EAST BAY
MUNICIPAL UTILITY DISTRICT

Biennial Budget

Fiscal Years 2020 & 2021

Supplemental Material

Capital Project Summaries

East Bay Municipal Utility District

Biennial Budget

Fiscal Years 2020 and 2021

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Adopted by the Board of Directors

June 11, 2019

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FY20-24 CAPITAL PROJECTS SUMMARY

This chapter contains a Project Summary for each project that has work planned in FY20-24, and an alphabetical project listing.

- **Project Summary**

  The project summaries are presented in alphabetical order first by Lead Department and then by Project, and provide a description of the project including recent accomplishments and future plans, as well as previously adopted and planned appropriations.

- **Project Index**

  The projects are listed in alphabetical order by title to facilitate looking up a Project Summary.

- **Department Abbreviations**

  The abbreviation for the Lead Department responsible for each capital project is as follows:

  CUS – Customer and Community Services Department
  ENG – Engineering Department
  FIN – Finance Department
  ISD – Information Systems Department
  MCD – Maintenance & Construction Department
  NRD – Natural Resources Department
  OSD – Operations & Maintenance Support Department
  WAS – Wastewater Department
  WOD – Water Operations Department
  WRD – Water Resources Department
  WRP – Water Recycling Program

- **Recurring Projects**

  Projects that perform similar work each year are considered recurring projects, such as Meter Replacements. For recurring projects only the FY20-24 appropriations are shown on the Project Summary page since such projects do not have a definitive total project cost.

- **Funding Sources**

  Funding for the CIP is drawn from multiple sources, the abbreviation for the sources is as follows:

  APPL – Applicant
  BOND/REV – Bond or Revenue
  ERF – Equipment Replacement Fund
  GRANTS – Grants
  OAG – Other Agencies
  SCC – System Capacity Charges
  VRF – Vehicle Replacement Fund

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Capital Improvement Program - Project Summary

Project: Water Conservation Project **Project Number:** 000894

Strategy: Water Supply **Program:** Water Conservation

Justification:

Demand management is a key component of District water management policy to promote the efficient use of our limited water supply. Participation in District indoor and outdoor conservation services, water use and leak detection surveys, and education programs continue, however, at lower levels than experienced during the water shortage.

Description:

In 2016, the District adopted an updated 2015 Urban Water Management Plan that includes water conservation programs designed to reduce potable water demand by a cumulative 62 million gallons per day (MGD) by the year 2040. Water Conservation Program estimated savings through FY2018 total 36 MGD (or 58%) of the 2040 goal. FY2018 demand reflects savings above the 62 MGD goal and efforts are underway to lock in cost-effective conservation savings to meet District and State long-term conservation targets.

Overall conservation savings have been higher than long-term annual averages due to District and State mandated drought water use reductions, increased water efficiency behavior, and heightened interest in water efficient technologies and practices to address local needs and climate change.

Going forward, District conservation services will continue a move away from product rebates toward customer water use management services, including outdoor landscape water budgets, web and mobile self-service tools, customized and on-bill financing incentives, and conservation research. Other areas of focus include water loss control programs and advanced metering infrastructure.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Conservation Incentives	32,956,016	2,387,741	2,886,164	38,229,921
Water Management Services	14,187,123	3,338,595	4,326,045	21,851,763
Research and Development	8,459,433	1,906,195	2,304,110	12,669,738
Education and Outreach	5,997,242	977,980	1,182,119	8,157,341
Regulation and Legislation	959,977	640,892	774,680	2,375,549
Supply-Side Conservation	1,337,500	251,326	303,791	1,892,617

Appropriations:	
Prior Years	-
2020	$ 1,523,629
2021	$ 1,886,004
2022	$ 1,956,735
2023	$ 2,030,117
2024	$ 2,106,244
Future Years	-
Total Cost	**-**

Lead Dept: CUS

Recurring: Yes

Funding:

BOND/REV	89%
GRANTS	1%
OAG	10%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Adm Bldg Modifications **Project Number:** 003033

Strategy: Facilities, Servc and Equip **Program:** Area Service Center/Bldg Prog

Justification:

Systems, equipment and finishes of the Oakland Administration Building are over 25 years old, beyond their useful service life, and result in higher than normal energy consumption and operating and maintenance costs. Replacement of building systems with newer technology and design will improve sustainability and reduce costs.

Description:

The Oakland Administration Building opened in 1991. Upgrade of building systems and equipment serves to maintain safe work spaces, reduce operating and maintenance costs, and minimize energy use and carbon footprint.

In FY18-19, design was completed and construction began on upgrades to the building's eight elevators and HVAC, lighting and emergency power systems. Design began on improvements to roofing systems on floors 4, 8, 9, and 10 and on upgrade of the building facade access system used for maintenance of exterior pre-cast concrete panels, sealant and glazing.

FY20-24 work includes completion of construction of upgrades to elevators, HVAC, lighting and uninterruptible power supply systems; design and installation of improvements to the building facade access system; replacement of roofing systems on the terraces; design of improvements to the electrical systems including power and data facilities; and replacement of excessively worn building finishes.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
AB HVAC Systems Upgrade	18,723,365	0	0	18,723,365
Roofing Systems Improvements	5,409,000	1,023,050	0	6,432,050
Adm Bldg Carpet Replacement	2,086,536	1,823,000	0	3,909,536
Elevator Upgrades	3,395,238	0	0	3,395,238
AB Electrical Systems Upgrade	0	2,966,000	0	2,966,000
Space Plng & Reconfiguration	450,000	847,606	0	1,297,606
Building Envelope Sealing	83,372	0	1,120,000	1,203,372
A/V System Upgrades	100,000	367,000	0	467,000

Appropriations:	
Prior Years	$ 43,024,146
2020	$ 3,222,606
2021	$ 1,203,050
2022	$ 180,000
2023	$ 1,874,000
2024	$ 595,000
Future Years	$ 1,120,000
Total Cost	**$ 51,218,802**

Lead Dept: ENG

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-27

Capital Improvement Program - Project Summary

Project: Almond/Fire Trail PZI **Project Number:** 2003431

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

This project is needed to replace aging infrastructure, improve operating efficiency and reliability, and improve water quality in the Almond Pressure Zone by removing excess storage that is causing low reservoir turnover. The project will improve the level of service and reduce operating and maintenance costs.

Description:

This project includes replacing the 6.6 million gallon (MG) open-cut Almond Reservoir with two 1.8 MG reservoirs, demolishing the 3.1 MG Cull Creek Reservoir, installing a new regulator/rate control station, retrofitting the Almond Rate Control Station and rehabilitating the Fire Trail Pumping Plant and replacing the Proctor Pumping Plant which will be implemented under the Pumping Plant Rehabilitation Program. The open-cut Almond Reservoir has structural issues, roof leakage that compromises the integrity of the reservoir, and excess storage capacity which contributes to water quality issues.

Facilities planning was completed in FY17 and environmental documentation was completed in FY18. Design of the Fire Trail Pumping Plant was completed in FY19. Design and construction of the new regulator/rate control station is scheduled for FY20-22. Design for the two 1.8 MG reservoirs is scheduled for FY26-27 followed by construction in FY28-30.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Almond Reservoir Replacement	15,372,000	0	21,131,000	36,503,000

Appropriations:	
Prior Years	$ 16,060,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 21,131,000
Total Cost	**$ 37,191,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-31

Capital Improvement Program - Project Summary

Project: Aqueduct Cathodic Protection **Project Number:** 001210

Strategy: Maintaining Infrastructure **Program:** Corrosion

Justification:

Cathodic protection along the aqueducts will enhance the reliability of the raw water delivery system. Cathodic protection systems lessen aqueduct outages due to leaks by reducing external corrosion of the steel pipelines. The District has maintained cathodic protection for Aqueduct No. 1 since 1934.

Description:

This is an ongoing project that includes annual investigations and periodic renewal of a portion of the Mokelumne Aqueducts' 44 cathodic protection systems (CPSs). These systems prevent corrosion of steel pipelines that come in contact with soil. A CPS requires periodic replacement of expendable components, such as anode beds and power supplies.

FY19 work included improvements at the Bixler, Fairview, Port Chicago, Port Chicago West, Arnold Industrial and Monument CPS locations.

