**: 2028
Total Project Cost	$11,740,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Capital Improvement Project Summary

Strategy	Expansion
Program	Water Supply and Conveyance
Project	**Sites Reservoir**
Project ID:	TBD
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 2
Project Description	This project will construct a 1.5 million acre-feet off-stream reservoir and supporting facilities. The reservoir will be located in Glenn and Colusa Counties. This project will use existing infrastructure to divert excess stormwater flows from the Sacramento River to fill the reservoir. Captured water can be released when needed for project participants. Project participants include water agencies across California and federal and state agencies. Zone 7 has been participating in the project planning phase for a storage allocation of 62,340 acre-feet, which provides average reservoir releases of approximately 10,000 acre-feet per year. The project is expected to begin full operation in 2031.
Justification	The 2022 Water Supply Evaluation Update found that a diversified portfolio of multiple water supply reliability projects would be needed to maintain Zone 7's long-term reliability. Additionally, the study recommended continued participation in Sites Reservoir.
Origin	Sites Reservoir Project - Phase 1 Participation Memo dated June 15, 2016; 2019 Water Supply Evaluation Update; 2022 Water Supply Evaluation Update
Responsible Section	IP Integrated Planning
Operating Impact	Increases water reliability. Provides water supply, water storage, and operational flexibility.
In Service Date	**Year**: 2030
Total Project Cost	$176,000,000 (1) (1) Current estimate of Zone 7's share of the total project cost based on the Sites Project 2021 Draft Plan of Finance.
Source of Funds	Fund 130 Expansion 100%

Capital Improvement Project Summary

Strategy	Expansion
Program	Water Supply & Conveyance
Project	**South Bay Aqueduct Enlargement Project- Payments to DWR**
Project ID:	SP5
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 1
Project Description	SBA improvements by the California Department of Water Resources (DWR) can convey an additional 130 cubic feet per second (cfs) through Reach 1 and 80 cfs through Reaches 2 through 4. The project is in-service with ongoing payments. Note that Amendment No. 24 of Zone 7's water supply contract with DWR allows for debt financing of the SBA Improvement & Enlargement Project by DWR. Annual repayment by Zone 7 began in 2006 and ends in 2036. To ensure there is adequate funding available to repay debt after buildout occurs (2025), a sinking fund has also been established (project SP12). This sinking fund will fund the remainder of the debt from 2026 to 2036. The costs shown reflect the actual repayment of the debt plus interest for the enlargement component of the project.
Justification	Provides for long-term Zone 7 raw water conveyance capacity through planned service-area build-out.
Origin	1999 Water Supply Master Plan, 2001 Water Conveyance Study
Responsible Section	FIN Finance
Operating Impact	Provides for enhanced long-term water supply, reliability and flexibility.
In Service Date	**Year**: Ongoing 2035
Total Project Cost	$222,738,000
Source of Funds	Fund 130 Expansion 100%

Capital Improvement Project Summary

Strategy	Expansion
Program	Water Supply & Conveyance
Project	**South Bay Aqueduct Enlargement Project - Sinking Fund**
Project ID:	SP12
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 1
Project Description	SBA improvements by the California Department of Water Resources (DWR) can convey an additional 130 cubic feet per second (cfs) through Reach 1 and 80 cfs through Reaches 2 through 4. Project is in service. Note that Amendment No. 24 of Zone 7's water supply contract with DWR allows for debt financing of the SBA Improvement & Enlargement Project by DWR. Annual repayment by Zone 7 began in 2006 and ends in 2036. To ensure there is adequate funding available to repay debt after buildout occurs (2025), this project establishes a sinking fund to fund the remainder of the debt from 2030 to 2036. The costs shown reflect the actual repayment of the debt plus interest for the enlargement component.
Justification	This sinking fund is necessary to cover contractual costs from 2030 to 2036, during which time there will essentially be minimal on-going water connection fee revenues available because development buildout within the Valley is expected to be nearly complete by this time.
Origin	1999 Water Supply Master Plan, 2001 Water Conveyance Study
Responsible Section	FIN Finance
Operating Impact	None.
In Service Date	**Year**: Ongoing 2030
Total Project Cost	$18,160,000
Source of Funds	Fund 130 Expansion 100%

Capital Improvement Project Summary

Strategy	System-Wide Improvements		
Program	Transmission & Distribution		
Project	**System-Wide Installation of Line Valves**		
Project ID:	DS41		
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3		
Project Description	Periodic installation of new line valves in the transmission system, as needed and given opportunity as part of another project, to provide a maximum of 2,000-2,500 feet separation between valves throughout the transmission system.		
Justification	The installation of additional line valves will reduce service interruptions due to scheduled maintenance and other activities such as leak repairs.		
Origin	Capital Improvement Program		
Responsible Section	WSE	Water Supply Engineering	
Operating Impact	Improve operation and reduce service interruptions.		
In Service Date	**Year**: 2029		
Total Project Cost	$360,000		
Source of Funds	Fund 120	Improvement, Renewal & Replacement	100%

Capital Improvement Project Summary

Strategy	Renewal/Replacement
Program	Transmission and Distribution
Project	**Transmission System Corrosion Protection Improvement Project**
Project ID:	TBD
Strategic Plan Goal	A – Reliable Water Supply and Infrastructure, Initiative 3
Project Description	This project is to upgrade cathodic protection for select pipelines in the transmission system as recommended in the annual survey and cathodic protection condition assessment. Cathodic protection uses a low electrical current to control corrosion of metal structures, such as pipelines. The project includes installation of test cables for Mocho Pipeline, design and installation of cathodic protection and test stations on Del Valle Pipeline B and Booster Station Piping, and installation of test stations on Cross Valley, Santa Rita, Vasco 1, and El Charro Pipelines. The project will provide corrosion control to significant lengths of buried pipelines, provide a means to monitor the function of the corrosion protection systems, and allow additional testing for locating existing electrical discontinuities on the pipelines.
Justification	Implementation of the cathodic protection recommendations from the annual survey and condition assessment is necessary to protect existing facilities from corrosion, which extends their service life and minimizes disruption of service. It is common for buried pipeline to develop electrical discontinuities resulting from repairs and improvements to sections of pipeline over years of operation.
Origin	Annual Survey and Cathodic Protection Condition Assessment, updated March 2023
Responsible Section	WSE Water Supply Engineering
Operating Impact	Lengthens service life and improves operational reliability.
In Service Date	**Year**: 2028
Total Project Cost	$620,000
Source of Funds	Fund 120 Improvement, Renewal & Replacement 100%

Appendix B AMP Resolution 17-81 and 2017 AMP Update

ZONE 7
ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
BOARD OF DIRECTORS

RESOLUTION NO 17-81

INTRODUCED BY DIRECTOR PALMER
SECONDED BY DIRECTOR QUIGLEY

2017 Asset Management Plan Long-Term Funding Forecast Update and FY 2018/19 Ten-Year Water System Capital Improvement Plan

WHEREAS, HDR, Inc., prepared the 2017 Asset Management Plan Long-Term Funding Forecast Update (2017 AMP Update) to update renewal/replacement and system-wide improvement project costs and schedules over a forty-year horizon and to recommend the appropriate level of annual AMP funding; and

WHEREAS, staff has developed the Fiscal Year (FY) 2018-19 Ten-Year Water System Capital Improvement Plan, identifying the capital projects and programs needed to carry out the water system goals and policy objectives of the agency from FY 2018-19 through FY 2027-28, and incorporating the recommendations from the 2017 AMP Update.

NOW, THEREFORE BE IT RESOLVED that the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District accepts the 2017 AMP Update with the revised annual AMP funding recommendations incorporated; and

BE IT FURTHER RESOLVED that the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District approves the AMP funding transfer from the Water Enterprise Operations Fund (Fund 100) to the Water Enterprise Renewal/Replacement & System-Wide Improvements Fund (Fund 120) as follows: $12,300,000 in 2017 dollars beginning in FY 2018-19 with inflationary adjustments every year based on the Engineering News Record Construction Cost Index.

BE IT FURTHER RESOLVED that the the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District adopt the FY 2018-19 Ten-Year Water System Capital Improvement Plan.

ADOPTED BY THE FOLLOWING VOTE:

AYES: DIRECTORS FIGUERS, GRECI, PALMER, QUIGLEY, RAMIREZ HOLMES, STEVENS

NOES: NONE

ABSENT: DIRECTOR McGRAIL

ABSTAIN: NONE

I certify that the foregoing is a correct copy of a Resolution adopted by the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District on October 18, 2017.

By: _____
President, Board of Directors

2017 Asset Management Plan Long-Term Funding Forecast Update

Zone 7 Water Agency

October 2017

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1 Introduction and Background

This Asset Management Plan Funding Update (2017 Update) provides a summary of the findings and recommendations of the work done to update the long-term funding forecast and related renewal funding needs for Zone 7 Water Agency's (Zone 7) Asset Management Program (AMP).

1.1 Background

Zone 7 provides water to retailers serving approximately 240,000 residents in Pleasanton, Livermore, Dublin, and through a special agreement with the Dublin San Ramon Services District, to the Dougherty Valley area of San Ramon. Zone 7 also supplies untreated water for irrigation of 3,500 acres, primarily South Livermore Valley vineyards. Zone 7 has an ongoing commitment to plan for existing and future needs, maintain a high quality, reliable water delivery system and provide a quality product and service to the community.

The purpose of the AMP is to proactively plan for and implement asset renewal projects such that Zone 7 can continue to provide high quality, reliable water delivery to the residents of the Livermore-Amador Valley.

Zone 7 initiated its first formal AMP in 2004, including the development of an asset registry and proposed methodology for forecasting long-term renewals, as described in the 2004 *Asset Management Program Phase II Summary Report*. As part of a *2011 Asset Management Plan Update* (*2011 Update*) some of the definitions and methodologies were improved and updated along with significant changes to the long-term funding forecast methodology and the creation of asset classes to facilitate future data collection and decision-making.

As part of the current update, the long-term funding forecast has been updated to reflect Capital Improvement Projects (CIP) that were completed and assets that were renewed since 2011, incorporate new and future projects, and the long-term renewal of assets. All the assumptions used during the *2011 Update* for the near-term and long-term asset renewals and funding forecast were utilized for the current update as well.

1.2 Objectives

The primary objectives of the 2017 Update include the following:

- Forecast long-term funding requirements based on anticipated renewal/replacement CIP projects, long-term renewal of existing assets through fiscal year (FY) 2057/58, and other system-wide improvements (SWI) projects.

- Forecast near-term renewal needs to aid Zone 7 in identifying assets that need condition assessment to better define future CIP projects.

- Identify funding gaps using current funding rates.
- Provide a 10-year plan to incorporate into the Zone 7 FY 2018/19 CIP.

1.3 Stakeholder Involvement

During the development of this 2017 Update, two workshops were held with representatives from Zone 7's Retailers, including California Water Service Company, the Cities of Livermore and Pleasanton, and Dublin San Ramon Services District. The purpose of the workshops was to share the results and recommendations of the project and provide opportunities for the Retailers to understand the process and provide input on key aspects.

The first workshop focused on providing a recap of the Zone 7 CIP projects, reviewing the findings of the near-term and long-term asset renewals and associated costs, and presenting the various alternatives that were analyzed for long-term project funding. The second workshop was to present and obtain input on staff recommendations.

1.4 Report Organization

The 2017 Update is divided into three sections. The first section presents general background information. The second section, Near-Term Renewal, provides a review of the near-term asset renewal forecast methodology, the existing asset database, discussion on draft renewal/replacement CIP projects, and a list of CIP projects pending condition assessment that were developed based on near-term renewal needs. The third section, Long-Term Funding Forecast, presents the long-term asset renewal forecast methodology, System-Wide Improvement (SWI) projects, and recommended long-term AMP funding forecast through FY 2057/58, and provides a discussion on funding analysis and recommended funding levels.

There are also three appendices to this 2017 Update, which present detailed information supporting the results discussed in the main report. These appendices are presented in the order they appear in the main report and include:

- Appendix A – List of AMP-Identified CIP Projects
- Appendix B – List of System-Wide Improvement (SWI) Projects
- Appendix C – Total Funding Forecast

2 Near-Term Renewal

This section presents the recommended near-term renewal CIP plan. The near-term renewal plan is based on CIP project information provided by Zone 7 and an analysis of the remaining useful lives of the assets in the asset management database. These results are described in the following subsections.

2.1 Near-Term Asset Renewal Methodology

Near-term renewals are those which will be implemented during the 10-year period through FY 2027/28. Zone 7 developed a list of CIP projects based on condition assessments conducted since the *2011 Update* as well as a review of the remaining useful lives of the assets in the asset database. These CIP projects were directly incorporated in the near-term renewal plan.

The entire asset database was then analyzed to identify other assets that reached the end of their useful life or will reach the end of their useful life within the next ten years. The original useful life (OUL) information was developed as part of the *2011 Update* and was updated as Zone 7 obtained additional information on its assets, and is provided in Table 2.1. Those assets that reached or are nearing the end of their OUL and were not included in the CIP project list provided by Zone 7 were identified for condition assessment. The results of this assessment are described in the following subsections.

2.2 Renewal/Replacement CIP Projects

As described in Section 2.1, Zone 7 has several draft renewal/replacement CIP projects that were incorporated into the near-term renewal plan. Some of these CIP projects were recommended in the *2011 Update*, but have not been completed yet. The total estimated draft renewal/replacement CIP project cost is approximately $72.4 million. 69 assets are included for renewal in these projects. Table 2.2 provides a list of these projects with their estimated cost and timing. This list includes annually-recurring renewal costs for projects that are not associated with specific assets in the database, costs associated with program management, and renewal projects for assets before they reach their OUL due to safety, as well as improvements to assets not associated with capacity expansion. The costs of annually-recurring and renewal projects beyond FY 2027/28 have been included in the long-term renewal costs described in Section 3.

Table 2-1: Asset Classes and OUL

Asset Type (Discipline)	Asset Class	OUL (Years)	Useful Life Source
Mechanical	Filtration Media - Membranes	5	Owner's Judgment
	Filtration Media - Conventional	25	Engineer's Judgment
	Filter Underdrains[b]	50	Owner's Judgment
	Hypochlorite System[b]	15	Owner's Judgment
	HVAC	15	Chartered Institute of Building Services.
	Mechanical/Electrical/Instrumentation/Piping	Varies	Owner's Judgment
	Motor	30	Engineer's Judgment
	Pumps	30	Engineer's Judgment
	Pumps - Chemical	15	Engineer's Judgment
	Pumps - Well[b]	12	Owner's Judgment
	Rotating Equipment	25	Engineer's Judgment
	Specified Equipment	25	Owner's Judgment
	Valves	25	Engineer's Judgment
	Well Casing[b]	50	Owner's Judgment
	Well - Arch Mud Rot Combo	50	Owner's Judgment
	Well - Hollow Stem Auger	50	Owner's Judgment
	Well - Nested	50	Owner's Judgment
	Well - Sonic	50	Owner's Judgment
Structural	Civil / Sitework	75	Owner's Judgment
	Coatingb	20	Owner's Judgment
	Cathodic Protection System[b]	10	Owner's Judgment
	Electrolysis Test Stations	75	Owner's Judgment
	Roof[b]	30	Owner's Judgment
	Structural / Architectural	75	Owner's Judgment
	Tank - Ammonia[b]	30	Owner's Judgment
	Tank – Chemical	15	Engineer's Judgment
	Tank – HDPE Chemical[b]	10	Owner's Judgment
	Tanks	50	Engineer's Judgment
	Turnout	50	Owner's Judgment
Electrical	Power Distribution	30	Engineer's Judgment
	Power Distribution - Generator Systems	30	Engineer's Judgment
	Power Distribution - Variable Frequency Drives	20	Manufacturer's Estimate
Instrumentation	Instrumentation - Radios	5	Engineer's Judgment
	Instrumentation - Turbidimeters	10	Engineer's Judgment
	Instrumentation - Analyzers	15	Engineer's Judgment
	Instrumentation - General Instrumentation	30	Engineer's Judgment
Pipeline	Piping - Above Ground	40	Owner's Judgment
	Piping - Buried	75	Engineer's Judgment
	Valves w/ Actuator	25	Engineer's Judgment

a. OULs were developed during the *2011 Update.*

b. Additional asset classes were added by Zone 7 Staff after the *2011 Update*.