FY20-29 work includes designing and installing remote monitoring systems for the 44 CPS locations on the Mokelumne Aqueduct.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Aqueduct Cathodic Protection	3,392,000	2,027,000	3,652,000	9,071,000

Appropriations:	
Prior Years	$ 3,392,000
2020	$ 62,000
2021	$ 464,000
2022	$ 482,000
2023	$ 500,000
2024	$ 519,000
Future Years	$ 3,652,000
Total Cost	**$ 9,071,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Bryant PZ Improvement Projects **Project Number:** 2012090

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

The project is needed to improve water transmission and pumping and to prepare the Bryant Pressure Zone to meet future projected demands through 2040.

Description:

The Bryant Pressure Zone improvements include upsizing the Los Altos Pumping Plant (PP) from 10 million gallons per day (MGD) to 16 MGD and upsizing approximately 1.4 miles of 16-inch pipeline with 24-inch pipeline from Los Altos PP to Los Altos Reservoir, upsizing the Castle Hill PP from 2.7 MGD to 5.0 MGD, and upsizing Bryant PPs from 23.8 MGD to 28 MGD, located in Orinda, Lafayette and Walnut Creek respectively.

A facilities improvement plan was completed in FY19. Planning (including environmental documentation), design, and construction of the Los Altos PP and pipeline and Castle Hill PP are scheduled for FY23-30. Planning (including environmental documentation), design, and construction of the Bryant PPs is scheduled to begin in FY29.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Bryant PPs	0	0	28,995,000	28,995,000
Los Altos PP	0	711,000	24,960,000	25,671,000
Castle Hill PP	0	650,000	4,400,000	5,050,000

Appropriations:	
Prior Years	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 711,000
2024	$ 650,000
Future Years	$ 58,355,000
Total Cost	**$ 59,716,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-35

Capital Improvement Program - Project Summary

Project: Buildings Assessment & Improve **Project Number:** 2003491

Strategy: Facilities, Servc and Equip **Program:** Area Service Center/Bldg Prog

Justification:

Improvements under this project promote sustainability, reduce operation and maintenance costs, save energy, reduce carbon footprint, enhance workplace safety, and maintain compliance with codes and regulations.

Description:

This project provides a comprehensive approach to upgrades of District occupied facilities. Upgrades are made to meet operational needs, improve energy efficiency and reduce carbon footprint. The project addresses (1) compliance with building codes, zoning ordinances, health and safety regulations and District standards for space utilization; (2) the design and construction of necessary upgrades to building structural, mechanical and electrical systems and equipment; and (3) development of new facilities or expansion of existing facilities.

In FY18-19, design began on upgrade of the lighting and HVAC systems in the Adeline Maintenance Center Administration Building. Construction of Phase 1 of the Fleet Maintenance East Facility was completed. Planning began on site development of a new service yard with additional warehouse and maintenance facilities.

In FY20-25, projects include: construction of Phase 2 of the Fleet Maintenance Facility; development of new service yard space to support operations and maintenance, including Pipeline Rebuild; construction of lighting upgrades, HVAC and controls at the Adeline Maintenance Center Administration Building and providing fall protection and optimizing office space; replacing the fire alarm systems at service centers and Orinda Watershed Headquarters; improvements at Aqueduct facilities maintenance sites; replacing the warehouse roof and providing staff space at Oakport; and improvements to Central Maintenance Services and Castenada Service Center.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Fleet Maintenance East Improve	7,367,000	2,806,133	0	10,173,133
Property Purchases & Improve	9,665,000	0	0	9,665,000
CMS Building Improvmements	120,000	4,911,000	0	5,031,000
Oakport Site Development	0	4,305,225	0	4,305,225
Master Plan Implementation	0	915,000	2,485,000	3,400,000
Aqueduct Facilitie ADA Upgrade	2,717,000	0	0	2,717,000
Oakport Storage Facility Roof	1,545,000	36,269	0	1,581,269
Small Misc. Projects	502,177	950,796	0	1,452,973

Appropriations:	
Prior Years	$ 23,383,836
2020	$ 9,558,429
2021	$ 1,247,269
2022	$ 4,518,000
2023	$ 505,000
2024	$ 2,270,000
Future Years	$ 2,485,000
Total Cost	**$ 43,967,534**

Lead Dept: ENG

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: CAD/CAM Mapping, Documentation **Project Number:** 000112

Strategy: Extensions and Improvements **Program:** Mapping

Justification:

This is a recurring project to develop and maintain the Computer-Aided Drafting and Mapping System (CAD/CAM) and Geographic Information System (GIS). These systems are an integral part of the District's information infrastructure which provides data, engineering drawings, and maps required for infrastructure planning, emergency response and maintenance.

Description:

This project provides for maintenance and upgrade of the Computer-Aided Drafting and Mapping System (CAD/CAM) and Geographic Information System (GIS), and maintaining and updating distribution system maps and associated data. Mapping and GIS data is used District-wide and by other public agencies. CAD/CAM is also used to create design and construction drawings for all District facilities and distribution system pipelines.

During FY18-19, a major database upgrade was completed, which paved the way for implementation of additional data analysis and field tools, as envisioned in the Geospatial Strategic Plan. In addition, data integrity and database design improvements were made. To support implementation of the Geospatial Strategic Plan, the database will be enhanced to support geographic integrity and the GPS data collection.

In FY20-24 and future years, this project will continue to maintain and improve CAD/CAM and GIS to ensure that these systems remain up to date with current technologies. Implementation of the Geospatial Strategic Plan will continue in FY20 by making additional pipeline information available electronically. The GIS database and desktop software will be upgraded; hardware will be replaced to ensure system integrity and increase productivity; and periodic major software upgrades will be made.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Cad Cam Sys Development	35,481,441	9,791,362	0	45,272,803

Appropriations:	
Prior Years	-
2020	$ 1,876,622
2021	$ 1,870,797
2022	$ 1,940,952
2023	$ 2,013,738
2024	$ 2,089,253
Future Years	-
Total Cost	**-**

Lead Dept: ENG
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Camanche Rec Area Upgrades **Project Number:** 000153

Strategy: Resource Management **Program:** Recreation Areas

Justification:

The Federal Energy Regulatory Commission requires adequate maintenance of recreation facilities. These are the last of the upgrades identified in 1993 to correct the lack of maintenance by the prior concessionaire, and to bring road elevations above the spill elevation of the reservoir.

Description:

This project provides campground and road improvements at the Camanche North and South Shore Recreation Areas. Improvements include new picnic tables, fire rings, BBQs and parking spurs at each camp site; rehabilitation of main and campground roads; and new signage and striping for traffic control. Design for the South Shore campground improvements and day use roads has been initiated, and the project will be completed in FY20.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Cam Rec Area SS Camp & Dayuse	770,000	0	0	770,000

Appropriations:	
Prior Years	$ 6,176,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 6,176,000**

Lead Dept: ENG

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-20

Capital Improvement Program - Project Summary

Project: Cent Oakland Hills Cascade PZI **Project Number:** 003042

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

This project is needed to replace aging infrastructure, improve water quality, and improve operating efficiency and reliability in the Central Oakland Hills Cascade area by combining and optimizing storage and pumping within several different pressure zones. The projects will improve the level of service and reduce long-term operation and maintenance costs.

Description:

The Central Oakland Hills Cascades Pressure Zone (PZ) Improvements are a series of projects within the Oakland Hills, including the 39th Avenue, Dingee, Joaquin Miller, Piedmont, Pinehaven, and Skyline PZs. Projects include replacement of the 39th Avenue Reservoir, Joaquin Miller Pumping Plant (PP), and Piedmont Reservoir, rehabilitation of the Montclair PP, construction of a new Redwood Regulator, transmission system improvements within the Piedmont Pressure Zone, and demolition of the existing Dingee, Oak Knoll, Redwood, and Swainland Reservoirs. The Swainland Reservoir demolition may also include construction of a replacement reservoir or new regulator. Some of the demolition work will be undertaken as part of the Reservoir Rehabilitation Program, and rehabilitation of the Montclair PP will take place under the Pumping Plant Rehabilitation Program.

Projects completed include the demolition of the Hilltop and Pinehaven PPs, demolition of the Pinehaven Reservoirs, and replacement of the Estates Reservoir. In FY19, a facilities plan for the Piedmont PZ was completed to determine the size and timing of new storage at the Piedmont Reservoir site and required transmission improvements within the Piedmont PZ. During the next five years, a planning study for Swainland Reservoir will be completed, site planning for Piedmont Reservoir will be completed, new transmissions system improvements in the Piedmont PZ will be planned and designed, and a new Redwood Regulator will be constructed.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Piedmont Reservoir Replacement	1,425,000	441,000	44,732,433	46,598,433
Joaquin Miller PP Replacement	0	0	18,574,000	18,574,000
Swainland Res and Regulator	3,609,000	0	0	3,609,000
Piedmont PZ Trans Imprv	0	2,866,000	0	2,866,000
Redwood Regulator	0	872,000	0	872,000
Redwood Res Decommission	0	525,000	0	525,000

Appropriations:	
Prior Years	$ 29,674,998
2020	$ 872,000
2021	$ 0
2022	$ 12,000
2023	$ 597,000
2024	$ 3,223,000
Future Years	$ 81,395,926
Total Cost	**$ 115,774,924**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-39

Capital Improvement Program - Project Summary

Project: Colorados Pressure Zone Imprv **Project Number:** 1006294

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

This project is needed to provide additional water storage to meet future demands and increase water transmission capacity between reservoirs in the Colorados Pressure Zone. The project will improve the level of service and reduce long-term operation and maintenance costs.

Description:

The Colorados Pressure Zone Improvements (PZI) study provided planning and conceptual design for the Highland Reservoir in Lafayette, Tice Pumping Plant in Walnut Creek, and Withers Pumping Plant in Lafayette as part of the approved Water Treatment and Transmission Improvements Program (WTTIP) Environmental Impact Report.

Highland Reservoir has been completed. Design and construction of Tice Pumping Plant will take place as a separate project, and Withers Pumping Plant is included as part of the WTTIP Distribution Improvements Project.

Design and construction of three additional projects in the Colorados Pressure Zone is scheduled to begin in FY25 and includes: (1) replacement of Diablo Vista Reservoir; (2) 2,700 feet of 16-inch pipeline in Brook Street; and (3) 1,300 feet of 12-inch pipeline in Old Tunnel Road. The size and need for these three projects will be confirmed in FY20 by the Colorados PZI Update Study.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Brook Street Pipeline	0	0	3,113,000	3,113,000
Old Tunnel Rd. Pipeline	597,000	0	208,000	805,000
Colorados PZI Update	266,000	72,000	0	338,000

Appropriations:	
Prior Years	$ 1,018,000
2020	$ 72,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 9,503,000
Total Cost	**$ 10,593,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-37

Capital Improvement Program - Project Summary

Project: Dam Operational Upgrades **Project Number:** 1002574

Strategy: Regulatory Compliance **Program:** Dam Safety

Justification:

Upgrades to dams, spillways, channels, embankment slopes, reservoir linings, drain lines, valves and other features are required by regulatory agencies to safely operate the District's reservoirs and dam facilities.

Description:

This project involves making improvements to various dams and reservoirs to allow continued safe operation of the facilities. Accomplishments in FY18-19 included: 1) a comprehensive review of the structural integrity of terminal reservoir spillways; 2) completion of inundation maps for Chabot and USL reservoirs; 3) repairs to the Watson Reservoir lining to mitigate leaks; and 4) inspections of tunnel lining at USL and Lafayette Reservoirs.

Upcoming work includes: 1) sediment removal downstream of USL Reservoir spillway in FY20-21, 2) completion of terminal reservoir inundation maps through FY20 and of open-cut distribution reservoirs through FY21, 3) lining replacement at Watson Reservoir in FY20-21, and 4) tunnel/conduit inspections and repairs at all terminal reservoirs through FY22.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Dam and Spillway Upgrades	2,445,000	300,000	0	2,745,000
Reservoir Tunnel Inspection	2,150,000	0	0	2,150,000
Watson Res Lining Repairs	1,900,000	0	0	1,900,000
Camanche Spillway Evaluation	0	1,600,000	0	1,600,000
Pardee Spillway Evaluation	0	1,600,000	0	1,600,000
Terminal Res Inundation Maps	1,500,000	0	0	1,500,000
Hydrologic/Hydraulic Modeling	466,000	1,013,000	0	1,479,000

Appropriations:	
Prior Years	$ 11,023,000
2020	$ 2,250,000
2021	$ 0
2022	$ 1,013,000
2023	$ 1,250,000
2024	$ 0
Future Years	$ 0
Total Cost	**$ 15,536,000**

Lead Dept: ENG

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-25

Capital Improvement Program - Project Summary

Project: Dam Seismic Upgrades **Project Number:** 000861

Strategy: Regulatory Compliance **Program:** Dam Safety

Justification:

California Division of Safety of Dams (DSOD) and the District require that embankments are safe to withstand the maximum credible earthquake without an uncontrolled release of reservoir water.

Description:

This project includes seismic safety evaluations and dam freeboard increases to improve seismic safety.

Evaluations and/or safety reviews have been completed at all of the District's Dams. A new cycle of review is beginning to account for accumulated changes in seismic evaluation standards and safety requirements, and to respond to portions of the 2017 FERC 12D Potential Failure Mode Analysis and Independent Consultant Safety Inspection.

Major seismic upgrades at Chabot Dam in San Leandro were completed in FY18, with additional seismic upgrades completed in previous years at Dunsmuir Reservoir in Oakland and San Pablo Clearwell in Kensington. Future seismic upgrades at Camanche Dam are dependent on Federal Energy Regulatory Commission (FERC) review, approval, and subsequent directive, and are currently planned to begin in FY22. Updated seismic reviews using current engineering standards are planned for FY20-21 at Danville Reservoir in Danville and at Leland Reservoir in Lafayette.

Dam freeboard has been increased by structural modifications to the spillways at North Dam in Richmond, and Danville Dam in Danville; and by operational modifications at Maloney Dam in Pinole, Moraga Dam in Moraga, San Pablo Clearwell in Kensington and Argyle #2 in El Sobrante.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Chabot Dam Seismic Upgrade	24,026,000	200,000	0	24,226,000
Camanche Dam Seismic Upgrade	7,600,000	0	3,800,000	11,400,000
Pardee Dam and Spillway	526,500	1,250,000	0	1,776,500
Camanche Seismic Design Review	0	465,000	0	465,000
Danville Seismic Stability	0	0	0	0
Leland Seismic Stability Evalu	0	0	0	0

Appropriations:	
Prior Years	$ 39,041,000
2020	$ 1,915,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 3,800,000
Total Cost	**$ 44,756,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Dam Surveillance Improvements **Project Number:** 000748

Strategy: Regulatory Compliance **Program:** Dam Safety

Justification:

Ongoing dam surveillance is required per the District's Dam Safety Program and per California Division of Safety of Dams (DSOD) and Federal Energy Regulatory Commission (FERC) permit requirements. Dam instrumentation must be upgraded and replaced as needed to provide early warning of potential safety issues.

Description:

The District regularly monitors the performance and safety of its dams with routine inspections and measurements using over 2,000 instruments, including piezometers to measure water levels below the dam, seepage weirs and relief wells to measure flow through the dam and foundation, survey instruments and markers to measure dam settlement and displacement, load cells to measure spillway crest tie-down loads, and seismographs to measure earthquake ground motions.

In recent years, the District installed seismographs at Pardee and Camanche Reservoirs; constructed seepage monitoring devices at multiple open-cut reservoirs; upgraded the collection and monitoring systems at the Camanche Dike 2 relief wells; completed the automated GPS topographic survey systems at Pardee and Camanche Dams; and replaced vibrating wire piezometer equipment.

In FY20-24, proposed work includes: 1) flush and clean the Camanche Main Dam relief wells; 2) evaluate and re-tension the tie-down anchors on the Pardee concrete spillway; 3) install seismographs at Lafayette Reservoir; 4) design and install a pilot automated GPS survey system at San Pablo Reservoir to evaluate its potential for future use at Briones, Chabot, Lafayette, and Upper San Leandro Reservoirs; 5) continue to operate and maintain the automated GPS survey system at Camanche and Pardee Dams; and 6) replace, repair, or add new instruments as necessary to maintain effective dam safety surveillance.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
GIS-Based Dam Monitoring	300,000	2,000,000	0	2,300,000
Pardee Camanche Survey Imprvts	2,125,000	170,000	0	2,295,000
Terminal Reservoir Survey Impr	0	1,900,000	0	1,900,000
Dam Instrumentation Upgrades	1,315,000	400,000	0	1,715,000
Pardee Camanche Instruments	903,000	600,000	0	1,503,000
Terminal Res Seismographs	758,000	0	0	758,000
Open-Cut Res Underdrain Instru	688,000	0	0	688,000

Appropriations:	
Prior Years	$ 8,063,322
2020	$ 4,170,000
2021	$ 900,000
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 13,133,322**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-25

Capital Improvement Program - Project Summary

Project: Diablo PZ Improvements **Project Number:** 000482

Strategy: Extensions and Improvements **Program:** WC-SRV In Zone Improvements

Justification:

This project is needed to address storage and level of service deficiencies, which include low pressure problems in the Diablo Pressure Zone. The project will restore operating storage to District standards, eliminate temporary facilities, and is a required mitigation for the future Emmons Reservoir outage.