The following is a brief description of the major CIP projects included in Table 2.2.

- **DVWTP Washwater Recovery Ponds Rehabilitation –** This project involves the redesign of the washwater recovery ponds at the Del Valle Water Treatment Plant (DVWTP) as new concrete basins since the original recovery ponds were not designed to handle the full 40 million gallon per day (MGD) plant capacity or the current Filter/Backwash Recycle Rules. The ponds would be designed to be narrow and deep to allow for better decanting as well as better sludge concentration at the bottom of the ponds. New valves and actuators, electrical appurtenances, and SCADA would also be a part of the project to allow for automated decanting and sludge discharge to the equalization basin.
- **DVWTP Drying Beds 1 – 4 Rehabilitation Project –** This project consists of rebuilding and rehabilitation of drying beds 1 to 4 at DVWTP. Due to their proximity, these beds have a history of affecting adjacent properties as their poor underdrain system does not properly contain percolated flows. This project will pave the beds and make modifications to the underdrain system to minimize percolation while still providing underdrain use for other drying beds thereby improving system reliability and reducing maintenance costs.
- **DVWTP and PPWTP Ammonia System Replacement -** This project will replace or upgrade the last pure gaseous chemical systems at DVWTP and Patterson Pass Water Treatment Plant (PPWTP) with an aqueous ammonia storage and feed system. Aqueous ammonia bulk storage will be approximately 19% ammonia and will be safer to handle and less of a hazardous threat. The proposed replacement project improves safety for operations and maintenance personnel and other on-site plant personnel.
- **PPWTP Upgrades –** This projects consists of the design and construction of an additional treated water storage clearwell reservoir at PPWTP with 5 MG of usable storage, a new 12 MGD conventional media filtration system, concrete repair and coatings, and improvements to the existing filtration system including the filter valves, pumps, piping systems, backwash system, filter air system, media, underdrains. This will increase treated water storage in the system to help meet near-term peak hourly and maximum day demands. The new conventional media filtration system is necessary to provide additional capacity and to replace the 7 MGD ultrafiltration (UF) membrane system, which has become obsolete.
- **Patterson Pass Pipeline Enlargement and Rehabilitation –** This project is a transmission pipeline from the PPWTP site to the Liv1/Vasco pipeline connection. The existing pipeline from PPWTP does not have the capacity to handle the full range of production when the water treatment plant is expanded to 24 MGD.

Table 2-2: List of Draft Renewal/Replacement CIP Projects

Existing CIP Projects[b]	Fiscal Year (Dollars are in Millions, $2017)[a]										Total
	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	
Asset Management Program Management	$0.06	$0.06	$0.06	$0.06	$0.30	$0.07	$0.07	$0.07	$0.07	$0.35	**$1.17**
Capital Improvement Program Management	$0.01	$0.03	$0.01	$0.03	$0.01	$0.03	$0.01	$0.03	$0.02	$0.03	**$0.22**
COL 1 Yard and Slope Stabilization	$1.92										**$1.92**
Corrosion Protection – Implementation of CP Survey Recommendations	$0.26					$0.45					**$0.71**
Distribution System Control Station Replacement				$0.86							**$0.86**
Dougherty Reservoir Recoating		$2.04									**$2.04**
DVWTP Ammonia System Replacement				$0.30	$2.20						**$2.50**
DVWTP Chemical Ferric Chloride and Caustic System Replacements				$0.23	$1.00						**$1.23**
DVWTP Chemical Roadway and Parking Lot Improvements			$0.24	$0.62							**$0.86**
DVWTP Drying Beds 1-4 Rehabilitation Project				$0.67	$3.69						**$4.36**
DVWTP HVAC Replacement	$0.10	$0.53									**$0.63**
DVWTP Polymer Mixing System Replacement	$0.05										**$0.05**
DVWTP PWRPA Service	$0.48										**$0.48**
DVWTP Sewer Line Connection	$0.63										**$0.63**
DVWTP Underdrain Pump Station Replacement				$0.28	$1.47						**$1.75**
DVWTP Washwater Recovery Ponds Rehabilitation				$0.03	$0.31	$6.29	$0.05				**$6.67**
Hopyard Well No. 6 Inspect & Rehabilitate Pump, Motor, and Well Casing				$0.22							**$0.22**
Hopyard Well No. 9 Inspect & Rehabilitate Pump, Motor, and Well Casing			$0.22								**$0.22**
Laboratory Equipment Replacement	$0.13	$0.13	$0.13	$0.13	$0.13	$0.13	$0.13	$0.13	$0.13	$0.13	**$1.30**
Maintenance Yard and Building Improvements		$0.39	$1.76								**$2.15**
MGDP Concentrate Discharge Pipeline Cleaning		$0.08	$1.00								**$1.08**
MGDP RO Membrane Replacement	$0.01	$0.72				$0.01	$0.81				**$1.55**
MGDP Water Softening System		$0.53									**$0.53**
Minor Renewal/Replacement Projects	$0.41	$0.43	$0.45	$0.47	$0.48	$0.49	$0.52	$0.53	$0.56	$0.58	**$4.92**
Mocho 2 Building and Electrical Systems Replacement				$0.30	$0.99						**$1.29**
Mocho Well No. 3 OSG R/R		$0.49									**$0.49**

Existing CIP Projects[b]	Fiscal Year (Dollars are in Millions, $2017)[a]										Total
	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	
Monitoring Well Replacements & Abandonments	$0.24	$0.22	$0.15			$0.17		$0.09		$0.10	**$0.96**
North Canyons Renewal Replacement/Improvements	$0.05				$0.20					$0.20	**$0.45**
Patterson Pass Pipeline Enlargement and Replacement				$1.02	$5.34	$0.26					**$6.62**
PPWTP 2 MG Clearwell Seismic Retrofit				$0.20	$0.52						**$0.72**
PPWTP Ammonia System Replacement				$0.35	$1.82	$0.25					**$2.42**
PPWTP Chemical Systems Replacement				$0.16	$0.60						**$0.76**
PPWTP Clarifiers Concrete Coating					$0.23	$1.37					**$1.60**
PPWTP Conventional Clarifier Corrosion Control Repairs				$0.02	$0.26						**$0.28**
PPWTP HVAC Improvements				$0.08	$0.35						**$0.43**
PPWTP Upgrades	$8.76	$0.17	$0.17	$0.09							**$9.18**
SCADA Upgrades and Replacements	$0.45	$0.45	$0.75	$0.30	$0.30	$0.33	$0.33	$1.46	$0.37	$0.37	**$5.11**
Silver Oaks Pump Station Replacement		$0.29	$1.60								**$1.89**
Stream Gauge Replacement		$0.26					$0.26				**$0.52**
Vasco Pipeline Enlargement and Replacement										$0.40	**$0.40**
Wellfield Switchboard Replacement Project						$1.30					**$1.30**
Total CIP Projects ($2017)	**$13.48**	**$6.33**	**$6.56**	**$6.41**	**$20.20**	**$11.40**	**$2.12**	**$2.36**	**$1.15**	**$2.21**	**$72.44**

a. All costs are presented in 2017 dollars and do not include inflation.
b. Projects are based on Zone 7's FY 2018/19 Capital Improvements Program.
c. Some of the projects have recurring costs annually through FY 57/58. Annual costs for these projects beyond FY 2027/28 are included in long-term renewal costs.

- **SCADA Upgrades and Replacements –** This project consists of reprogramming, installation of additional devices and upgrading of the existing devices to improve the use of the supervisory control and data acquisition (SCADA) system to accommodate the changes in the plant and transmission system operations. The SCADA system will also require major software and hardware replacements about every five years. This project will continue maintaining a reliable SCADA system to enable operators to maintain control and monitoring capability of the treatment and transmission facilities using SCADA.

Detailed descriptions of all existing CIP projects can be found in Zone 7's *Fiscal Year 2018/19 Capital Improvement Program*.

2.3 Review of Asset Database

The asset management database includes 1,071 assets. The asset database was reviewed to identify those assets which are already past 100% OUL based on age and condition assessment, or those that will reach 100% of OUL before 2027. These assets were considered for the near-term renewal plan. Figure 2.1 illustrates the number of assets that will reach 100% OUL in each decade through 2059. Only first-time renewals are included in the figure to indicate the portion of assets that need to be renewed out of the entire asset database during the planning horizon.

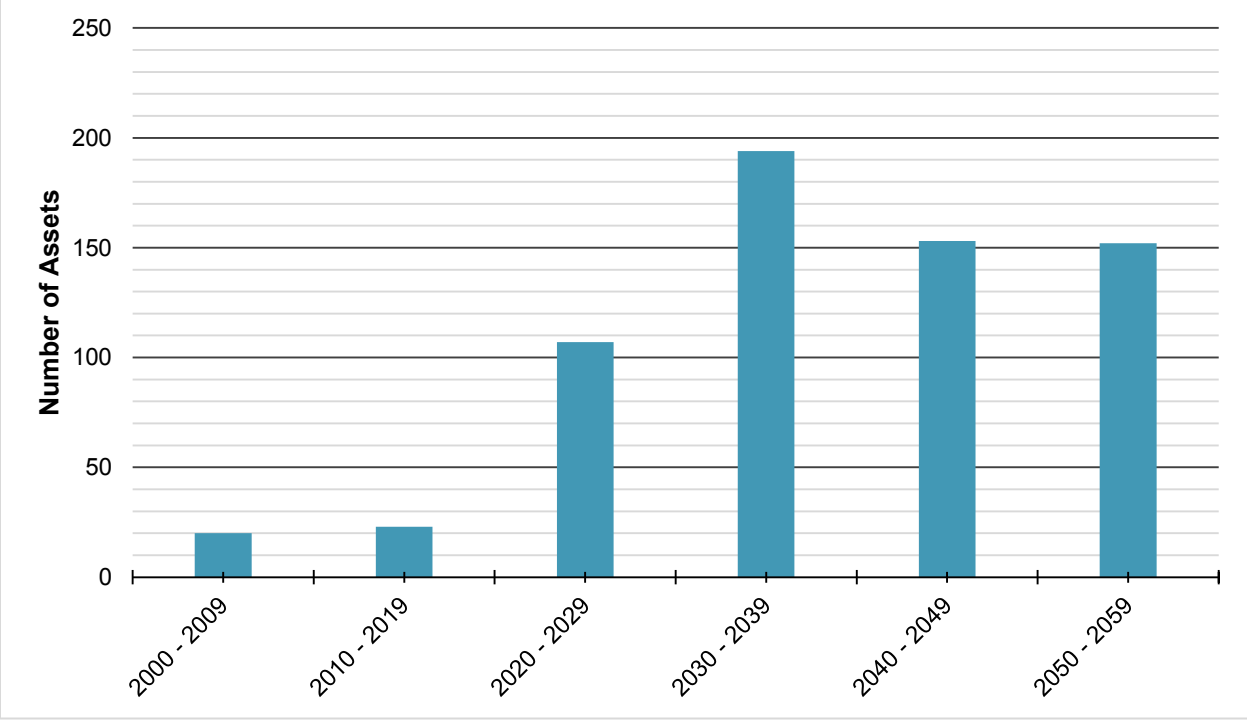

Figure 2-1: Number of Assets Reaching 100% of OUL per Decade

Of the 1,071 assets recorded in the asset database, there are approximately 33 assets that reached 100% OUL before 2017 and an additional 62 that will reach

100% of OUL before 2027, totaling 95 assets that need to be renewed in the near-term. These assets were reviewed to determine if they would be addressed by a project in Zone 7's draft renewal/replacement CIP projects described in Section 2.2. 69 out of the 95 assets will be addressed by the draft renewal/replacement CIP projects and other annual maintenance projects. These included all the assets that reached the end of their useful life before 2017. Table 2.3 provides a summary of these results.

The 26 assets that are not addressed by a draft renewal/replacement CIP project were identified for future condition assessment. For planning purposes, these assets were grouped together as future renewal/replacement CIP projects which will serve as placeholders in the CIP and near-term renewal plan for funding forecasts, and are discussed in Section 2.4. Following the condition assessment of these assets, the conceptual projects, including their respective schedules and budgets, should be refined.

Table 2-3: Summary of Near-Term Assets by Category

Asset Type	Number of Assets
Total Assets Reaching 100% of OUL by 2027	95
Addressed in Existing CIP Projects	69
Recommended for Condition Assessment	26

2.4 AMP-Identified CIP Projects

The near-term assets not included in the renewal/replacement CIP projects described above have been categorized into six (6) future renewal CIP projects that consist of rehabilitation or replacement of the assets based on condition assessment in the future to further define the scope of these projects. These assets were identified based on the analysis described in Section 2.1. The assets have been grouped together into projects based on their location for planning purposes. The total estimated replacement value for these assets is approximately $9.1 million.

The following is a brief summary of the projects:

- **DVWTP Assets Renewal –** This project involves the rehabilitation or replacement of mechanical systems such as the DAF building HVAC system, recycle pumps, chemical pump systems and a backwash rate control valve.
- **PPWTP Assets Renewal –** This project involves the rehabilitation or renewal of the sodium hypochlorite tanks, the cathodic protection system and the plant backup generators. Note that PPWTP HVAC Improvements is a separate project identified in the previous CIP.
- **MGDP Assets Renewal –** This project involves the rehabilitation or renewal of bulk storage tanks, chemical feed pumps, piping, valves and the plant HVAC system at the Mocho Groundwater Demineralization Plant (MGDP).

Note that MGDP RO Membrane Replacement is a separate project identified in the previous CIP.

- **Distribution System Assets Renewal –** The Turnouts CWS-5, CWS-6, and VA-2 will be replaced as part of this project.
- **Groundwater Wells Assets Renewal –** This project involves the rehabilitation or renewal of pumps, motors and piping at several groundwater production wells. Note that well casing for Zone 7's production wells is in the long-term AMP as this asset class has an original useful life of 50 years.
- **Kitty Hawk Pump Station Assets Renewal –** This project involves the rehabilitation or renewal of the pumps, motors, piping, appurtenances and associated electrical systems at the pump station.

A project cost and schedule, shown in Table 2.4, was developed for each of the projects described above. The project costs are based on projected replacement cost provided in the asset database. To allow time for Zone 7 to complete the recommended condition assessments, the conceptual projects, and their associated costs, were scheduled beginning in FY 2023/24 and extending through FY 2026/27.