Description:

This project includes design and construction of a replacement 3.1-million-gallon (MG) welded-steel reservoir with a deep pier foundation at the same location as the demolished Diablo Reservoir, improvements to the existing access road, and site restoration. Design is scheduled for FY27-28 followed by construction in FY29-30.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Diablo PZI	13,555,058	0	0	13,555,058

Appropriations:	
Prior Years	$ 13,555,058
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 13,555,058**

Lead Dept: ENG

Recurring: No

Funding:

BOND/REV	20%
SCC	80%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Dist Sys Corrosion Protection **Project Number:** 000711

Strategy: Maintaining Infrastructure **Program:** Corrosion

Justification:

The project is needed to reduce maintenance costs and extend the useful life of the District's water mains through the ongoing upgrade of cathodic protection systems.

Description:

This is an ongoing project to repair or replace cathodic protection units for distribution water mains. The distribution system is protected by approximately 1,300 galvanic anode units, which total 3,000 individual anodes, plus approximately 84 impressed current units. Approximately 20 galvanic anode units require replacement each year. Most impressed current units will require repair or replacement to meet minimum electrical safety standards and will require the installation of new anode groundbeds.

In FY20-29, work includes repair of 20 galvanic anode units per year, repair or replacement of 10 impressed current units, and start of the Copper Lateral Cathodic Protection Program to install 8,000 anodes per year for 20 years.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Copper Laterals CP Project	0	19,633,000	37,957,000	57,590,000
Distr System Corrosion Protect	12,049,000	819,000	1,205,000	14,073,000
Impressed Current Stations	0	3,200,000	4,707,000	7,907,000

Appropriations:	
Prior Years	$ 12,049,000
2020	$ 4,771,000
2021	$ 1,824,000
2022	$ 4,459,000
2023	$ 6,183,000
2024	$ 6,415,000
Future Years	$ 43,869,000
Total Cost	**$ 79,570,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Distribution System Upgrades **Project Number:** 000130

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

Various project elements are needed to restore customer levels of service or improve distribution system redundancy and capacity. Work is prioritized annually based on level of service and operating efficiency.

Description:

This is an ongoing project that focuses on the distribution system where operational issues are identified or customer complaints are received and verified. The project reviews and prioritizes pipeline and related system improvements, including storage level optimization for water age.

In FY18-19, the Water Bottle Filling Station Pilot Program and two pressure zone rezonings were completed. Planned projects for FY20-24 include additional rezonings and related pipeline system improvements, valve improvements for storage cycling optimization, and rezoning the Hill Mutual Pressure Zone (PZ) into the Holly PZ by installing approximately 1,700 feet of 12-inch pipeline.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
New Pressure Zone Studies	2,508,536	750,000	0	3,258,536
Hill Mutual PZ Rezoning	956,000	1,159,000	0	2,115,000
PZ Rezonings	880,000	1,000,000	0	1,880,000
Dual Tank Isolation Valves	366,000	848,000	0	1,214,000
Cultural Resources	500,000	0	0	500,000

Appropriations:	
Prior Years	$ 7,065,808
2020	$ 1,509,000
2021	$ 552,000
2022	$ 558,000
2023	$ 565,000
2024	$ 573,000
Future Years	$ 0
Total Cost	**$ 10,822,808**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-35

Capital Improvement Program - Project Summary

Project: East Area Service Center **Project Number:** 000150

Strategy: Facilities, Servc and Equip **Program:** Area Service Center/Bldg Prog

Justification:

The existing service center building was originally constructed in 1962, and replaced in FY11. The proposed electrical power improvements to the HVAC, power and lighting systems are critical for emergency response and business continuity operations at the facility.

Description:

This project replaced the service center administration and warehouse buildings with a new seismically strengthened office building with approximately 1,700 square feet of new space on a second floor to provides men's and women's accessible restrooms, lockers, showers, and storage.

In FY20-21, design and construction of electrical power improvements to the HVAC, power and lighting systems for emergency response and business continuity operations will be completed.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Main Switchgear and Generator	600,000	0	0	600,000
HVAC System upgrade	0	543,000	0	543,000

Appropriations:	
Prior Years	$ 9,440,248
2020	$ 543,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 9,983,248**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-22

Capital Improvement Program - Project Summary

Project: Electrical Hazard Prevention **Project Number:** 2001485

Strategy: Maintaining Infrastructure **Program:** Electrical Hazard Prevent Pgm

Justification:

The District must comply with the Occupational Safety and Health Administration (OSHA) standard for electrical safety in the workplace. The standard involves identifying and analyzing electrical hazards, educating the workforce on those hazards, and implementing safeguards to protect the workers.

Description:

An arc flash evaluation of each facility will assess and mitigate the potential for electrical hazards to personnel working on and around electrical power distribution equipment. Arc flash evaluations for Pumping Plants Phase 1 through 6, Water Treatment Plants Phase 1 and 2, Hydroelectric Plants Phase 1, Administration Building Phase 1 and 2, and Arc Flash Review Phase 1 have been completed.

Remaining work consists of arc flash studies for 12 miscellaneous pumping plants and five service areas in FY19; 10 miscellaneous buildings in FY20-FY21; and miscellaneous facilities at Bixler, Stockton, Walnut Creek, and cathodic stations in FY22-FY25.

In addition, arc flash studies are required to be reviewed every five years by OSHA. In FY20, studies completed prior to FY15 will be reviewed.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Arc Flash 5 Year Review	681,000	829,000	0	1,510,000
Miscellaneous Facilities	0	452,000	161,000	613,000
Admin Buildings Arc Flash Eval	206,000	313,000	0	519,000

Appropriations:	
Prior Years	$ 2,676,000
2020	$ 145,000
2021	$ 315,000
2022	$ 383,000
2023	$ 344,000
2024	$ 407,000
Future Years	$ 161,000
Total Cost	**$ 4,431,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-25

Capital Improvement Program - Project Summary

Project: Encinal Cascade PZI **Project Number:** 2009581

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

The projects are needed to replace and/or eliminate aging infrastructure, improve water quality and low pressure issues, and improve operating efficiency and reliability in the Encinal Cascade Pressure Zones which have excess storage capacity causing low reservoir turnover. The projects will improve level of service and reduce long-term operation and maintenance costs.

Description:

The Encinal Cascade Pressure Zone (PZ) improvements address high-priority pumping plant and reservoir rehabilitation and replacement projects in the Infrastructure Rehabilitation Program within the Encinal, Westside and Dos Osos PZs located in Orinda. Encinal PZ improvements include construction of a new Encinal Regulator and demolition of Encinal PP and Encinal Reservoir to make Encinal PZ a fully-regulated PZ. Westside PZ improvements include relocation of Westside PP to the existing Encinal PP site (with the new Encinal Regulator housed within the new PP) and construction of approximately 7,000 feet of 12-inch pipelines. Dos Osos PZ improvements include replacement of Dos Osos Reservoir with dual tanks at a higher elevation and rehabilitation of the Dos Osos PP.

Environmental documentation for the Dos Osos PZ improvements and Encinal PZ and Westside PZ improvements was completed in FY17 and FY19, respectively. Design of the Encinal PZ and Westside PZ improvements will be completed in FY20, with construction taking place in FY20-22. Environmental permitting for the Dos Osos PZ improvements, currently underway, will be completed in FY21. Design of the Dos Osos PZ improvements would occur in FY20-22 followed by construction in FY23-24.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Westside PP Relocation	7,193,674	7,214,475	0	14,408,149
Dos Osos Res Repl and PP Rehab	465,000	8,613,861	0	9,078,861
Enc Res Westsd PP Dem, Enc Reg	848,322	1,205,347	0	2,053,669

Appropriations:	
Prior Years	$ 8,506,996
2020	$ 17,033,683
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 25,540,679**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-25

Capital Improvement Program - Project Summary

Project: Enterprise Hyd WQ & Op Modl **Project Number:** 2005281

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

Implementation of the Enterprise Hydraulic Modeling will improve the efficiency and productivity of hydraulic modeling workflows; optimize hydraulic operations and provide cost savings in water distribution system energy use; and optimize system water quality.

Description:

Recent conversion of the enterprise systems (e.g., mapping, water consumption, pipeline risk models) to ArcGIS and advances in commercially available hydraulic modeling software present an opportunity to integrate enterprise systems including Supervisory Control and Data Acquisition (SCADA) and mapping data with the ArcGIS-based hydraulic modeling software (InfoWater). The Enterprise Hydraulic Modeling Project will implement new tools to create, verify, and update enterprise hydraulic models to streamline and improve workflows and infrastructure planning decision making, and optimize water distribution operations for energy and water quality management. The enterprise hydraulic models will also enable data sharing with the pipeline risk model.

In FY18-19, configuration and implementation of SCADAWatch and GIS Gateway were completed to integrate SCADA data and mapping data into hydraulic models. In addition, enterprise hydraulic models were constructed for approximately 40 percent of the distribution system. In FY20-21, the remaining enterprise hydraulic models will be constructed. In FY22-FY24, ongoing administration will be completed to oversee and maintain efficient performance of enterprise hydraulic models and workflows. In FY25-26, IWLive will be pilot tested and evaluated for optimizing water distribution operations to reduce energy costs and improve water quality. If tests are successful it will be implemented in FY27-29.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Enterprise Hydraulic Modeling	785,270	889,499	640,381	2,315,150

Appropriations:	
Prior Years	$ 785,270
2020	$ 889,499
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 640,381
Total Cost	**$ 2,315,150**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Hydrants Installed by DF **Project Number:** 000099

Strategy: Maintaining Infrastructure **Program:** Pipelines/Appurtenances

Justification:

This project is needed to install hydrants at the request of City and County Fire Districts for new developments including urban in-fill projects, and for District projects.

Description:

This is an ongoing project to install new hydrants in the service area using District forces. Most requests for new hydrants come from fire districts or developers. Development activity has been strong in recent years, with a corresponding increase in the number of hydrants installed. In FY16-17, the District installed an average of 85 new hydrants annually. In FY18-19, work included installation of approximately 90 new hydrants annually. Starting in FY20, the installation rate is planned to increase to 100 hydrants annually in anticipation of favorable development conditions continuing.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Hydrants Instlld By Dist	22,804,000	10,493,000	7,314,000	40,611,000

Appropriations:	
Prior Years	-
2020	$ 3,397,000
2021	$ 1,754,000
2022	$ 1,767,000
2023	$ 1,781,000
2024	$ 1,794,000
Future Years	-
Total Cost	**-**

Lead Dept: ENG

Recurring: Yes

Funding:

APPL	38%
BOND/REV	25%
OAG	37%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Large Diameter Pipelines **Project Number:** 1006298

Strategy: Maintaining Infrastructure **Program:** Pipelines/Regulators

Justification:

The replacement of large diameter transmission pipelines is required to maintain infrastructure reliability. These pipelines convey large volumes of water and many distribution pipelines branch off from them. If these pipelines were to fail service would be disrupted and there would be the potential for collateral damage.

Description:

Large diameter transmission pipelines form the backbone of the distribution system. This project replaces transmission pipelines that are at risk of failure, performs condition assessments, and develops master plans.

FY18-19 work included: MacArthur/Davenport, International Blvd, and Grand Ave construction; Summit Pressure Zone (PZ) planning completion; Alameda Crossing #1, Estudillo Ave, and Summit PZ design; and D St and East 15th St surveying.

FY20-21 work includes: Estudillo Ave construction completion; Alameda Crossing #1 construction start; Summit PZ Phase 1 construction completion; and D and East 15th St design completion. The Large Diameter Pipeline Master Plan (LDPMP) will be updated, and a condition assessment plan will be developed.

FY22-29 work includes: Summit PZ Phases 2 and 3 construction completion; Berryman South Reservoir Pipeline Improvements completed; D and E. 15th St construction completion; and completion of Alameda Crossings #1, #2, and #3. The LDMP will be updated bi-annually and synchronized with the upcoming budget cycle to confirm the priority of existing projects and identify any new projects.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Lg Diameter Pipeline Replace	125,699,150	109,597,331	33,672,956	268,969,437
Master Planning	822,000	687,909	806,000	2,315,909
Danville PP PL Property Rights	1,010,411	320,589	0	1,331,000

Appropriations:	
Prior Years	$ 128,479,561
2020	$ 58,552,604
2021	$ 415,000
2022	$ 28,680,767
2023	$ 22,636,869
2024	$ 320,589
Future Years	$ 34,478,956
Total Cost	**$ 273,564,346**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-40

Capital Improvement Program - Project Summary

Project: Leland Pressure Zone Impr **Project Number:** 2001451

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

This project is needed to replace aging infrastructure, address seismic stability issues and improve operating efficiency and reliability. The project will improve the level of service and reduce long-term operation and maintenance costs.

Description:

This project includes replacement of the 18 million gallon (MG) open-cut Leland Reservoir with two 8-MG concrete tanks in the existing basin and installtion of 3,650 feet of 36-inch transmission pipeline located in Lafayette. Leland Reservoir is the major storage serving Lafayette and most of Walnut Creek. An Environmental Impact Report for the project was completed and approved in FY19. Design of the replacement reservoirs and pipeline is scheduled for FY22-23, followed by construction in FY24-26.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Leland Reservoir Upgrade	6,176,000	49,733,279	0	55,909,279

Appropriations:	
Prior Years	$ 8,121,480
2020	$ 0
2021	$ 0
2022	$ 49,733,279
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 57,854,759**

Lead Dept: ENG
Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 31-Dec-26

Capital Improvement Program - Project Summary

Project: Maloney PZ Improvements **Project Number:** 1002575

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

The projects are needed to replace aging infrastructure and address operational and reliability issues including storage capacity, pumping capacity, and distribution system deficiencies. The projects will improve the level of service and reduce long-term operation and maintenance costs.

Description:

This project includes a new 3 to 5 million gallon (MG) Selby Reservoir in Crockett; upgrades to the Maloney Pumping Plant (PP) in El Sobrante and Crockett PP in San Pablo to increase the combined pumping capacity by 12.5 MGD; electrical upgrades at Maloney PP and Sobrante Water Treatment Plant (WTP) to address safety, maintenance and back-up power issues at both facilities; and 18,500 feet of 36-inch pipeline to improve transmission capacity from the Crockett PP to the new Selby Reservoir.

In FY18, the Maloney PP outage plan and La Honda Rate Control Station shutdown plan were completed. In FY19, the design of the upgrades to the Maloney PP and electrical upgrades at the Sobrante WTP were completed. Construction of both the Maloney PP and Sobrante WTP improvements commenced in FY19 and are scheduled to be completed in FY22. Planning, design and construction of the Selby Reservoir replacement is scheduled for FY23-27.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Maloney PP Improvements	46,800,000	31,075,000	0	77,875,000
Selby Reservoir Replacement	0	13,983,000	0	13,983,000
Crockett PP Improvements	180,000	7,023,000	0	7,203,000
Maloney PZI Planning Study	709,000	0	0	709,000

Appropriations:	
Prior Years	$ 47,689,000
2020	$ 31,075,000
2021	$ 0
2022	$ 0
2023	$ 21,006,000
2024	$ 0
Future Years	$ 0
Total Cost	**$ 99,770,000**

Lead Dept: ENG
Recurring: No

Funding:

BOND/REV	59%
SCC	41%

In Service Date: 30-Jun-33

Capital Improvement Program - Project Summary

Project: Mok Aqu No 2 & 3 Relining Proj **Project Number:** 2003494

Strategy: Water Supply **Program:** Aqueduct Program

Justification:

This project is needed to preserve the integrity of the steel aqueduct pipelines. In areas where the lining has delaminated, the steel pipe wall is corroding, reducing the steel wall thickness. The new lining will prevent internal corrosion. Water quality improvements will reduce water corrosivity and extend the life of the mortar linings.