Table 2-4: AMP-Identified CIP Projects

Conceptual Project Name	Fiscal Year (Dollars are in Millions, $2017)				
	22/23	23/24	24/25	25/26	Total
DVWTP Assets Renewal	$0.72				**$0.72**
Distribution System Assets Renewal	$0.27	$0.27	$0.30		**$0.84**
Groundwater Wells Assets Renewal		$0.08		$1.80	**$1.87**
MGDP Assets Renewal		$4.43			**$4.43**
PPWTP Assets Renewal		$0.31	$0.34		**$0.66**
Kitty Hawk Pump Station Assets Renewal			$0.59		**$0.59**
Total Conceptual Projects	**$0.99**	**$5.09**	**$1.23**	**$1.80**	**$9.12**

Note: All costs are presented in 2017 dollars and do not include inflation.

The complete list of assets included in each of the conceptual projects is included in Appendix A. As previously described, the scope, schedule and cost of the conceptual projects should be refined based on the results of future condition assessments. The recommended conceptual projects for assets that need condition assessment, combined with the recommended CIP projects described in the previous subsection, were included in developing the recommended funding level, described in section 3.

It is important to note that the costs presented above are based on asset replacement costs included in the asset database. For assets included in the database prior to 2006, these costs were developed as part of Zone 7's original AMP efforts, and include an estimated contingency, general conditions and contractor adjustments (including overhead and profit), and a contingency for engineering, legal, administrative and construction management costs. For new assets

constructed since 2006, replacement costs were provided by Zone 7 staff and reflect the actual cost of construction or installation. All costs were updated using the Engineering News Record Construction Cost Index to escalate the original replacement cost to current 2017 dollars.

3 Long-Term Funding Forecast

This section presents the long-term funding requirements to support future renewal needs. The long-term funding analysis includes a discussion of SWI projects that involve the creation of new assets, long-term renewal of existing assets, and total funding needed during the planning period, and then presents a recommended annual funding level to address both renewal programs and SWI projects through FY2057/58. These are described in the following sections.

3.1 Long-Term Asset Renewal Methodology

Similar to the near-term renewal methodology described in Section 2.1, asset renewal forecasts and the subsequent long-term funding plan was based on asset replacement at 100% of the asset's OUL through FY 2057/58 for existing assets.

3.2 System-Wide Improvements (SWI)

CIP projects described in Section 2 focus on existing facilities that have deteriorated or are in need of rehabilitation or replacement to maintain the established level of service to existing Zone 7 customers. SWI projects address enhancements to existing facilities that will improve water quality, environmental compliance, reliability, efficiency, and operational flexibility. Since both renewal/replacement and SWI projects in the CIP are funded by water rates through Zone 7's Fund 120, SWI costs were included in the long-term funding forecast.

The SWI ten-year project list and associated costs are included in Zone 7's FY 2018/19 CIP. The SWI costs up to FY 2040/41 are included in Zone 7's long-term CIP planning. The total cost of all SWI projects until FY 2040/41 is approximately $107 million (2017 dollars, see Figure 3.1 and Appendix B), with about $66 million for projects between FY 2018/19 and 2022/23. This includes large projects such as the DVWTP and PPWTP Ozonation projects.

It is reasonable to anticipate that Zone 7 will continue with system-wide improvements related to future regulatory requirements or security improvements beyond 2040. For the rest of the planning period from FY 2041/42 until FY 2057/58, an average yearly funding level of $200,000 is assumed based on the annual costs for the projects that have recurring costs.

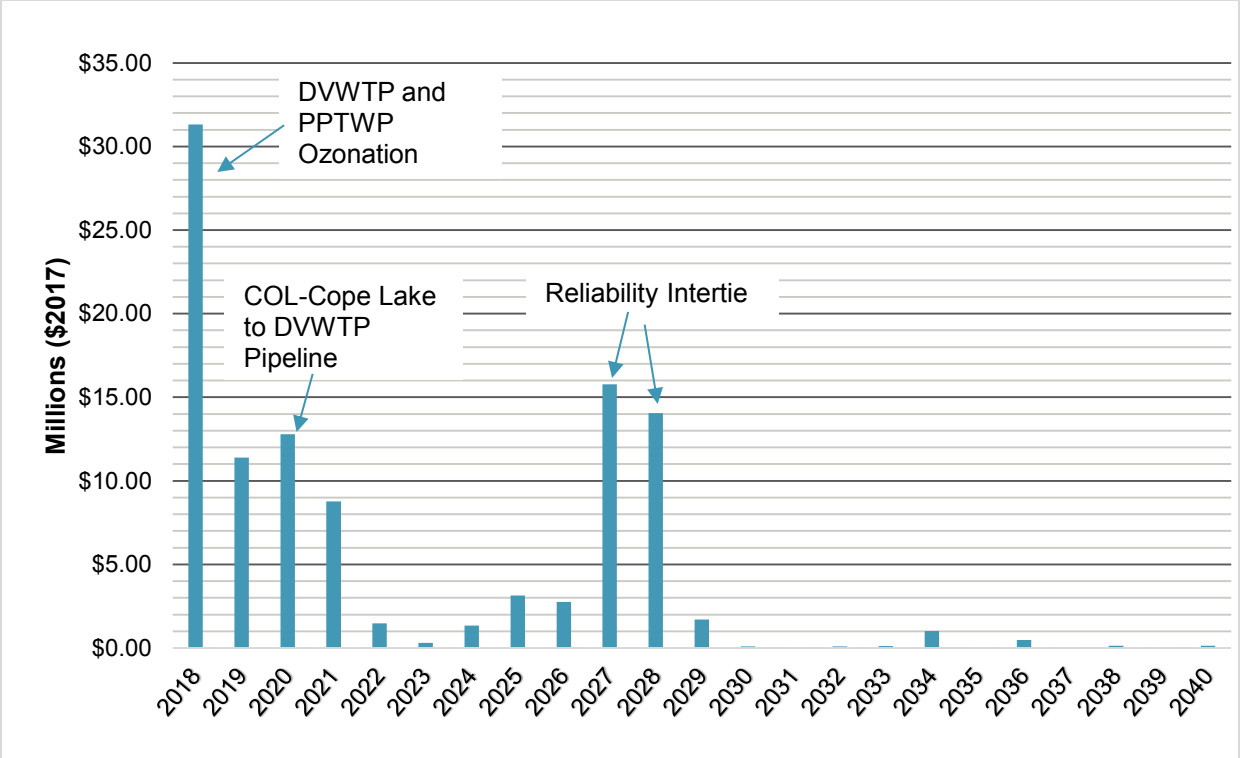

Figure 3-1: System-Wide Improvements Projects

3.3 Long-Term Renewal Forecast

As previously described, the recommended method to forecast long-term renewal budgets is to assume asset replacement at approximately 100% of estimated original useful life (OUL). The long-term renewal forecast includes the following components:

- First and subsequent replacements of assets that will reach 100% of OUL between FY 2027/28 and FY 2057/58.
- Subsequent replacements of assets between FY 2027/28 and FY 2057/58 whose first time replacements were included in the near-term analysis described in Section 2.
- The recurring annual costs of the draft renewal/replacement CIP projects from FY 2027/28 to FY 2057/58 previously described in Section 2.2.

The projected long-term renewal needs, and associated timing through FY 2057/58, are illustrated in Figure 3.2 and Appendix C. The total projected long-term renewal funding requirement, from FY 2027/28 through FY 2057/58 is estimated to be approximately $355.7 million (2017 dollars). The annual replacement amounts range from $1.1 million in 2036 to approximately $64.2 million in 2050. The largest annual funding requirements occur in 2037, 2039, 2049 and 2050 due in large part to the projects highlighted in Figure 3.2. There is a large forecasted renewal requirement of about $39.8 million in 2037. During this year, a number of existing pipelines will

reach 100 % of OUL (75 years), including the Livermore No. 1 and No.2 pipelines and the Santa Rita–Dougherty pipeline. In 2039, the largest contributing factors to the projected funding need are instrumentation and various pump assets at MGDP as it reaches 30 years of service and structural rehabilitations to the Steel Clearwell at DVWTP. In 2049, there is another spike in projected funding needs due to the structural/architectural rehabilitations required at the DVWTP Control Building. In 2050, the spike in projected funding needs is a result of the Cross Valley and the Del Valle-Livermore pipelines reaching 100% OUL.

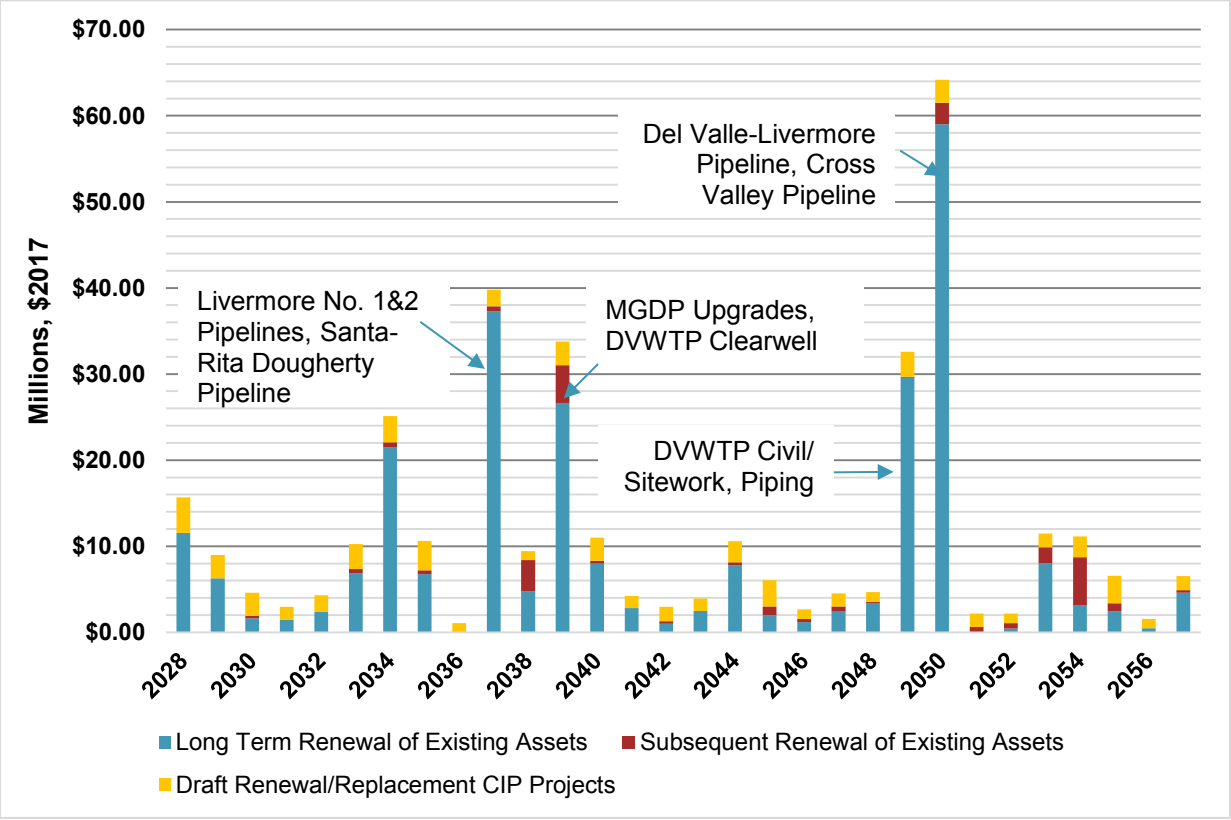

Figure 3-2: Long-Term Renewal Forecast

To provide additional insight into the data presented in this section, the ten highest value asset classes are listed in Table 3.1.

Table 3-1: Highest Value Asset Classes

Asset Class	Estimated Replacement Cost, FY 2027/28 – FY 2057/58 ($2017 Millions)	Percent of Total Long-Term Funding Renewal Cost
Piping - Buried	$101.6	34%
Structural / Architectural	$37.0	12%
Instrumentation	$34.8	12%
Civil / Sitework	$16.0	5%
Piping - Above Ground	$12.1	4%
Valves	$10.3	3%
Coating	$9.6	3%
Power Distribution	$9.1	3%
Tank - Chemical	$7.9	3%
Pumps	$7.2	2%

Note: All Costs are provided in 2017 dollars and do not include inflation.

3.4 Funding Analysis

The recommended funding level described in this section is based on the forecasted capital expenditures for total renewal costs, including near- and long-term renewal costs, as well as SWI costs. The basis and assumptions for near-term, long-term and SWI costs were previously described in this report.

The total renewal and SWI funding needs are illustrated in Figure 3.3 and included in detail in Appendix C. The total estimated capital cost for renewal and SWI projects between FY 2018/19 and FY 2057/58 is approximately $547.6 million. The total cost for each component of the funding forecast is presented in Table 3.2.

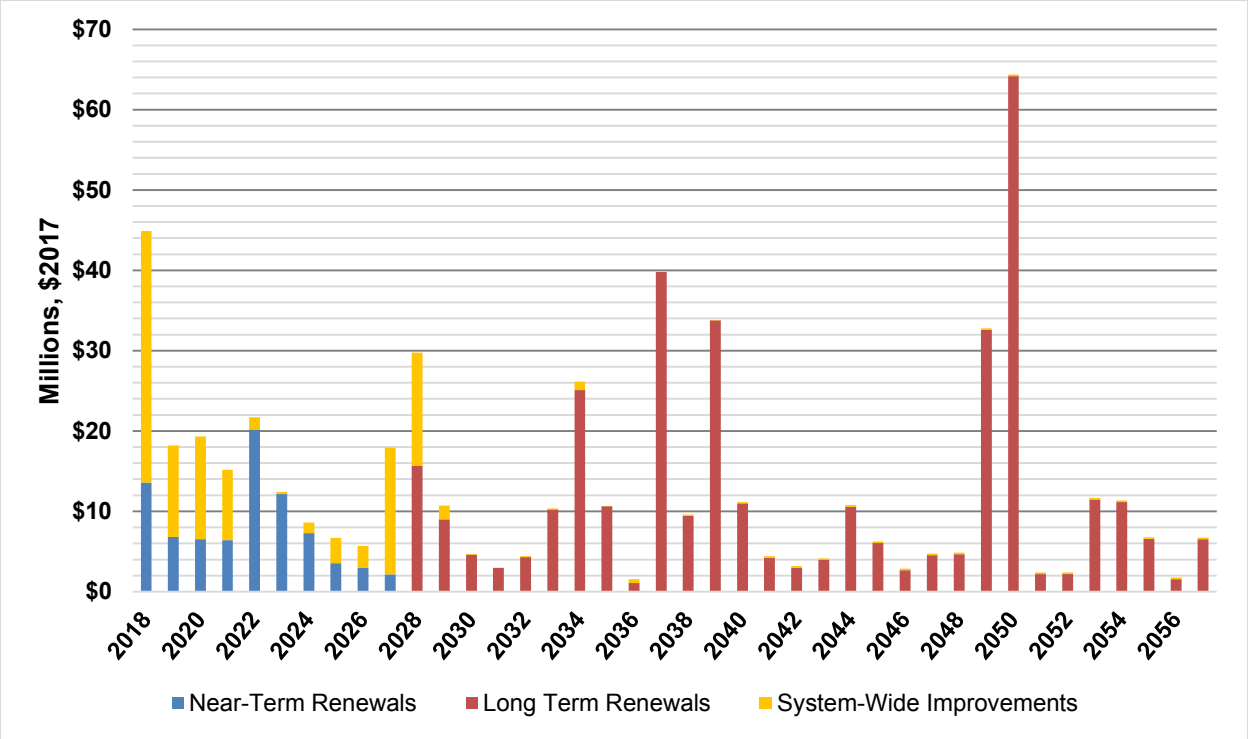

Figure 3-3: Total Forecasted Renewal and SWI Funding Requirements

Table 3-2: Total Forecasted Renewal and SWI Funding Requirements

Funding Forecast Component	Total Capital Cost, FY 18/19 – FY 57/58[a] ($2017 Millions)
Near-Term Renewal	
Draft Renewal/Replacement CIP Projects[b]	$72.4
AMP-Identified CIP Project[c]	$9.1
Long-Term Renewal Projects	
Subsequent Renewals of Existing Assets[d]	$26.2
Long-Term Renewals of Existing Assets[d]	$329.5
System-Wide Improvement Projects[e]	$110.3
Total Forecasted Capital Cost	**$547.5**

a. Refer to Appendix C for a complete listing of annual costs for each component of the funding forecast.
b. Refer to Table 2.2.
c. Refer to Table 2.4 and Appendix A.
d. Based on replacement of assets at 100% of OUL; Refer Appendix C.
e. Refer to Appendix B

To determine the appropriate recommended annual funding level, Zone 7's Fund 120 balance at the beginning of the planning period (May 2018), $28.8 million, was considered. Zone 7's reserve policy requires maintenance of 100% of the next year's annual costs as a reserve at the end of a fiscal year. Hence, it was assumed that 100% of FY 2057/58 capital cost should remain at the end of the planning period, since FY 5058/59 costs were not forecast to be included in this analysis.