Description:

This project will replace the deteriorated cement mortar lining in Mokelumne Aqueduct No. 2 (MOK2) and No. 3 (MOK3) to protect the steel pipeline from internal corrosion. Inspections of the elevated Delta reach revealed that 10 miles of the lining in MOK2 and MOK3 is in need of replacement. Inspections of MOK2 indicate that 65 miles of the below ground pipeline reaches also needs replacement. Prior to design and construction of new lining, the project will conduct research on lining technologies and materials, perform detailed inspections, and construct raw water treatment facilities to minimize corrosion.

FY20-22 work includes design of the Raw Water Treatment Facilitates and inspection of MOK3 lining. Work also includes design research and pilot testing of cement mortar lining mix.

FY22-24 work includes completing design and construction of Phase I of the MOK2 relining. Work also includes completing construction of the Raw Water Treatment Facilities and completing design of the below ground MOK2 relining.

In FY26-30, work includes construction of the MOK2 below ground relining.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Lining Studies & Improvements	11,980,347	20,520,000	0	32,500,347
Mok Aqueduct No. 2 Relining	16,419,000	0	0	16,419,000

Appropriations:	
Prior Years	$ 30,560,347
2020	$ 4,350,000
2021	$ 12,650,000
2022	$ 3,520,000
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 51,080,347**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-33

Capital Improvement Program - Project Summary

Project: Mokelumne Aqueduct Recoating **Project Number:** 2001487

Strategy: Water Supply **Program:** Aqueduct Program

Justification:

Recoating the Mokelumne aqueducts protects them from the corrosive Delta environment, prevents deterioration and breaks, and prolongs their useful life.

Description:

This project continues the annual removal of lead-based paint and recoating portions of the 10 miles of above ground pipelines of the Mokelumne Aqueducts in the Delta. The work typically takes place during the summer months and includes recoating several over-water areas of the aqueducts.

In FY19, Phase 12 of the recoating was completed.

FY20-22 work includes Phase 13 of the Aqueduct No. 1 recoating project. The scope includes coating approximately sixty gully crossings.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Mokelumne Aqueducts Recoating	23,804,000	1,710,000	0	25,514,000

Appropriations:	
Prior Years	$ 43,315,153
2020	$ 1,710,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 45,025,153**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-22

Capital Improvement Program - Project Summary

Project: New Service Installations **Project Number:** 000101

Strategy: Maintaining Infrastructure **Program:** Pipelines/Appurtenances

Justification:

New accounts require new service installations to furnish water to developments.

Description:

This is an ongoing project to install new services. Services include taps on the main, laterals, and meter sets. The work consists of adding services due to expansion of the system and urban in-fill projects. The work excludes replacement of old services or polybutylene laterals. Recently, District Forces have installed between 300 to 450 new services annually. The need for installing new services is expected to increase as housing trends have elevated demand for new services.

In FY16-17, an average of 450 new services per year were installed. In FY18, 724 services were installed. In FY20-22, work is estimated to be 700 new services per year.

Projecting futher, from FY23 and beyond, work is projected to hold steady and include up to 700 new services per year due to the upward trend in development.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
New Svc Installs	198,306,000	99,383,800	95,071,000	392,760,800

Appropriations:	
Prior Years	-
2020	$ 23,327,000
2021	$ 19,014,200
2022	$ 19,014,200
2023	$ 19,014,200
2024	$ 19,014,200
Future Years	-
Total Cost	**-**

Lead Dept: ENG
Recurring: Yes

Funding: APPL 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Open Cut Reservoir Rehab **Project Number:** 000241

Strategy: Maintaining Infrastructure **Program:** Reservoir Rehab Program

Justification:

Open-cut reservoir rehabilitation, replacement, and demolition projects are necessary to remove hazardous materials, reduce maintenance costs, improve safety, and improve water quality by reducing storage in the distribution system.

Description:

The Open Cut Reservoir Rehabilitation project includes rehabilitation and replacement of the District's open-cut reservoirs. In FY19, construction for the replacement of South Reservoir in Castro Valley, which included the replacement of a 50 MG open-cut reservoir with a 9 MG concrete tank. was completed. Design for the San Pablo Clearwell replacement project was completed in FY19, and construction will commence in FY20. In addition, planning to replace the District's largest distribution reservoir, Central Reservoir, continued.

Planned work for FY20-24 includes completion of construction of the San Pablo Clearwell replacement project; completion of the planning phase and kickoff of the design phase for the Central Reservoir replacement project; and demolition of Seneca Reservoir. Design and construction of the replacement reservoirs for Central Reservoir are planned beyond FY24.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Central Reservoir Replacement	3,939,402	5,202,000	180,378,000	189,519,402
San Pablo Clearwell Replacemnt	57,240,600	4,735,000	0	61,975,600
Seneca Reservoir Demolition	190,400	5,900,000	0	6,090,400
North Reservoir Replacement	0	0	1,874,000	1,874,000

Appropriations:	
Prior Years	$ 93,648,402
2020	$ 10,635,000
2021	$ 0
2022	$ 0
2023	$ 5,202,000
2024	$ 0
Future Years	$ 182,252,000
Total Cost	**$ 291,737,402**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Pipeline Infrastruct Renewals **Project Number:** 000554

Strategy: Maintaining Infrastructure **Program:** Pipelines/Regulators

Justification:

Planned replacement of deteriorating pipelines is needed to maintain the reliability of the distribution infrastructure. Replacing portions of the 3,800 miles of distribution system piping on an annual basis mitigates the costs and service disruptions associated with emergency leak repairs.

Description:

The Pipeline Infrastructure Renewals Project is focused on the continued replacement and renewal of pipeline in the distribution system, and ramping up replacement and renewal at a rate sufficient to maintain high system reliability. In FY20-21, the Pipeline Rebuild program will continue to evaluate and determine future replacement goals.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Infrastructure Renewals	207,368,556	300,188,000	511,630,998	1,019,187,554
Pipeline Rebuild Program	54,705,638	0	17,475,000	72,180,638
Pipeline Research-Development	4,340,000	1,840,085	2,641,000	8,821,085

Appropriations:	
Prior Years	-
2020	$ 49,842,000
2021	$ 54,280,085
2022	$ 56,434,000
2023	$ 65,563,000
2024	$ 75,909,000
Future Years	-
Total Cost	**-**

Lead Dept: ENG
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Pipeline Relocations **Project Number:** 000108

Strategy: Maintaining Infrastructure **Program:** Pipelines/Regulators

Justification:

The project is needed to relocate distribution system pipelines as required due to various projects by public agencies (cities, counties, Caltrans, BART, etc.) and private applicants.

Description:

This is an ongoing project to relocate pipelines to accommodate projects of other agencies, such as roadway improvements, bridge replacements or rail system expansions. The work is non-discretionary and difficult to forecast since it is dependent on the schedule of other agencies. The District is obligated to bear the cost of pipeline relocations originating from street improvement projects of most cities, while costs for pipeline relocations driven by private applicants and agencies, such as Caltrans and BART, are typically reimbursable.

In FY20-24, anticipated work includes design and construction of approximately 1.5 miles of pipeline relocations per year, which includes 0.5 miles of reimbursable and 1 mile of non-reimbursable work.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Non Reimbursable	45,730,166	23,043,851	27,701,009	96,475,026
Reimbursable	13,629,127	8,638,730	10,384,615	32,652,472

Appropriations:	
Prior Years	-
2020	$ 5,878,763
2021	$ 6,099,215
2022	$ 6,327,937
2023	$ 6,565,235
2024	$ 6,811,431
Future Years	-
Total Cost	**-**

Lead Dept: ENG
Recurring: Yes

Funding:

APPL	10%
BOND/REV	73%
OAG	17%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Pipeline System Extensions **Project Number:** 000104

Strategy: Maintaining Infrastructure **Program:** Pipelines/Regulators

Justification:

This project is needed to satisfy the District's obligation to provide service to new customers within the service area.

Description:

This is an ongoing project for pipelines to serve new customers via Applicant Extension Agreements. Annual workload is estimated from projections of land development activity and recent trends in water service activity in the District's New Business Office.

In FY16-17, approximately six miles per year of system extensions were installed by applicants and District forces combined (one mile constructed by District forces and five miles installed by applicants), indicating an upward trend from previous years.