Based on these adjustments, the total funding needed was reduced from $547.5 million as described in Table 3.2 to $527.5 million as shown in Table 3.3.

Table 3-3: Net Forecasted Capital Funding Need

	($2017 Millions)
Total Forecasted Capital Funding Need	**$547.5**
Less: Current Fund 120 Balance[a]	$28.8
Plus: Required Remaining Fund 120 Balance at end of Planning Period[b]	$8.8
Net Forecasted Capital Funding Need, FY 18/19 through FY 57/58	**$527.5**

a. Fund balance provided by Zone 7. Deducted from total forecasted funding need.
b. Per Zone 7's reserve policy, it is assumed that approximately 100% of the next year's annual costs should be held in reserve. Added to forecasted funding need.

3.5 Recommended Annual Funding Level

Due to the presence of major SWI projects such as the PPWTP and DVWTP Ozone projects and a portion of the PPWTP Upgrades Project described in Sections 3.2 and 2.2 respectively and illustrated in Figure 3.3, an approximately $132 million funding need is forecasted between FY 2018/19 and 2023/24. This five-year need equates to about 25% of the overall forecasted funding need for the 40-year planning period. Thus, a flat annual funding level of $13.2 million derived by spreading the forecasted capital funding need of $527.5 million over the planning period of 40 years will not be sufficient to meet the capital funding need for the first few years. Therefore, various alternatives such as debt financing of large SWI projects and altering the schedule of large projects to improve cash flow were considered and discussed with Zone 7 staff and other stakeholders.

The recommended funding alternative includes debt financing of the construction phase of the DVWTP and PPWTP Ozonation Projects. This alternative provides positive cash flow over the immediate 10-year CIP period. While the reserve policy is difficult to achieve under this scenario for some of the years during the 10-year period, the budget and CIP are reviewed and updated every two years by Zone 7, which allows adjustment and updating of projected revenues, expenditures and capital projects which could improve reserve levels.

The DVWTP and PPWTP Ozonation Projects are SWI projects in Zone 7's draft FY 2018/19 CIP, scheduled for completion in FY 2019/20 and FY 2020/21, respectively. These projects consist of the construction of an ozonation facility at each plant that would improve water quality and increase production reliability. The DVWTP Ozonation Project is funded by Fund 120 (CIP project fund), and construction phase costs are anticipated to be debt-financed. The PPWTP Ozonation Project is partially funded (50%) by Fund 120 and Fund 130 (Expansion Fund). The Fund 120 portion of the construction phase costs is anticipated to be debt-financed.

As shown in Table 3.4, the recommended funding alternative lowers the recommended funding level for all pay-as-you-go projects to $12.3 million per year and adds a debt repayment cost of $2.9 million per year for 30 years beginning in FY 2017/18 that includes debt service payment of $2.12 million per year for the DVWTP Ozonation Project and $0.76 million per year for the PPWTP Ozonation Project. These costs are

based on a 3.5% interest rate and 1.5% cost of issuance. Actual costs will depend on the type of financing received, interest rates, and the duration of the borrowing.

It is important to note that the costs presented in this 2017 Update, including the recommended funding level of $12.3 million per year, have been presented in 2017 dollars. The recommended pay-as-you-go funding level will be adjusted annually for inflation based upon the Engineering News Record San Francisco Construction Cost Index.

Table 3-4: Forecasted Capital Funding Need for Recommended Alternative

	($2017 Millions)
Total Forecasted Capital Funding Need	**$547.5**
Less: Current Fund 120 Balance[a]	$28.8
Less: Construction Capital Cost of DVWTP and PPWTP Ozone Projects (to be debt-funded)[b]	$38.5
Plus: Required Remaining Fund 120 Balance at end of Planning Period[c]	$8.8
Net Forecasted Capital Funding Need Adjusted for Debt Funding, FY 18/19 through FY 57/58	**$489**
Planning Period (FY 2018/19 – 2057/58)	40 Years
Recommended Annual Funding Level[d]	**$12.3/Year**
Annual Debt Repayment[e]	**$2.9/Year**

a. Fund balance provided by Zone 7, projected to July 1, 2018. Deducted from total forecasted funding need.
b. As the AMP planning period begins in FY 2018/19, the FY 2017/18 construction capital cost is not included. However, the debt service payment is included in the FY 2017/18 Budget Amendment.
c. Per Zone 7's reserve policy, it is assumed that approximately 100% of the next year's annual costs should be held in reserve. Added to forecasted funding need.
d. Recommended pay-as-you-go funding level does not include inflation and will be adjusted annually for inflation based upon the Engineering News Record San Francisco Construction Cost Index.
e. Assumes debt service payment of $2.12 million per year (beginning in 2017) plus another $0.76 million per year (beginning in 2018) for the DVWTP and PPWTP Ozonation Projects, respectively, over 30 years based on a 3.5% interest rate and 1.5% cost of issuance. Actual costs will depend on the type of financing received, interest rates, and the duration of the borrowing.

Based on the recommended annual funding level and forecasted renewal and SWI funding needs, Figure 3.4 shows the end of year Fund 120 balances through FY 2057/58. The figure indicates that the recommended annual funding level and current available Fund 120 balance provides sufficient revenue to fund the forecasted capital requirements through the immediate 10-year CIP period through FY 2027/28.

As Zone 7 updates the budget and CIP every two years, additional analysis of funding alternatives for future CIP projects should be considered to meet project funding requirements and maintain reserve levels. It is recommended that Zone 7 view funding of its renewal and SWI needs as an on-going process. Studies such as this lead to identification of both immediate renewal needs and needed condition assessments. The results of those efforts should be used to reexamine and adjust projected costs and actual renewal needs. Remaining useful lives should also be

adjusted to reflect the condition of Zone 7's assets. These adjustments will enable Zone 7 to better define, schedule, and prioritize both its renewal and SWI projects.

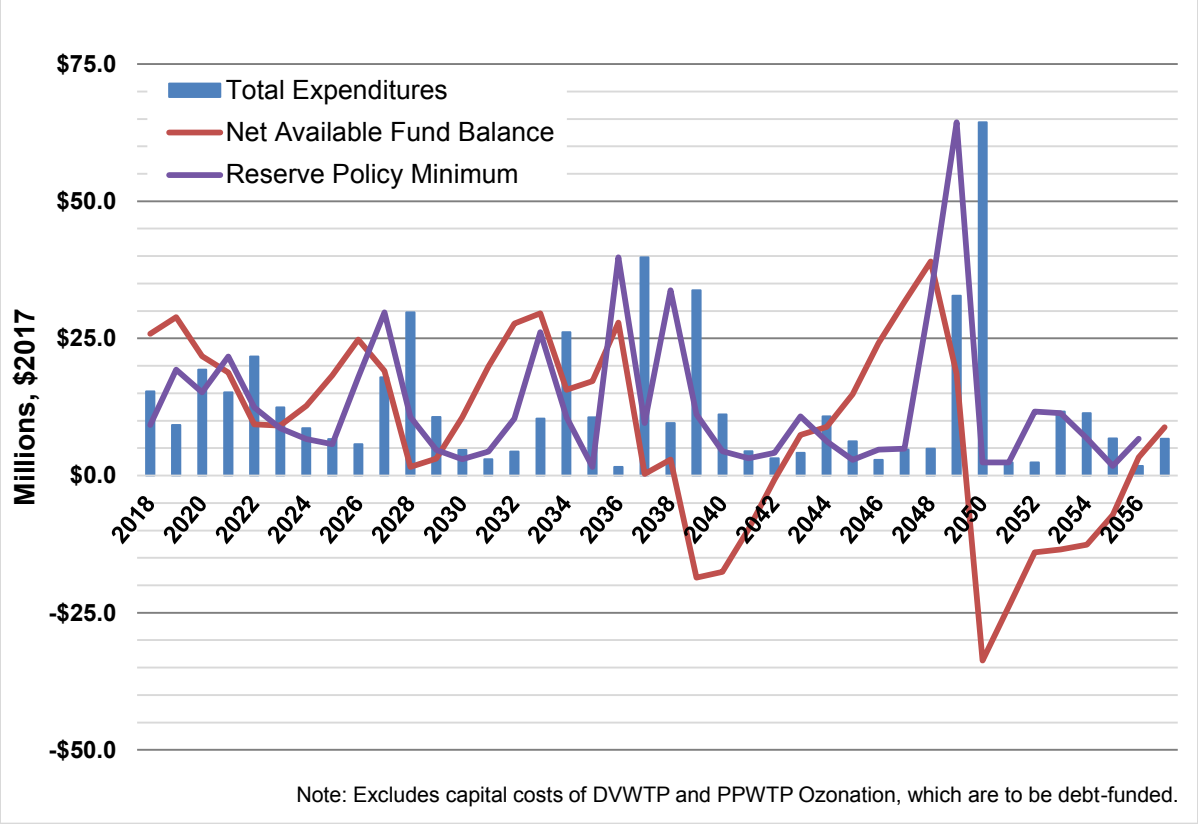

Figure 3-4: Forecasted Funding Needs and Fund 120 Balance

In addition, ongoing maintenance programs will provide further input regarding the needed renewals and condition assessments. Zone 7 should monitor its annual expenditures for minor, unplanned replacements and increase the Minor Renewal/Replacement Project CIP line item to appropriately fund additional maintenance costs associated with keeping its assets in service longer. Furthermore, as future regulations and system improvement needs are better understood, Zone 7 should update its SWI projects.

Appendix A

Conceptual Project	Asset Name	Location Path	Class Name	Replacement Year	Fiscal Year Replacement Cost (in Millions, $2017)				
					23/24	24/25	25/26	26/27	Total
Del Valle Water Treatment Plant Assets Renewal	Backwash Rate Control Valve for Pump #1	Del Valle Water Treatment Plant\Backwash Supply\	Valves w/ Actuator	2023	$0.07				$0.07
	Chemical Pump System (excluding 2010 PEC replacement)	Del Valle Water Treatment Plant\Chemical System\Filter Aid\	Pumps - Chemical	2023	$0.20				$0.20
	HVAC	Del Valle Water Treatment Plant\Clarification - Dissolved Air Flotation\DAF Basin\	HVAC	2023	$0.19				$0.19
	Plant Recycle Pumps (3)	Del Valle Water Treatment Plant\Waste Stream\	Pumps	2023	$0.26				$0.26
Distribution System Assets Renewal	CWS-5	Distribution System\Cross Valley Pipeline\Cross Valley Pipeline\	Turnout	2023	$0.27				$0.27
	CWS-6	Distribution System\Del Valle - Livermore Pipeline\Del Valle - Livermore Pipeline\	Turnout	2024		$0.27			$0.27
	VA-2 Turnout	Distribution System\DVWTP Transmission Pipeline\DVWTP Transmission Pipeline\	Turnout	2025			$0.30		$0.30
Groundwater Wells Assets Renewal	Sodium Hypochlorite Tanks	Groundwater Wells\Production Wells\Chain of Lakes Well #1 Chemical System\Sodium Hypochlorite System\	Tank - Chemical	2024		$0.08			$0.08
	Pump and Motor	Groundwater Wells\Production Wells\Chain of Lakes Well #1\	Pumps - Well	2026				$0.29	$0.29
	Pump and Motor	Groundwater Wells\Production Wells\Chain of Lakes Well #2\	Pumps - Well	2026				$0.39	$0.39
	Pump/Rehab Downhole/Motor	Groundwater Wells\Production Wells\Chain of Lakes Well #5\	Pumps - Well	2026				$0.27	$0.27
	Pump and Piping	Groundwater Wells\Production Wells\Mocho #3\	Pumps - Well	2026				$0.27	$0.27
	Pump and Piping	Groundwater Wells\Production Wells\Mocho #4\	Pumps - Well	2026				$0.27	$0.27
	Pump and Piping	Groundwater Wells\Production Wells\Stoneridge\	Pumps - Well	2026				$0.31	$0.31
Mocho Groundwater Demineralization Plant Assets Renewal	Polyethylene Tanks	Mocho Groundwater Demineralization Plant\Chemical Equipment\	Tank - HDPE Chemical	2024		$0.14			$0.14
	Chemical Piping and Valves	Mocho Groundwater Demineralization Plant\Chemical Equipment\	Pumps - Chemical	2024		$1.10			$1.10
	Chemical Feed Pumps	Mocho Groundwater Demineralization Plant\Chemical Equipment\	Pumps - Chemical	2024		$0.23			$0.23
	FRP Above Ground Tanks	Mocho Groundwater Demineralization Plant\Chemical Equipment\	Tank - Chemical	2024		$0.36			$0.36
	Rotary Screw Compressor, Aqueous Ammonia, Caustic Soda Tanks	Mocho Groundwater Demineralization Plant\Chemical Equipment\	Tank - Chemical	2024		$0.83			$0.83
	HVAC	Mocho Groundwater Demineralization Plant\Support System\	HVAC	2024		$1.78			$1.78
Patterson Pass Water Treatment Plant Assets Renewal (Includes UF Assets)	Sodium Hypochlorite Tanks	Patterson Pass Conventional Water Treatment Plant\Chemical System\	Tank - Chemical	2025			$0.34		$0.34
	Generator	Patterson Pass Conventional Water Treatment Plant\Electrical\	Power Distribution - Generator Systems	2024		$0.12			$0.12
	Cathodic Protection System	Patterson Pass Ultrafiltration Water Treatment Plant\Clarification\	Cathodic Protection System	2024		$0.16			$0.16
	Bird Control Netting	Patterson Pass Ultrafiltration Water Treatment Plant\Clarification\	Specified Equipment	2024		$0.03			$0.03
Kitty Hawk Pump Station Assets Renewal	Pump and Piping	Pump Stations\Kitty Hawk/Airport\	Pumps	2025			$0.28		$0.28
	Electrical	Pump Stations\Kitty Hawk/Airport\	Power Distribution	2025			$0.31		$0.31
Total Cost					**$0.99**	**$5.09**	**$1.23**	**$1.80**	**$9.12**

1. All project costs are presented in 2017 dollars.
2. List includes near-term renewal of assets that are not included in draft renewal/replacement CIP projects that was provided by Zone 7.