In FY18-19, system extension work was anticipated to ramp up to eight miles per year, with 1.5 miles constructed by District forces and 6.5 miles installed by applicants per year. Projecting further, FY20-24 includes approximately eight miles per year of system extensions.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
New Pipeline Installations	62,633,567	33,121,000	56,819,000	152,573,567

Appropriations:	
Prior Years	-
2020	$ 0
2021	$ 0
2022	$ 7,333,000
2023	$ 12,672,000
2024	$ 13,116,000
Future Years	-
Total Cost	**-**

Lead Dept: ENG
Recurring: Yes

Funding: APPL 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Pipeline System Improvements **Project Number:** 000110

Strategy: Maintaining Infrastructure **Program:** Pipelines/Regulators

Justification:

This program is needed to maintain reliable potable water service to customers by improving various components of the distribution system and addressing areas such as water quality, capacity, maintainability, and reliability.

Description:

This is an ongoing project that serves to enhance the water distribution system by improving water quality, system performance, capacity, reliability, and maintainability of the distribution system.

In FY19, work included the design of approximately 1.0 mile of pipeline system improvements in Oakland and Crockett, the design and construction of 0.5 mile of 4-inch main replacements, and the ongoing design and construction of system improvement projects currently underway throughout the District.

In FY20-24, work will include the design and construction of 1.0 mile per year of pipeline system improvements and 0.5 mile per year of 4-inch replacements. Planned work includes pipeline system improvement projects to support the Alcosta Boulevard Rate Control Station Project in San Ramon.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Maintainability Imprv Projects	8,515,290	14,624,776	19,733,929	42,873,995
4-inch Reliability Imprv	2,170,000	6,542,847	9,619,492	18,332,339

Appropriations:	
Prior Years	-
2020	$ 2,229,948
2021	$ 3,843,499
2022	$ 3,987,631
2023	$ 4,314,235
2024	$ 6,792,310
Future Years	-
Total Cost	**-**

Lead Dept: ENG
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Pressure Zone Planning Program **Project Number:** 001424

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

The Pressure Zone Planning Program (PZPP) is needed to identify and report current facility and pipeline needs, reduce duplication of effort, and minimize multi-project scheduling conflicts and delays to rehabilitation projects.

Description:

The PZPP is a comprehensive District-wide facilities planning effort to support ongoing and future capital projects. A series of individual PZPP studies were completed in prior years to define pressure zone issues, describe conceptual solutions for those issues, identify facility priority and provide planning level cost estimates. These studies formed the basis of the Distribution System Master Plan (DSMP).

An update to the DSMP was completed in FY19 to set distribution system priorities. Also in FY19, a Pumping Plant Criticality Study was completed to determine the relative operational criticality of distribution pumping plants and prioritize improvements including emergency generators and portable pumping plant connections that will be implemented under another reference project. An update of the PZPP is planned as part of the Collaborative and Holistic Pipeline Plan (CHPP) that will be completed in FY20-FY24 and will incorporate recommendations for pipelines and update major facility recommendations in the PZPPs. This program also includes annual detailed planning and hydraulic studies in support of pipeline replacement, reservoir, regulator, and pumping plant rehabilitation programs to meet emerging priorities, and reflect updates to the demand projections based on the 2050 Demand Study. An update to the DSMP will be competed in FY21.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Pressure Zone Planning Studies	2,563,481	1,669,541	803,000	5,036,022

Appropriations:	
Prior Years	$ 3,680,481
2020	$ 1,117,541
2021	$ 552,000
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 803,000
Total Cost	**$ 6,153,022**

Lead Dept: ENG
Recurring: No

Funding:

BOND/REV	80%
SCC	20%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Pumping Plant Rehabilitation **Project Number:** 001252

Strategy: Maintaining Infrastructure **Program:** Pumping Plant Rehabilitation

Justification:

This project is needed to upgrade pumping plants to conform to current District standards to ensure efficient, reliable and safe operation.

Description:

The Distribution Pumping Plant Infrastructure Rehabilitation Plan (IRP) was updated in 2018. The IRP identifies the highest priority pumping plants (PPs) for rehabilitation, replacement, or demolition. In FY17-18, the District awarded construction contracts for replacement of Skyline, Country Club, Schapiro, Berryman North; and demolition of Road 24 No. 1. PP. In FY19, construction contracts were awarded for Fire Trail, Jensen, University, Maloney, Greenridge, Bayfair, Peralta, and May PPs.

In FY20-24, work includes planning, design and construction at 27 of the District's 130 distribution PPs, including: University, Fire Trail, Jensen #1, Bayfair, Peralta, May, Bryant PP Complex (Bryant No. 1, Bryant No.2, Colorados, and Leland), Hill Mutual, Crest, Ridgewood, San Ramon, Madrone, Palo Seco, Montclair, Summit West, Aqueduct, Berryman, Valory, Quarry, Summit North, Echo Springs, Summit South, and Crockett. Future work will include design and construction of the remaining priority PP rehabilitation projects, as well as any priorities that may arise. Work will also continue on PP Arc Flash Mitigation. Work will begin on power reliability improvements at 24 distribution pumping plants to protect against an extended PG&E outage.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Future PP Rehabs	0	0	47,100,000	47,100,000
SummitSouth,Crockett,EchoSpgs	0	14,368,000	0	14,368,000
Quarry, Summit North, Larkey	0	12,479,000	0	12,479,000
Fire Trail-Jensen #1 PP Rehab	12,037,807	0	0	12,037,807
Summit W, Aqueduct, Berryman W	11,234,000	0	0	11,234,000
Pearl, Welle, Rolph, Stott PPs	0	0	9,078,000	9,078,000
Bayfr,Prlta,Mdrne,PlSeco,MayPP	7,855,000	615,000	0	8,470,000
Hill Mutual, Crest, Ridgewood	7,406,000	0	0	7,406,000

Appropriations:	
Prior Years	$ 142,785,039
2020	$ 11,336,000
2021	$ 0
2022	$ 40,000
2023	$ 12,479,000
2024	$ 16,528,000
Future Years	$ 58,133,000
Total Cost	**$ 241,301,039**

Lead Dept: ENG

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Rate Control Station Rehab **Project Number:** 1002590

Strategy: Maintaining Infrastructure **Program:** Pipelines/Regulators

Justification:

This project is needed to rehabilitate rate control stations that present safety hazards, corrosion damage, flooding, poor ventilation, and remote-monitoring malfunctions.

Description:

The District operates 36 Rate Control Stations (RCSs) with many older than 50 years. Deteriorated structures are replaced, repaired, and/or upgraded; deteriorated mechanical and telemetry equipment is replaced; access safety is improved by the replacement of street manholes and outdated hatches with safer sidewalk hatches; and Occupational Safety and Health Administration-approved ladders and ventilation are installed where required. In addition, this project includes site inspections and evaluations of RCS facilities to prioritize future rehabilitation work.

FY18-19 accomplishments include completing design for the 98th Ave, Oak, and Sequoia RCSs.

FY20-24 planned work includes completing construction of the above RCSs. Design and construction will be initiated for Alcosta, Bollinger, Castro Valley, Church, Dunsmuir, Golf Links, La Honda, Ney, San Luis No. 1, Victoria, and Webster Rate Control Stations. In addition, planning, design and construction will commence for nine other facilities that have not yet been prioritized for rehabilitation work.

Beyond FY24, this project allows for rehabilitating or replacing RCS facilities at an average of three every two years.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Future RCS Rehabs	0	5,690,000	0	5,690,000
Ney,Vctria,Chrch,GolfLinks	2,730,000	2,350,000	0	5,080,000
Alcsta,Bolngr,SanLuisNo1,Wbstr	0	4,441,000	0	4,441,000
Oak,98Av,Sequoia RCS Rehabs	4,178,000	0	0	4,178,000
CastroValley Dunsmuir,Lahonda	0	3,402,000	0	3,402,000
RCS Facility Assessments	275,000	0	0	275,000
RCS Planning	105,000	0	0	105,000

Appropriations:	
Prior Years	$ 11,284,000
2020	$ 120,000
2021	$ 0
2022	$ 15,763,000
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 27,167,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-35

Capital Improvement Program - Project Summary

Project: Raw Water Studies and Improves **Project Number:** 1000810

Strategy: Water Supply **Program:** Aqueduct Program

Justification:

The project is needed to maintain the integrity of the raw water system, facilitate effective and fast response following an emergency, improve the function of the system, or a combination of all three.

Description:

This project consists of evaluating and improving the raw water system to reliably meet operational requirements. FY18-19 accomplishments included completion of the inspection of Pardee Tunnel, continued retrofit work of the settling temperature anchors on Mokelumne Aqueduct #1, and construction of the San Pablo Tower and Tunnel improvements.