Appendix B

Project	Fiscal Year Cost ($2017 Millions)																							Total
	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39	39/40	40/41	
Booster Pump Station			$4.89																					**$4.89**
Chain of Lakes - Cope Lake to DVWTP Pipeline	$1.33	$1.33	$6.91	$6.91	$0.59																			**$17.07**
Chain of Lakes Facilities and Improvements - Water Supply	$0.27		$0.71	$1.79	$0.89	$0.30	$1.26	$0.46		$1.80		$0.30				$0.11	$0.90		$0.36					**$9.15**
Chain of Lakes Master Planning	$0.01	$0.08	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.08	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	**$0.28**
Cross Valley Line Valve at Stanley/Murrieta Blvd	$0.16	$0.55																						**$0.71**
DVWTP Ozonation	$17.12	$9.00																						**$26.12**
PPWTP Ozonation	$12.42	$0.27	$0.27																					**$12.97**
PPWTP Solar Panels Installation		$0.10																						**$0.10**
Reliability Intertie								$2.66	$2.66	$13.96	$13.96	$1.33												**$34.58**
System-Wide Installation of Line Valves		$0.06		$0.07			$0.07		$0.08		$0.09		$0.09		$0.10		$0.11		$0.12		$0.13		$0.14	**$1.06**
Total	**$31.31**	**$11.39**	**$12.78**	**$8.77**	**$1.49**	**$0.31**	**$1.34**	**$3.13**	**$2.75**	**$15.77**	**$14.06**	**$1.70**	**$0.10**	**$0.01**	**$0.11**	**$0.11**	**$1.02**	**$0.01**	**$0.49**	**$0.01**	**$0.14**	**$0.01**	**$0.15**	**$106.93**

1. All project costs are presented in 2017 dollars.
2.Projects are based on Zone 7's FY 2018/19 Capital Improvements Program
3. Project costs were provided till FY 2040/41 by Zone 7. Annual costs for the projects that have recurring costs have been projected till FY 2057/58 as part of Total Funding Forecast (Appendix C).

Appendix C

Year	Renewal Costs (Millions, $2017)						System-Wide Improvements ($2017 Millions)[4]	Total Project Costs (Millions, $2017)
	Draft R/R CIP Projects	AMP-Identified CIP Projects	Long-Term Annual Cost of Draft R/R CIP Projects	Long-Term Renewal of Existing Assets[2]	Subsequent Renewal of Existing Assets[3]	Subtotal Renewal Costs		
2018	$13.56			$0.00	$0.00	$13.56	$31.31	$44.87
2019	$6.81			$0.00	$0.00	$6.81	$11.39	$18.20
2020	$6.54			$0.00	$0.00	$6.54	$12.78	$19.32
2021	$6.41			$0.00	$0.00	$6.41	$8.77	$15.18
2022	$20.20			$0.00	$0.00	$20.20	$1.49	$21.69
2023	$11.14	$0.99		$0.00	$0.00	$12.14	$0.31	$12.44
2024	$2.18	$5.09		$0.00	$0.00	$7.28	$1.34	$8.62
2025	$2.31	$1.23		$0.00	$0.00	$3.54	$3.13	$6.67
2026	$1.15	$1.80		$0.00	$0.00	$2.94	$2.75	$5.69
2027	$2.16			$0.00	$0.00	$2.16	$15.77	$17.93
2028			$4.13	$11.55	$0.00	$15.68	$14.06	$29.74
2029			$2.72	$6.29	$0.00	$9.00	$1.70	$10.70
2030			$2.68	$1.61	$0.31	$4.60	$0.10	$4.70
2031			$1.47	$1.49	$0.00	$2.96	$0.01	$2.96
2032			$1.91	$2.39	$0.00	$4.30	$0.11	$4.40
2033			$2.92	$6.87	$0.46	$10.25	$0.11	$10.36
2034			$3.04	$21.51	$0.56	$25.11	$1.02	$26.13
2035			$3.42	$6.76	$0.45	$10.63	$0.01	$10.63
2036			$0.97	$0.11	$0.00	$1.08	$0.49	$1.57
2037			$1.91	$37.26	$0.62	$39.79	$0.01	$39.80
2038			$1.05	$4.76	$3.64	$9.45	$0.14	$9.58
2039			$2.76	$26.65	$4.37	$33.79	$0.01	$33.79
2040			$2.67	$7.98	$0.34	$10.99	$0.15	$11.14
2041			$1.38	$2.84	$0.00	$4.22	$0.20	$4.42
2042			$1.66	$1.00	$0.31	$2.97	$0.20	$3.17
2043			$1.46	$2.41	$0.07	$3.94	$0.20	$4.14
2044			$2.44	$7.81	$0.33	$10.57	$0.20	$10.77
2045			$3.07	$2.00	$0.99	$6.06	$0.20	$6.26
2046			$1.10	$1.20	$0.37	$2.66	$0.20	$2.86
2047			$1.51	$2.40	$0.61	$4.53	$0.20	$4.73
2048			$1.12	$3.41	$0.15	$4.68	$0.20	$4.88
2049			$2.88	$29.56	$0.14	$32.57	$0.20	$32.77
2050			$2.68	$59.01	$2.48	$64.18	$0.20	$64.38
2051			$1.55	$0.00	$0.64	$2.19	$0.20	$2.39
2052			$1.10	$0.46	$0.62	$2.18	$0.20	$2.38
2053			$1.60	$8.02	$1.85	$11.47	$0.20	$11.67
2054			$2.45	$3.11	$5.60	$11.16	$0.20	$11.36
2055			$3.20	$2.44	$0.93	$6.57	$0.20	$6.77
2056			$1.10	$0.46	$0.00	$1.56	$0.20	$1.76
2057			$1.64	$4.59	$0.31	$6.54	$0.20	$6.74
	$72.45	**$9.12**	**$63.55**	**$265.97**	**$26.16**	**$437.24**	**$110.33**	**$547.57**

1. All project costs are presented in 2017 dollars and do not include inflation
2. Renewal of assets that are not anticipated to be renewed in the next 10 years, when they reach 100% OUL through FY 2057/58 .
3. Subsequent renewals of assests that will be renewed during the next 10 years if they reach 100% of OUL before FY 57/58
4. Project costs for SWI projects were provided through FY 40/41 by Zone 7. Annual costs for the projects that have recurring costs have been projected through FY 57/5

Appendix C 2020-2024 Zone 7 Five-Year Strategic Plan

2020-2024

Zone 7 Water Agency

5-YEAR STRATEGIC PLAN

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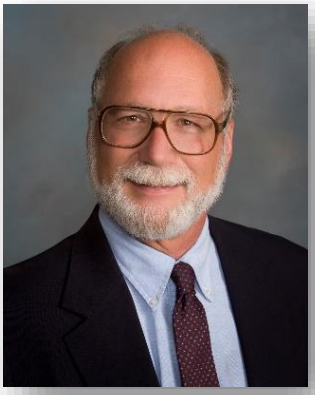
MESSAGE FROM THE BOARD PRESIDENT

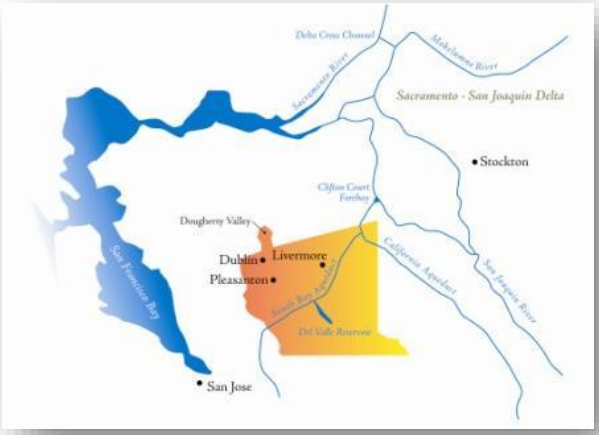


On behalf of the Board of Directors of the Zone 7 Water Agency, welcome to our 2020-2024 Strategic Plan.

On June 18, 1957, *Livermore-Amador Valley* voters overwhelmingly approved creation of Zone 7 Water Agency in order to place under local control, through a locally elected board of directors, the vital matters of flood protection and water resource management in eastern Alameda County.

Zone 7 Water Agency supplies treated drinking water to retailers serving over 260,000 people in Pleasanton, Livermore, Dublin and, through special agreement with the Dublin San Ramon Services District, to the Dougherty Valley area and supplies untreated water for irrigation of 3,500 acres, primarily South Livermore Valley vineyards. Zone 7 Water Agency also owns and maintains 37 miles of local flood-protection channels, about a third of all the Valley's channels and creeks. The remaining channels are owned either privately or by other public agencies, which are responsible for repairs and maintenance.

Reliable, high quality water and flood protection service is critical to an economically and environmentally vibrant community. Providing that service is increasingly complex as utilities must manage numerous challenges. Some of these include finding and maintaining adequate surface and groundwater resources, treating water to ensure its health and safety, coping with the loss of skilled retirees, engaging the community and communicating the value of water, managing the maintainenance and replacement of aging water and flood protection infrastructure, and ensuring adequate financial resources to meet these challenges.



The Board and staff of Zone 7 Water Agency have created this 5-Year Strategic Plan to guide the agency in the coming years. The Strategic Plan is designed to support their vision to *provide excellent water and flood protection services to enhance the quality of*

life, economic vitality, and environmental health of the communities we serve. This vision will be accomplished by fulfilling the mission of Zone 7 Water Agency to: *deliver safe, reliable, efficient, and sustainable water and flood protection services*.

Seven goals have been established:

Goal A – Reliable Water Supply and Infrastructure: Provide customers with reliable water supply and delivery.
Goal B – Safe Water: Provide customers with safe water.
Goal C – Groundwater Management: Manage and protect the groundwater basin as the State designated Groundwater Sustainability Agency.
Goal D – Effective Flood Protection: Provide an effective system of flood protection.
Goal E – Effective Operations: Provide the Agency with effective leadership, administration, and governance.
Goal F – Stakeholder Engagement: Engage our stakeholders to foster mutual understanding.
Goal G – Fiscal Responsibility: Operate the Agency in a fiscally-responsible manner.

Zone 7 Water Agency is committed to meeting the needs of the community we serve by delivering on these goals.

Sandy Figuers

Sandy Figuers, Board President

MESSAGE FROM THE GENERAL MANAGER

It is an exciting and challenging time in the water community. The Board has identified Zone 7 Water Agency's strategic goals and staff are committed to achieving them. As General Manager, I have the privilege and responsibility to manage a talented and dedicated staff to bring this plan to life and meet our commitments to the community we serve.

Several significant challenges face the Zone 7 Water Agency. First and foremost, is managing in the face of the COVID–19 pandemic and ensuring the safety of our employees and reliable delivery of our services.

Other challenges include defining and pursuing higher levels of water reliability. The droughts of recent years have demonstrated to all utilities that adequate dry year storage supplies are the difference between manageable cutbacks for residents/customers and cutbacks that affect the local landscape and economy. Zone 7 Water Agency has opportunities to participate in a variety of potential regional water supply and storage and supply projects including storage in surface reservoirs, possible groundwater opportunities, potable reuse water, brackish desalination, other regional projects, and the Delta Conveyance Project. The Agency's Board will set this course and staff will pursue the appropriate opportunities.

Increasing the percentage of fixed revenue will be important. Provision of water and flood protection services requires meeting significant fixed costs. These fixed costs are best met with fixed revenues. Zone 7 Water Agency revenues are currently 37.5% from fixed sources. As the service area builds out, revenues from development will drop and place further pressure on finances.

Providing water and flood protection services is capital intensive. Rising costs of imported purchased water, water treatment, energy, and labor place upward pressure on water rates. Accordingly, operating the Agency's systems efficiently and effectively while maintaining outstanding customer service are key priorities in the coming years. Delivery of these services rely on having expert and

dedicated staff. Maintaining internal skills and knowledge as the baby boomer generation retires will be a challenge for all utilities.

Finally, water and wastewater technologies are constantly improving, and infrastructure is constantly aging. Managing the maintenance and replacement of water and flood protection facilities while maintaining high levels of service will be a significant engineering and financial challenge. New technologies can help reduce costs and improve service and will be considered as we move forward.

I am confident Zone 7 Water Agency is up to the task and am proud to have the opportunity to manage this organization to meet these challenges.

Valerie Pryor, General Manager

STRATEGIC PLAN INTRODUCTION AND PROCESS

The 5-year Strategic Plan is intended to establish the framework for addressing these challenges to maintain reliable and high-quality water and flood protection service to Livermore-Amador Valley.

The Strategic Plan was developed through a collaborative process with the Board of Directors, management and staff. The planning consultant interviewed each of the 7 Board members regarding their perspectives on the future challenges for Zone 7 Water Agency. These interviews were followed by a management workshop. Four workshop sessions with the employees and supervisors mined key strengths, weaknesses, opportunities, and threats facing the agency. The Board discussed the strategic challenges facing Zone 7 Water Agency and refined a vision, mission, and set of goals for the 5-Year Strategic Plan at a Board Retreat in early 2020. Based upon staff input and Board direction, the management team then developed "initiatives" for each of these goals. The Strategic Plan will be funded through the budget process and progress tracked, reevaluating the plan regularly to adjust as conditions warrant.

The Board of Directors reviewed and accepted the 2020-2024 Strategic Plan on June 17, 2020.

The Strategic Plan is structured in a supporting fashion: the Initiatives support the Goals, which support the Mission and achievement of the Vision as depicted in Figure 1.

Figure 1: Hierarchy of Strategic Plan Elements

Vision Where the organization wants to be in the future.
Mission The purpose of the organization.
Goals Organization-wide desires that support achievement of the vision.
Initiatives The approaches required to achieve goals.

Multiple initiatives are planned for each goal area of the Strategic Plan.

ZONE 7 WATER AGENCY'S VISION AND MISSION

The Zone 7 Water Agency's Vision statement reflects a legacy of service and establishes a high bar for continuing this service. The Vision statement represents the aspirations of Zone 7 Water Agency as follows:

"Provide excellent water and flood protection services to enhance the quality of life, economic vitality, and environmental health of the communities we serve."

Zone 7 Water Agency has established the following mission statement to guide decision making on behalf of the customers and communities we serve:

"Deliver safe, reliable, efficient, and sustainable water and flood protection services."

ZONE 7 WATER AGENCY'S VALUES

"Our shared values guide all our actions."
Valerie Pryor, General Manager

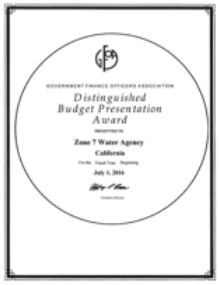
Integrity
We maintain the highest ethical standards and open, honest communications.

Safety
We are committed to public and employee safety.

Customer Service
We are prompt, respectful, and courteous in all of our interactions.

Transparency
We operate in an open and transparent fashion.

Innovation
We encourage innovation, creativity, and ingenuity.



Fiscal Responsibility
We operate in a productive, cost effective, and efficient manner.

Collaboration
We embrace collaboration to enhance our services.

Environmental Sensitivity
We deliver our services in an environmentally-sensitive manner.

Leadership and Service
We maintain a diverse team of highly skilled professionals devoted to honest, humble, courteous, and accountable stewardship of our resources.

Proactivity
We proactively address issues and embrace continuous improvement.

ZONE 7 WATER AGENCY'S GOALS

Zone 7 Water Agency's strategic planning focuses on seven goal areas that provide direction for achieving our vision and mission.

ZONE 7 WATER AGENCY'S INITIATIVES

Major Strategic Plan Initiatives that are planned to be undertaken in the next 5 years support each of the above Goals. The funding of Initiatives will occur through the normal budget process. These initiatives are summarized below and described in more detail following. Note that the initiatives are not listed in a priority order.

1. Establish a diversified water supply plan
2. Evaluate and develop appropriate new water supply and reliability opportunities
3. Continue to effectively implement infrastructure projects in the Water System Capital Improvement Program (CIP)
4. Implement Ozone
5. Meet or surpass all drinking water health and safety requirements
6. Assess treatment requirements and strategy for PFAS and Cr6
7. Manage the GSA and implement the groundwater management plan
8. Study and refine knowledge of the groundwater basins
9. Continue to maintain the Flood Protection System
10. Update the flood protection strategy
11. Review professional development approach to maintain workforce capability for now and into the future
12. Review and develop strategies for water treatment operator recruitment and retention
13. Review and update Board policies
14. Evaluate current program to increase ratio of preventative to reactive maintenance
15. Optimize the procurement process
16. Develop and implement an energy strategy
17. Refresh emergency preparedness program
18. Develop and implement a climate change strategy
19. Optimize Agency communications program
20. Redesign the Agency website
21. Conduct water supply reliability public outreach program
22. Develop a long-range finance strategy
23. Track State and federal funding opportunities
24. Continue to effectively manage financial resources

RELIABLE WATER SUPPLY AND INFRASTRUCTURE

PROVIDE CUSTOMERS WITH RELIABLE WATER SUPPLY AND INFRASTRUCTURE

Initiative #1 – Establish a diversified water supply plan

Initiative Description – The Zone 7 Water Agency portfolio is highly dependent on water supplies transported through the Delta, primarily from the State Water Project. The Delta's ability to convey water has become increasingly unreliable due to aging levees, earthquake risk, climate change, and increasingly stringent regulations resulting from declining ecosystem conditions. As the Agency considers a number of new water supply and storage projects, the Agency will endeavor to establish a diversified water supply and storage portfolio that focuses on local storage and supplies.

Anticipated Activities – Key activities are anticipated to include:

- Complete the Tri-Valley Municipal and Industrial (M&I) demand study
- Complete the Conjunctive Use Study
- Review, and update as necessary, the Agency's water supply risk model to support its ability to rigorously inform decision-making
- Complete the 2021 Water Supply Evaluation Update
- Complete the 2020 Urban Water Management Plan
- Complete and implement the Chain of Lakes Pipeline Alignment Study and determine how it can help increase local water supplies
- Develop a Chain of Lakes model that could support planning, design, and decision-making on water supply projects connected to the Chain of Lakes operations
- Complete studies and planning activities to support policy decisions on enhanced water supplies, such as extending the permit for the Arroyo Valle water rights, evaluating the benefits and impacts of projects that provide enhanced reliability and water supplies
- Assess the Agency's current portfolio of projects to enhance long-term water supply reliability and evaluate options to diversify the portfolio

Initiative #2 – Evaluate and develop appropriate new water supply and reliability opportunities

Initiative Description – A key Zone 7 goal is to provide customers with reliable water supply and delivery. Zone 7 studies have shown that to ensure current and future water supplies are reliable, additional water supply and reliability measures are required. This initiative outlines the programs currently being reviewed. There may be additional opportunities.

Anticipated Activities – Key activities are anticipated to include:

- Continue to pursue these projects as long as they demonstrate progress toward attaining new sustainable water supplies both regionally and locally and are fiscally feasible:
    - Bay Area Regional Desalination Project
    - Delta Conveyance
    - Los Vaqueros Reservoir Expansion
    - Potable Reuse
    - Sites Reservoir
    - Water Transfers
    - Intertie with a neighboring water agency
- Continue to evaluate and pursue water conservation activities to help the retailers comply with State mandates for long-term water use efficiency standards beginning in 2023

Initiative #3 – Continue to effectively implement infrastructure projects in the Water System Capital Improvement Program (CIP)

Initiative Description – Water system infrastructure is critical to providing a safe and reliable supply of water. Existing infrastructure must be maintained, upgraded, and\or replaced to ensure reliable operations. Modifications to infrastructure related to technological advances and improvements must be considered and incorporated if necessary, to improve system reliability and operations\maintenance efficiency. New infrastructure must be developed to serve future growth in the Valley and to comply with future anticipated water quality regulations. This initiative documents how Zone 7 will continue to update and implement its Capital Improvement Program (CIP) and the Asset Management Program (AMP). The CIP encompasses the near-term (10-year) implementation and funding plan for projects required to meet the long-term mission and goals. The AMP includes the asset inventory and long-term (40-year) renewal and replacement schedule for the water system assets, determines the total funding need

over the planning horizon, and documents Zone 7's funding plan.

Anticipated Activities – Key anticipated activities include:

- Implement capital projects in the CIP
- Continue to maintain and update the water system Asset Management Program (AMP)
- Complete Pipeline Inspection Program Study
- Continue working with the Department of Water Resources to implement projects to maintain/improve South Bay Aqueduct reliability
- Maintain as-built drawings

GOAL B

SAFE WATER

PROVIDE CUSTOMERS WITH SAFE WATER IN AN ENVIRONMENTALLY-SENSITIVE MANNER

Initiative #4 – Implement Ozone

Initiative Description – The upgrade of Zone 7 Water Agency's surface water treatment plants includes replacing aging treatment facilities and the addition of raw water ozonation. The addition of ozonation will improve overall treated water quality, reduce tastes & odor events, and improve production reliability by improving downstream treatment plant processes. Ozone is highly effective in inactivating pathogens such as *Giardia* and *Cryptosporidium* thereby reducing chlorine use and disinfection byproduct formation. Ozonation is also the most effective water treatment process in destroying contaminants of emerging concern such as algal toxins, endocrine disruptors, and pharmaceuticals. This initiative documents that both Zone 7 Water Agency's treatment plants are being upgraded and modernized to continue to meet our commitment to providing safe and reliable water supply.

Anticipated Activities – Key anticipated activities include:

- Complete the Del Valle Water Treatment Plant Ozonation Project in calendar year 2020

- Complete the Patterson Pass Water Treatment Plant Ozonation and Expansion Project in calendar year 2022
- Communicate the benefits of ozone to stakeholders

Initiative #5 – Meet or surpass all drinking water health and safety requirements

Initiative Description – The Zone 7 Water Agency is committed to providing water that is safe to drink. As a water wholesaler for the Valley, Zone 7 Water Agency collaborates with its Retailers, interacts\communicates with its customers, implements internal water quality goals that surpass State and federal primary standards by at least a margin of 20%, and monitors water quality at production facilities and in the transmission system with online monitoring and grab sampling for various water quality parameters. This ensures the water Zone 7 Water Agency delivers is safe to drink. This initiative describes how Zone 7 Water Agency will continue to provide high quality water.

Anticipated Activities – Key anticipated activities include:

- Continue to meet all applicable water quality goals, standards, and regulations
- Communicate transparently about water quality
- Track regulatory changes at the State and federal levels pertaining to water quality
- Maintain Environmental Laboratory Accreditation Program (ELAP) certification and explore options to expand certification for additional methods
- Optimize processes to continue producing water with turbidity of less than 0.1 NTU (Nephelometric Turbidity Unit) as compared to the standard of 0.3 NTU (one of the requirements of American Water Works Association's Partnership for Safe Water)

Initiative #6 – Assess treatment requirements and strategy for PFAS and Cr6

Initiative Description – Per- and polyfluoroalkyl Substances (PFAS) are unregulated contaminants of emerging concern to drinking water due to their tendency to accumulate in groundwater and their potential adverse health effects. Zone has implemented procedures to deliver water supply below response levels by limiting use of any affected wells, blending with other sources of water, and by reverse osmosis treatment. A study is being conducted to assess treatment options. This study is also

evaluating treatment options for hexavalent chromium (Cr6) to meet an anticipated future regulation.

Anticipated Activities – During the five-year strategic planning period, key anticipated activities include:

- Complete the PFAS/Cr6 treatment feasibility study in calendar year 2020
- Discuss the outcomes of the study and potential rate impacts with the retailers and the Zone 7 Board in calendar year 2020
- Design and construct necessary treatment facilities to continue providing safe drinking water that meets or exceeds standards for PFAS and Cr6
- Continue to engage the public on safe drinking water matters

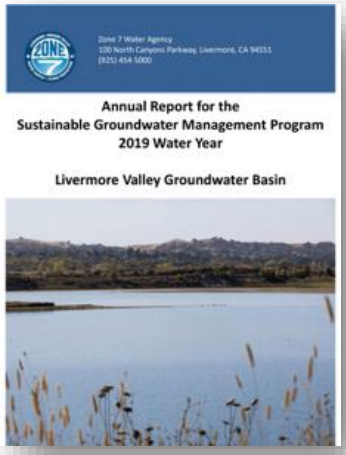
GOAL C

GROUNDWATER MANAGEMENT

WE MANAGE AND PROTECT THE GROUNDWATER BASIN AS THE STATE-DESIGNATED GROUNDWATER SUSTAINABILITY AGENCY

Initiative #7 – Manage the GSA and implement the groundwater management plan

Initiative Description – Zone 7 Water Agency has managed the Livermore Valley Groundwater Basin for more than 50 years. Sustainable groundwater management has been accomplished by replenishing pumped groundwater with surface water from the South Bay Aqueduct. Because of its long history with replenishing the Basin, Zone 7 Water Agency was designated as the exclusive Groundwater Sustainability Agency (GSA) for the basin in accordance with the Sustainable Groundwater Management Act (SGMA) adopted by the State Legislature in 2014. This initiative consists of administering the groundwater program as the GSA and implementing the Basin's Alternative Groundwater Sustainability Plan (Alternative GSP).



Anticipated Activities – During the five-year strategic planning period, key activities are anticipated to include:

- Prepare required annual reports for the Sustainable Groundwater Management Program

- Implement the recently awarded $500,000 grant from DWR for the preparation of the first Five-Year Update of the Alternative GSP Update by January 1, 2022
- Continue to implement the permitting and monitoring programs such as, well permits and inspections, Toxic Site Surveillance, stream flow and precipitation measurements related to the sustainable management of the groundwater basin
- Evaluate the groundwater monitoring program and well network in light of the Five-Year Update to the Alternative GSP and consider preparation of a grant request to DWR to install new monitoring wells, if needed
- Migrate and update the groundwater databases to better communicate the status of the basin throughout the year
- Incorporate information from the studies and planning efforts identified in Initiative #1 and Initiative #8

Initiative #8 – Study and refine knowledge of the groundwater basins

Initiative Description – The Zone 7 Water Agency currently manages the groundwater basin according to the "historic low" that was most recently updated in October 2015. As Zone 7 Water Agency deals with salt and nutrient management, PFAS contamination and implementation of the SGMA, additional study of the groundwater basin would be beneficial. This initiative will help to optimize and protect groundwater resources.

Anticipated Activities – Key activities are anticipated to include:

- Refine and expand existing groundwater basin data, including geologic cross sections and monitoring wells to continue to model and understand the groundwater basin
- Conduct additional basin modeling to incorporate the extended cross sections and other data to evaluate how the new information impacts future drought scenarios and future basin salt loading
- Investigate the sources and/or potential remedial alternatives, if feasible, for contaminants of emerging concern, such as PFAS
- Evaluate and update, as necessary, the estimated main basin safe yield (established in 1992) and operational and reserve storage volumes
- Incorporate Chain of Lakes current and projected activities in groundwater modeling and evaluation

GOAL D

EFFECTIVE FLOOD PROTECTION

PROVIDE AN EFFECTIVE SYSTEM OF FLOOD PROTECTION

Initiative #9 – Continue to maintain the Flood Protection System

Initiative Description – The Zone 7 Water Agency manages approximately 40 miles of flood channels in the Tri-Valley area. Maintaining the system and reducing flood risk involved preventative and reactive maintenance as well as storm damage repairs. This initiative describes the Zone 7 Water Agency's commitment to maintaining these channels for flood protection and watershed stewardship.

Anticipated Activities – Key activities are anticipated to include:

- Continue to perform preventative and reactive maintenance
- Review and update, if necessary, inspection and maintenance Standard Operating Procedures
- Review flood channel roads and access for potential improvements to make maintenance easier to perform
- Continue public outreach and engagement efforts to increase the understand of flood protection as well as watershed processes and stewardship
- Perform storm damage repairs in a timely fashion
- Continue to coordinate with local and regional park and recreation agencies for trail access where appropriate

Initiative #10 – Update the flood protection strategy

Initiative Description – The current Stream Management Master Plan (SMMP, 2006) no longer reflects the current regulatory or financial environment and requires an update. This initiative encompasses that update, but also recognizes that a thorough review of the overall strategy is required.

Anticipated Activities – Key anticipated activities include:

- Update the SMMP
- Implement robust stakeholder engagement for the SMMP update
- Evaluate costs and benefits of returning flood control function to Alameda County

- Complete the regulatory process to acquire a long-term, routine stream maintenance permits (aka Routine Maintenance Program or RMP)
- Develop an Asset Management Plan (AMP) for flood protection facilities
- Develop environmental mitigation strategy for both maintenance and capital projects
- Continue public outreach and engagement efforts, such as the Living Arroyos Program to increase the understanding of flood protection, as well as watershed processes and stewardship
- Advance policies with local municipalities which promote watershed-wide flood and stormwater management to provide effective flood protection system
- Evaluate off-stream storage opportunities to help mitigate flood risk

EFFECTIVE OPERATIONS

PROVIDE THE AGENCY WITH EFFECTIVE LEADERSHIP, ADMINISTRATION, AND GOVERNANCE

Initiative #11 – Review professional development approach to maintain workforce capability for now and into the future

Initiative Description – Zone 7 Water Agency depends on a professional and capable workforce. Effective recruitment and compensation are required to hire the workforce, and professional development is key to retaining this workforce. This initiative describes how Zone 7 Water Agency will modernize and refine its human resources programs.

Anticipated Activities – During the five-year strategic planning period, key activities are anticipated to include:

- Review Human Resources section staffing and fill vacant Human Resources position(s) as appropriate
- Standardize operating procedures and business process
- Develop a comprehensive personnel manual
- Develop an employee orientation/onboarding program
- Periodically conduct classification studies and update job descriptions as appropriate
- Provide supervisor training
- Conduct sexual harassment and abusive conduct prevention and awareness training for all employees
- Develop a comprehensive training program

- Provide all required and recommended safety programs
- Review cross-training programs
- Promote the tuition reimbursement program

Initiative #12 – Review and develop strategies for water treatment operator recruitment and retention

Initiative Description – In recent years, the water utility industry has been experiencing that "Silver Tsunami," the term used in the water industry to refer to the ongoing exodus of Baby Boomers who are now hitting retirement age – taking with them significant water system experience and expertise. The water utility industry has had challenges in finding the workforce necessary to maintain water treatment operations. Zone 7 Water Agency is experiencing the same issues. In the last 12 months, 8 out of 22 Water Plant Operator positions turned over. This initiative describes how Zone 7 will review the situation and make recommendations for improvement.

Anticipated Activities – Key activities are anticipated to include:

- Perform a market survey of Water Plant Operator compensation and benefits
- Review the use of an internship or apprentice program for Water Plant Operators
- Review the use of temporary staffing services
- Review the use of retired annuitants
- Continue participation in BayWork (Bay Area water and wastewater workforce development collaborative)

Initiative #13 – Review and update Board policies

Initiative Description – This initiative describes a review of existing Zone 7 Water Agency Board policies. Many policies are out-of-date and are no longer needed. There is not a common understanding of the definition of a Board policy versus a resolution or other action.

Anticipated Activities – Key activities are anticipated to include:

- Develop a definition of Board Policy

- Create an official template for policies which documents revision dates
- Review and update Board policies
- Implement a program of reviewing and updating each policy every 3-5 years

Initiative #14 – Evaluate current program to increase ratio of preventative to reactive maintenance

Initiative Description – Provide maintenance on existing facilities that meets industry standards and preserves the Agency's infrastructure. The current Zone 7 Water Agency ratio of preventative maintenance percentage is approximately 20%. This initiative strives to improve that ratio to 70% on a pathway to 85%. Preventative maintenance keeps assets and infrastructure in good working order and prevents unscheduled downtime and limits major repairs. Leaders in industry have an 85% preventive maintenance percentage with reactive maintenance and corrective maintenance making up the difference at 10% reactive and 5% corrective. As the preventative maintenance percentage increases; overall maintenance cost lowers and downtime on equipment diminishes. This means that facilities become more reliable in the long term. Increasing the preventive maintenance percentage is a positive return on investment in the overall operation of the different facilities.

Anticipated Activities – Key activities are anticipated to include:

- Fill vacant maintenance positions
- Continue development and use of the Computerized Maintenance Management Program (CMMS)
- Ensure staff is completely trained on CMMS
- Develop a consistent naming convention for assets in the CMMS
- Define maintenance assets (pumps, motors, valves, etc.)
- For each maintenance asset, evaluate "level of service" maintenance standards
- For each maintenance asset, provide a preventative maintenance schedule and define calendar-based or usage-based maintenance
- Generate preventative maintenance work orders for all installations and large assets
- Develop Standard Operating Procedures (SOPs) for each preventative maintenance cycle
- Develop work orders that code maintenance as preventative, reactive, or corrective
- Develop CMMS reports that track preventative, reactive, and corrective maintenance
- Increase the use of mobile devices to integrate field activities with CMMS
- Evaluate and optimize maintenance workflow practices

Initiative #15 – Optimize the procurement process

Initiative Description – Procurement is a function of business management that provides the resources needed for Zone 7 Water Agency to carry out its mission. Procurement is currently decentralized and does not take place in a standard manner. This initiative will provide a centralized procurement function that standardizes workflow, provides simplified and easier-to-understand processes, results in greater efficiencies and frees up project managers to focus on core activities in water and flood operations.

Anticipated Activities – Key activities are anticipated to include:

- Hire a Procurement and Contracts Supervisor
- Formalize purchasing processes
- Create contract templates
- Provide training
- Manage contract renewal and bid processes

Initiative #16 – Develop and implement an energy strategy

Initiative Description – This initiative will plan and implement cost-effective energy projects and programs to optimize Zone 7's energy use portfolio, energy resiliency, and carbon footprint

Anticipated Activities – During the five-year strategic planning periodic, key activities are anticipated to include:

- Develop a Zone 7 Water Agency energy master plan
- Evaluate and implement cost-effective energy-efficient systems and alternative energy solutions
- Conduct an energy assessment to identify ways to reduce energy use and/or reduce the carbon footprint
- Include discussion of the water/energy nexus in external communications

Initiative #17 – Refresh emergency preparedness program

Initiative Description – This initiative describes the activities Zone 7 Water Agency will perform to update and keep current its emergency preparedness programs. Emergency preparedness and response planning are critical to maintain operations during emergencies. Emergencies range from small pipeline breaks to pandemics and large-scale natural disasters. The Environmental Protection Agency (EPA) has mandated that Emergency Response Plans be updated by September 2020, and a firm and staff have been engaged. Staff will then expand on the Emergency Response Plan to update

and modernize key elements of the Emergency Preparedness Program. The Hazard Mitigation Plan, the Hazardous Materials Business Plan, the Risk Management Plan, the East Bay Regional Communication Systems Authority (EBRCSA), and industry standard best practices for emergencies will be utilized to ensure that the Emergency Preparedness Program is robust.

Anticipated Activities – Key activities are anticipated to include:

- Update the Emergency Response Plan
- Review and update staffing assigned to emergency preparedness
- Ensure that staff are trained appropriately and effectively for emergencies
- Review emergency standby power strategy
- Review emergency communications strategies; both within Zone 7 and with responding agencies and fully integrate into the EBRCSA to coordinate with Alameda County agencies during an emergency
- Coordinate emergency response planning efforts with the County and local cities and water retail agencies
- Review the SCADA and Business network security and resiliency plan
- Coordinate the Emergency Response Plan with the Hazard Mitigation Plan
- Implement the EBRCSA to upgrade the radio system and provide radio interoperability for the Agency's public health first responders

Initiative #18 – Develop and implement a climate change strategy

Initiative Description – Climate change will impact water and flood operations. Studies indicate that California will confront more extreme droughts and floods as well as rising temperatures. The State Water Project has historically depended on snowpack to store water, but climate change will likely reduce snowpack and create more and earlier runoff. Zone 7 Water Agency receives on average 80% of its raw water supply from the San Francisco Bay Delta. The delta system is vulnerable to sea level rise and there are federal and State efforts to help this system be less vulnerable which will have a direct impact on Zone 7 Water Agency and how this water is received. As runoff increases and starts earlier in the year, flood control maintenance efforts should be efficient and timely in the dry season to make sure that the flood water will leave the valley quickly and with as little damage as possible. This initiative documents that Zone 7 Water Agency must plan for and manage these challenges.

Anticipated Activities – Key activities are anticipated to include:

- Monitor climate change information and policy

- Incorporate climate change impacts into water and flood system planning and engineering design
- Coordinate with Retailers about the effects of climate change on the wholesale water and flood systems so Retail agencies can plan for water deliveries and flood impacts
- Coordinate with the California Department of Water Resources and the Federal Emergency Management Agency's efforts on flood control modeling and initiatives

GOAL F

STAKEHOLDER ENGAGEMENT

ENGAGE OUR STAKEHOLDERS TO FOSTER UNDERSTANDING OF THEIR NEEDS, THE AGENCY, AND ITS FUNCTIONS

Initiative #19 – Optimize Agency communications program

Initiative Description – This initiative describes Zone 7's commitment to operating in an open and transparent manner. Maintaining effective communication strategies for the Agency is key to serving the community with openness and transparency and maintaining the commitment to customer service and integrity.

Anticipated Activities – During the five-year strategic planning periodic, key activities are anticipated to include:

- Refine brand identity, develop the master narrative and key messages, and update design guidelines and branded materials
- Produce the annual report
- Prepare positioning statements, key messages, and Q&A style responses
- Provide proactive updates to the community on flood maintenance, construction projects, potable reuse, and emergency operations
- Manage and enhance the outreach and schools' program
- Increase presence and influence on social media platforms
- Conduct a biannual report to the Board on the program
- Develop an in-person or virtual tour program of water treatment facilities
- Promote water conservation and rebate programs

- Support and promote the Living Arroyos program
- Continue cultivation of relationships with local media
- Facilitate annual legislative briefings for agency advocacy
- Maintain strong working relationships with local agencies, non-profit, partner and government organizations

Initiative #20 – Redesign Agency website

Initiative Description – The Zone 7 website requires updating. Cyber threats are posing an increased risk to vulnerable public agencies. Enhanced security measures are vital to maintain public documents and agency information as well as mitigate financial risk from cyber threats. This initiative describes the major anticipated activities.

Anticipated Activities – During the five-year strategic planning periodic, key activities are anticipated to include:

- Map and analyze current website
- Complete stakeholder surveys and focus groups prior to redesign to determine objectives and needs of new website
- Ensure new content for website aligns with strategic goals of the agency and maintains consistent voice and branding throughout the site
- Change hosting provider to a more secure platform
- Change the Content Management System (CMS) to a more secure and user-friendly platform, to enhance security and enable training of additional staff to increase redundancy and ensure timely updates of the website

Initiative #21 – Conduct water supply reliability outreach program

Initiative Description – Zone 7 Water Agency continues to proactively seek ways to enhance storage flexibility, diversify its water supply portfolio, incorporate climate change, and improve long-term water supply reliability for the Livermore-Amador Valley in support of its mission. This initiative describes a community outreach program to engage the Tri-Valley residents and businesses on the region's water supply challenges on potential solutions.

Anticipated Activities – During the five-year strategic planning period, key activities are anticipated to include:

- Work with the retailers on all aspects of the water supply reliability outreach program
- Conduct stakeholder meetings, surveys, and focus groups to understand public perception of water supply in the Tri-Valley area
- Develop strategy and define key messages
- Create program toolkit and plan for execution

- Utilize a strategic mix of paid, earned, social, and owned media
- Report on key metrics and adjust the program as needed

FISCAL RESPONSIBILITY

OPERATE THE AGENCY IN A FISCALLY-RESPONSIBLE MANNER

Initiative #22 – Develop a long-range finance strategy

Initiative Description – This initiative consists of forward-looking analysis to plan for the Agency's future. Key issues to address in the future include replacement and rehabilitation costs for aging infrastructure, the need to invest in expensive new water supply and reliability projects, the need to comply with new water quality regulations, and the reduction of development-related revenues as the Agency's service area reaches buildout.

Anticipated Activities – Key activities are anticipated to include:

- Develop a long-range financial forecast
- Analyze debt financing versus pay-as-you-go
- Develop strategy to provide adequate flood control revenue as buildout occurs and Development Impact Fee revenues are reduced
- Develop strategy to provide adequate State Water Project and Zone 7 Water Agency infrastructure revenue as buildout occurs and connection fee revenues are reduced

Initiative #23 – Track State and federal funding opportunities

Initiative Description – Key financial issues to address in the future include replacement and rehabilitation costs for aging infrastructure, the need to invest in expensive new water supply and reliability projects, and the reduction of development-related revenues as Zone 7 Water Agency's service area reaches buildout. State and federal funding programs can assist in these areas.

Anticipated Activities – Key activities are anticipated to include:

- Track and pursue State and Federal funding opportunities

Initiative #24 – Continue to effectively manage financial resources

Initiative Description – This initiative consists of managing financial resources in a prudent manner that maintains Zone 7 Water Agency systems but provides reasonable rates to the community and demonstrates good stewardship of public funds.

Anticipated Activities – Key activities are anticipated to include:

- Provide quarterly and annual financial reports to the Finance Committee and Board
- Update financial policies every 3-5 years
- Evaluate the Agency's unfunded pension and other post-employment benefits (OPEB) liabilities
- Continue to conduct an annual audit
- Maintain target levels of reserves
- Maintain a high bond rating
- Meet debt coverage ratios

GLOSSARY

The following key terms are used in this Strategic Plan:

Goal – Zone 7 Water Agency's commitment to the community it serves.

Initiative – Measurable work activity that, when accomplished, will directly lead to the success of the Goal.

Mission – The primary reason(s) for the existence of the organization.

Strategic Plan – A structured plan for Zone 7 Water Agency to achieve its goals.

SWOT Analysis – Description of strengths, weaknesses, opportunities, and threats to identify areas of focus in the Strategic Plan.

Values – Non-negotiable standards that the staff and the Board believe in, and embody how they will act individually and as an organization.

Vision – What Zone 7 Water Agency aspires to become.

Board of Directors
Sandy Figuers, President
Dennis Gambs
Sarah Palmer
Dick Quigley
Angela Ramirez Holmes
Olivia Sanwong, Vice-President
Michelle Smith McDonald

Executive Team
Valerie Pryor, General Manager
Osborn Solitei, Treasurer/Assistant General Manager - Finance
Carol Mahoney, Integrated Water Resources Manager
Colter Andersen, Production Manager
Jarnail Chahal, Engineering Manager

Consulting Support
Ed Means, President, Means Consulting LLC

Appendix D Status of Projects Since FY 2018-19 CIP Adoption

Appendix D
Status of Projects Since FY 2018-19 CIP Adoption

Project Source	Project Title	Status	Comments
FY18/19 CIP	Booster Pump Station	Complete	
Previous Budget	Chain of Lakes Well 1 Pump Replacement	Complete	
Previous Budget	Chain of Lakes Well 2 Pump Replacement	Complete	
Previous Budget	Chain of Lakes Well 5 Pump Replacement	Complete	
FY18/19 CIP	COL 1 Yard and Slope Stabilization	Complete	
FY18/19 CIP	Distribution System Assets Renewal/Replacement	Complete	Completed California Water Service Turnout 5 Replacement
FY18/19 CIP	Dougherty Reservoir Recoating	Complete	
Previous CIP	DVWTP Clearwell Roof Replacement and Rehabilitation for 3 MG Clearwell	Complete	
Previous CIP	DVWTP Interior Coating Improvements to the 4.5 MG Steel Clearwell	Complete	
FY18/19 CIP	DVWTP Ozonation Project	Complete	
FY18/19 CIP	DVWTP Polymer Mixing System Replacement	Complete	
FY18/19 CIP	DVWTP PWRPA Service	Complete	This was completed as part of the DVWTP Ozonation Project
Previous CIP	Hopyard Well 6 and Stoneridge Well Sodium Hypochlorite System Replacement	Complete	
FY22/23 Budget	Hopyard Well 6 Pump Replacement	Complete	
FY18/19 CIP	MGDP Concentrate Discharge Pipeline Inspection and Cleaning	Complete	
Previous Budget	Mocho Well 1 Pump Replacement	Complete	
Previous Budget	Mocho Well 2 Pump Replacement	Complete	
FY18/19 CIP	Mocho Well 3 OSG R/R	Complete	OSG systems at Mocho 3 was difficult to maintain and was not reliable. Instead of replacing with OSG system, it was converted to hypochlorite system. Currently, Mocho 3 cannot be operated without treatment at MGDP due to PFAS levels. Therefore, the chemical systems at Mocho 3 are not operational.
Previous Budget	North Canyons Building HVAC Replacement	Complete	
FY18/19 CIP	PPWTP Ozonation Project	Complete	
FY18/19 CIP	PPWTP Upgrades	Complete	
Previous Budget	Stoneridge Well Pump Replacement	Complete	
FY18/19 CIP	Busch-Valley Well 1	Deferred Entirely Beyond 5-Year CIP	May rename to New Well because schedule and location to be determined based on Well Master Plan Update; construction would follow Bernal Wells, with completion deferred from 2020 to 2034
FY18/19 CIP	Chain of Lakes Wells 3 & 4	Deferred Entirely Beyond 5-Year CIP	Drilling additional wells in this sub-basin are no longer considered in the near-term due to hydrology and PFAS contamination in the area. Well Master Plan update will study new well locations, including COL 3 and 4.
FY18/19 CIP	Cross Valley Line Valve at Stanley/Murrieta Blvd	Deferred Entirely Beyond 5-Year CIP	
FY18/19 CIP	PPWTP Clarifiers Concrete Coating	Deferred Entirely Beyond 5-Year CIP	Deferred from 2024 to 2031. Some concrete repairs were made as part of PPWTP Ozonation and Upgrades Project.
FY18/19 CIP	Reliability Intertie	Deferred Entirely Beyond 5-Year CIP	Plan to evaluate further, though on-going work focused on Sites and Vaqueros
FY18/19 CIP	Second Groundwater Demineralization Facility	Deferred Entirely Beyond 5-Year CIP	Deferred outside of 10-year window; Expansion project
FY18/19 CIP	Vasco Pipeline Enlargement and Replacement	Deferred Entirely Beyond 5-Year CIP	Deferred due to funding availability
FY18/19 CIP	Westside Transmission System Improvements	Deferred Entirely Beyond 5-Year CIP	Deferred outside of 10-year window; Expansion project

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Project Source	Project Title	Status	Comments
FY18/19 CIP	Arroyo Mocho Diversion Facility Coordination & Implementation	Deleted	This project was to make further improvements to Arroyo Mocho Diversion Facility after construction of the diversion by gravel mining company. Gravel mining company has not built the diversion and it may not get constructed due to environmental permitting constraints.
FY18/19 CIP	Arroyo Mocho Low Flow Crossings	Deleted	This project was to make improvements along Arroyo Mocho to allow high flow releases from the South Bay Aqueduct after construction of the Arroyo Mocho diversion facility by gravel mining company. Since the diversion may not be built, the project has been deleted.
Previous CIP	Chain of Lakes (COL) Well No. 1, 2 & 5 Chromium-6 Treatment	Deleted	This project was proposed because DDW was studying MCLs ranging from 2 to 20 ppb. The project is no longer needed because new Cr6 MCL is proposed at 10 ppb and blending within the wellfield can meet the new MCL
FY18/19 CIP	Chain of Lakes Master Planning	Deleted	Deleted as schedule for transfer of Lakes to Zone 7 is presently unpredictable
FY22/23 Budget	Cross Valley Rate Control Station Replacement	Deleted	No longer needed since Stoneridge PFAS project modifications being implemented
FY18/19 CIP	Distribution System Control Station Replacement	Deleted	Rescoped to Cross Valley Rate Control Station Replacement in FY22/23 Budget, which is no longer needed since modifications being implemented as part of Stoneridge PFAS project.
FY18/19 CIP	DVWTP Ammonia System Replacement	Deleted	Deleted in earlier budget cycles. DVWTP Ozonation project made improvements to the existing Ammoniation System and therefore the complete replacement is no longer needed.
FY18/19 CIP	Increased Treatment Plant Capacity	Deleted	Production capacity analysis shows this is not needed based on current demand projections
FY18/19 CIP	MGDP Water Softening System	Deleted	The construction of Valley Pump Station lowered pressures at the MGDP location and the condition assessment of the existing system determined that there is no need to replace it with a different system.
FY18/19 CIP	PPWTP Ammonia System Replacement	Deleted	Deleted in earlier budget cycles. PPWTP Ozonation and Upgrades project made upgrades to the existing system and therefore the complete replacement is no longer needed
FY18/19 CIP	PPWTP Solar Panels Installation	Deleted	Deleted in earlier budget cycles. There is a new project proposed in the CIP to implement project recommendations by the upcoming energy master plan.
FY22/23 Budget	Purified Water Outreach	Deleted	Removed from CIP; add to Budget when need arises and project identified
FY18/19 CIP	Semitropic Stored Water Recovery Unit	Deleted	Placeholder amount in CIP; no actual billing in over 10 years
FY18/19 CIP	Stream Gauge Replacement	Deleted	Replacement of stream gauges is not anticipated at this time; maintenance of the existing gauges will be handled through Groundwater and/or Maintenance's section budgets
FY18/19 CIP	SWP Peaking Payment (Lost Hills & Belridge Water Districts)	Deleted	Removed from CIP; add to Budget when needed
FY22/23 Budget	Chain of Lakes PFAS Treatment Facility Project	In Progress	
FY18/19 CIP	DVWTP Chemical Roadway and Parking Lot Improvements	In Progress	
FY22/23 Budget	MGDP Concentrate Conditioning System Project	In Progress	
FY18/19 CIP	SCADA Upgrades and Replacements	In Progress	
FY22/23 Budget	Stoneridge Well PFAS Treatment Facility Project	In Progress	
FY23/24 Budget	Well Master Plan Update	In Progress	

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Project Source	Project Title	Status	Comments
FY22/23 Budget	Wells and MGDP Electrical Upgrades/Replacement Project	In Progress	
FY24/25 CIP	Energy Master Plan Priority Projects	New	
FY24/25 CIP	Mocho 3 and 4 Switchgear Replacement Project	New	
FY24/25 CIP	Mocho Wellfield PFAS Treatment Facility Project	New	
FY18/19 CIP	Asset Management Program Management	No Change (Beyond Cost Update, If Any)	
FY18/19 CIP	Capital Improvement Program Management	No Change (Beyond Cost Update, If Any)	
FY18/19 CIP	Cawelo Groundwater Banking Program	No Change (Beyond Cost Update, If Any)	
FY18/19 CIP	Chain of Lakes Facilities and Improvements - Water Supply	No Change (Beyond Cost Update, If Any)	
FY18/19 CIP	Fourth Contractor's Share of the SBA - Capital Costs	No Change (Beyond Cost Update, If Any)	
FY18/19 CIP	Fourth Contractor's Share of the SBA - Sinking Fund	No Change (Beyond Cost Update, If Any)	
FY18/19 CIP	Laboratory Equipment Replacement	No Change (Beyond Cost Update, If Any)	
FY18/19 CIP	MGDP RO Membrane Replacement	No Change (Beyond Cost Update, If Any)	
FY18/19 CIP	Minor Renewal/Replacement Projects	No Change (Beyond Cost Update, If Any)	
FY18/19 CIP	Monitoring Well Replacements & Abandonments	No Change (Beyond Cost Update, If Any)	
FY18/19 CIP	North Canyons Renewal/Replacement and Improvements	No Change (Beyond Cost Update, If Any)	Nominal as-needed capital budget outside of on-going building maintenance
FY22/23 Budget	On-call Design and Construction Services	No Change (Beyond Cost Update, If Any)	
FY18/19 CIP	South Bay Aqueduct Enlargement Project	No Change (Beyond Cost Update, If Any)	
FY18/19 CIP	South Bay Aqueduct Enlargement Project – Sinking Fund	No Change (Beyond Cost Update, If Any)	
FY18/19 CIP	System-Wide Installation of Line Valves	No Change (Beyond Cost Update, If Any)	
FY18/19 CIP	Bernal Wells 1 & 2	Rescheduled; Expenditures Within 5-Year CIP	Renamed to Bernal Wells 1 & 2 and Pipeline to better reflect scope; construction to begin following Well Master Plan completion; completion deferred from 2025 to 2030
FY18/19 CIP	Chain of Lakes - Cope Lake to DVWTP Pipeline	Rescheduled; Expenditures Within 5-Year CIP	Renamed to COL Conveyance System; completion extended from 2022 to 2032
FY22/23 Budget	DVWTP Coagulant System and Recovery System Pump Station Replacement	Rescheduled; Expenditures Within 5-Year CIP	Project deferred to fund Stoneridge PFAS; split into two projects; rescoped and renamed to DVWTP Coagulant System Replacement; DVWTP Booster PS VFDs and Sludge Bed Underdrain PS Replacement in FY23/24 Budget
FY18/19 CIP	DVWTP Drying Beds 1-4 Rehabilitation Project	Rescheduled; Expenditures Within 5-Year CIP	Completion deferred from 2023 to 2030 from re-prioritization
FY18/19 CIP	DVWTP HVAC Replacement	Rescheduled; Expenditures Within 5-Year CIP	Combined existing HVAC projects at each plant; completion deferred from 2020 & 2023 to 2026
FY18/19 CIP	DVWTP Sewer Line Connection	Rescheduled; Expenditures Within 5-Year CIP	Placeholder if sanitary sewer private development extended to DVWTP vicinity (i.e., not standalone project); renamed to DVWTP Sewer Line Connection and Access Road Modifications
FY18/19 CIP	DVWTP Underdrain Pump Station Replacement	Rescheduled; Expenditures Within 5-Year CIP	DVWTP Booster PS VFDs and Sludge Bed Underdrain PS Replacement in FY23/24 Budget
FY18/19 CIP	DVWTP Washwater Recovery Ponds Rehabilitation	Rescheduled; Expenditures Within 5-Year CIP	Completion deferred from 2025 to 2030

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Project Source	Project Title	Status	Comments
FY18/19 CIP	El Charro Pipeline Phase 2	Rescheduled; Expenditures Within 5-Year CIP	Completion moved from 2024 to 2029; placeholder in case of road construction per East Pleasanton Specific Plan; consider performing concurrently with COL Conveyance
FY18/19 CIP	Kitty Hawk Pump Station Asset Renewal/Replacement	Rescheduled; Expenditures Within 5-Year CIP	Completion deferred from 2025 to 2028; renamed to Kitty Hawk PS Equipment and Electrical Renewal/Replacement
FY18/19 CIP	Maintenance Yard and Building	Rescheduled; Expenditures Within 5-Year CIP	Completion deferred from 2021 to 2028
FY18/19 CIP	Mocho 2 Building and Electrical Systems Replacement	Rescheduled; Expenditures Within 5-Year CIP	Completion deferred form 2023 to 2029; rescoped and renamed to Mocho 2 Building and VFD Installation, Electrical Systems Relocation
FY18/19 CIP	Patterson Pass Pipeline Enlargement and Replacement	Rescheduled; Expenditures Within 5-Year CIP	Completion moved from 2024 to 2030
FY18/19 CIP	PPWTP 2 MG Clearwell Seismic Retrofit	Rescheduled; Expenditures Within 5-Year CIP	Part of PPWTP Improvements and Replacements; partial deferral to fund Stoneridge PFAS
FY18/19 CIP	PPWTP Asset Renewal/Replacement	Rescheduled; Expenditures Within 5-Year CIP	Part of PPWTP Improvements and Replacements; partial deferral to fund Stoneridge PFAS
FY18/19 CIP	PPWTP Conventional Clarifier Corrosion Control Repairs	Rescheduled; Expenditures Within 5-Year CIP	Part of PPWTP Improvements and Replacements; partial deferral to fund Stoneridge PFAS
FY18/19 CIP	PPWTP HVAC Replacement	Rescheduled; Expenditures Within 5-Year CIP	Combined existing HVAC projects at each plant; completion deferred from 2020 & 2023 to 2026
FY22/23 Budget	PPWTP Post-Ozone	Rescheduled; Expenditures Within 5-Year CIP	Rescoped and renamed to PPWTP Improvements and Replacements; partial deferral to fund Stoneridge PFAS
FY22/23 Budget	PPWTP Sludge Handling Rehabilitation	Rescheduled; Expenditures Within 5-Year CIP	Partial deferral to fund Stoneridge PFAS
FY18/19 CIP	Silver Oaks Pump Station Replacement	Rescheduled; Expenditures Within 5-Year CIP	Completion deferred from 2021 to 2028.
FY22/23 Budget	Walker Ranch Mitigation Planning	Rescheduled; Expenditures Within 5-Year CIP	Renamed to City Reach Pipeline Mitigation; completion moved from FY22/23 to FY24/25
FY18/19 CIP	Corrosion Protection - Implementation of CP Survey Recommendations	Rescoped	Project to implement cathodic protection survey recommendations broken out into two specific projects, Hopyard PL Corrosion Protection Improvement and Transmission System Corrosion Protection Improvement
FY18/19 CIP	DVWTP Assets Renewal/Replacement	Rescoped	Items were either rescoped into other projects or deleted entirely (i.e., HVAC in DAF)
FY18/19 CIP	DVWTP Chemical Ferric Chloride and Caustic System Replacements	Rescoped	Coagulant switched from ferric to alum; was rescoped/renamed to the DVWTP Coagulant System and Recovery System Pump Station Replacement
FY18/19 CIP	Groundwater Wells Asset Renewal/Replacement	Rescoped	New project, Production Well Pump Replacement Project, budgets for 1 pump replacement per yr; replaced individual well pump replacement projects in previous CIP
FY18/19 CIP	Hopyard Well 6 Inspect & Rehabilitate Pump, Motor, and Well Casing	Rescoped	New project, Production Well Pump Replacement Project, budgets for 1 pump replacement per yr; replaced individual well pump replacement projects in previous CIP
FY18/19 CIP	Hopyard Well 9 Inspect & Rehabilitate Pump, Motor, and Well Casing	Rescoped	New project, Production Well Pump Replacement Project, budgets for 1 pump replacement per yr; replaced individual well pump replacement projects in previous CIP
FY24/25 CIP	Los Vaqueros Reservoir Expansion	Rescoped	Rescoped from Water Supply Replacements Project
FY18/19 CIP	MGDP Asset Renewal/Replacement	Rescoped	Rescoped and renamed to MGDP HVAC Replacement Project; HVAC completion deferred from 2024 to 2027

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Status of Projects Since FY 2018-19 CIP Adoption

Project Source	Project Title	Status	Comments
FY18/19 CIP	PPWTP Chemical Systems Replacement	Rescoped	Rescoped to PPWTP Anionic System Replacement (completion deferred form 2023 to 2029) and Chemical Tanks Replacement (completion deferred from 2023 to 2030)
FY18/19 CIP	PPWTP Solids Handling Expansion	Rescoped	Renamed and rescoped; instead of additional beds, additional residuals management capacity to be provided by centrifuge
FY24/25 CIP	Sites Reservoir	Rescoped	Rescoped from Water Supply Replacements Project
FY18/19 CIP	Water Supply Planning and Projects	Rescoped	Early planning costs for projects in the Water Supply Replacements Project; now that projects have been defined, this project isn't needed
FY18/19 CIP	Water Supply Replacement	Rescoped	Rescoped to Sites Reservoir, Los Vaqueros Reservoir Expansion; serves as a placeholder for several projects (e.g., desalination, potable reuse, reliability intertie)
FY18/19 CIP	Wellfield Switchboard Replacement Project	Rescoped	Rescoped and being performed as part of Wells and MGDP Electrical Systems Replacement/Upgrades project