In FY20-24, work includes continuing to monitor and retrofit the temperature anchors on Mokelumne Aqueduct #1, design and construction of the Briones Center upgrades, planning and design of the Walnut Creek Raw Water PP upgrades, planning and design of the Lafayette Aqueduct No. 1 (LAF1) relining project, design and construction of the Moraga Raw Water PP upgrades, and completion of the EIR for the Delta Tunnel project.

Beyond FY24, planned work includes the Raw Water Master Plan update, Pardee Tunnel access improvement, completing construction of the LAF1 relining, and completing design for the Delta Tunnel.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Raw Wtr Improvements	33,683,000	43,603,000	85,912,000	163,198,000
Mok Aq No3	23,169,260	29,964,440	19,032,000	72,165,700
Delta Tunnel	10,157,000	6,701,000	38,853,000	55,711,000
Raw Wtr Infrastructure Std	4,988,000	1,653,678	222,000	6,863,678

Appropriations:	
Prior Years	$ 76,415,610
2020	$ 0
2021	$ 12,272,000
2022	$ 15,286,118
2023	$ 18,054,000
2024	$ 36,310,000
Future Years	$ 144,019,000
Total Cost	**$ 302,356,728**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Regulator Rehabilitation **Project Number:** 000398

Strategy: Maintaining Infrastructure **Program:** Pipelines/Regulators

Justification:

This project is needed to rehabilitate regulator facilities that provide insufficient fire flow, present a hazard to operating personnel, or may need to be relocated due to site constraints.

Description:

This project rehabilitates or replaces deteriorated, undersized, and unsafe regulators in the distribution system. The District operates 73 regulators with many older than 50 years. Regulator upgrades typically include replacement of deep vaults in the street with shallow vaults located in the sidewalk; improved hatches and ladders; replacement of regulator valves; and the addition of emergency shut-off valves. Ventilation fans, sump pumps, flow meters, lights, and telemetry are added when electrical power is available. This project also includes routine site inspections and evaluations of regulator facilities.

FY18-19 accomplishments include design and construction of the Black Feather Regulator and the Painted Pony Regulator.

FY20-24 planned work includes initiating design and construction of the Circle and Orion Regulators. Design and construction is also scheduled to be completed for Ascot, Bayfair, Campus, Columbia, Girvin, Gramercy, Henry, Keller, La Loma, Maud, Norris Canyon, Potrero, and Villareal Regulators, in addition to three other facilities that have not yet been prioritized.

Beyond FY24, this project allows for rehabilitating or replacing regulator facilities at an average of three every two years. If this schedule is maintained, each regulator will be upgraded once every 50 years.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Future Regulator Rehabs	0	1,086,000	15,290,000	16,376,000
Ascot,Bayfr,Girvn,NorsCyn,Ptro	0	5,294,000	0	5,294,000
Cmpus,Colmbia,Hnry,Kellr,LaLma	0	5,047,000	0	5,047,000
BlkFeathr,PntdPony,Crcle,Orion	1,930,932	2,147,000	0	4,077,932
Gramercy,Maud,Villareal	0	2,633,000	0	2,633,000
Regulator Facility Assessments	275,000	166,000	0	441,000
Standby regulator evaluation	210,000	0	0	210,000

Appropriations:	
Prior Years	$ 19,414,000
2020	$ 698,000
2021	$ 0
2022	$ 0
2023	$ 15,159,000
2024	$ 516,000
Future Years	$ 15,290,000
Total Cost	**$ 51,077,000**

Lead Dept: ENG
Recurring: No

Funding:

BOND/REV	90%
SCC	10%

In Service Date: 30-Jun-32

Capital Improvement Program - Project Summary

Project: Reservoir Rehab/Maintenance **Project Number:** 000716

Strategy: Maintaining Infrastructure **Program:** Reservoir Rehab Program

Justification:

This project is necessary to maximize the utility of the District's distribution reservoirs through the rehabilitation, replacement, and demolition of the reservoirs.

Description:

The Reservoir Rehabilitation/Maintenance project includes rehabilitation, replacement, and demolition of the steel, concrete, redwood, and pressure reservoirs to improve reservoir roof safety, replace reservoir coatings, improve water quality, and assess the rehabilitation priorities through updates to the Reservoir Infrastructure Rehabilitation Plan (IRP).

In FY18-19, construction contracts were awarded to rehabilitate, replace, or demolish three steel reservoirs each year. A contract for Arcadian, Larkey, and Rheem reservoirs was awarded in FY18, and a contract for Birch, University, Cull Creek, and Sherwick reservoirs was awarded in FY19. Construction for the rehabilitation of Round Hill and El Portal reservoirs, the replacement of Eden Reservoir, and the demolition of Berkeley View No. 2, Muir and Potrero reservoirs were completed in FY18-19. In addition, the rehabilitation of Bacon, Mendocino, and Pearl reservoirs was completed in FY19. Finally, the reservoir rehabilitation priorities were updated in FY19.

In FY20-24, the sustainable rehabilitation rate for steel reservoirs of three to four reservoirs each year will continue. Other planned work includes completion of construction for the new Carisbrook reservoir, and the rehabilitation of Montclair reservoir. Lastly, construction of the reservoir roof safety program, a program which includes improvements for reservoir roof and ladder fall protection, is planned for completion in FY22.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Res Rehab/Mai Prog (Coatings)	117,444,000	78,364,000	85,577,000	281,385,000
Res Supplemental Imprv Proj	25,251,000	25,548,853	0	50,799,853
Reservoir Roof Safety Program	1,342,000	340,000	0	1,682,000
Reservoir Facility Assessments	636,000	168,432	209,000	1,013,432

Appropriations:	
Prior Years	$ 144,721,000
2020	$ 38,376,285
2021	$ 16,010,000
2022	$ 18,794,000
2023	$ 16,948,000
2024	$ 14,293,000
Future Years	$ 85,786,000
Total Cost	**$ 334,928,285**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-32

Capital Improvement Program - Project Summary

Project: Reservoir Tower Modifications **Project Number:** 000672

Strategy: Regulatory Compliance **Program:** Dam Safety

Justification:

The California Division of Safety of Dams requires outlet works to remain functional after a major earthquake since the failure of a reservoir tower could cause an uncontrolled release of water or prevent the withdrawal of water from the reservoir.

Description:

This project includes the seismic retrofit of six reservoir towers: Pardee Reservoir and the five Terminal Reservoirs.

The seismic evaluation of Pardee Tower in prior years had identified leakage in Pardee Tunnel, which was then inspected in FY18 and found to be in satisfactory condition.

At the terminal reservoirs, retrofits to Chabot Tower were completed in FY18 as part of the Chabot Dam Seismic Upgrade project. Retrofits to the Upper San Leandro and San Pablo Towers were completed in FY19.

Upcoming work is planned at Briones and Lafayette Reservoir Towers, which require upgrades to resist earthquake loads. For Briones Tower, planning and design of the upgrades started in FY16, with construction planned for FY20-21. For Lafayette Tower, planning and design are underway, with construction planned for FY21-22.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Briones & Lafayette Tower Mods	21,688,000	0	0	21,688,000

Appropriations:	
Prior Years	$ 33,882,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 33,882,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-22

Capital Improvement Program - Project Summary

Project: San Pablo Dam Seismic Mods **Project Number:** 2001483

Strategy: Regulatory Compliance **Program:** Dam Safety

Justification:

Seismic evaluation of the reservoir embankment indicated that the downstream slope may become unstable and the crest settlements may be excessive during the maximum considered earthquake. Retrofit measures are required to stabilize the dam to prevent an uncontrolled release of reservoir water.

Description:

This project provided for modifications to the downstream slope of the San Pablo Dam in Orinda to prevent slope instability and crest settlement during a maximum considered earthquake on the Hayward Fault. Upgrades to the embankment including foundation improvements, placement of buttress fill at the downstream toe, and installation of geotechnical instrumentation have been completed. The replacement of the outlet tunnel seismic valve was completed in FY18.

Ongoing work includes biologic monitoring and maintenance for the environmental mitigation habitat at Pavon Creek and Scow Canyon, and meeting reporting requirements to regulatory agencies. Biologic mitigation maintenance and monitoring will continue through FY21.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
San Pablo Dam Mods	81,613,000	0	0	81,613,000

Appropriations:	
Prior Years	$ 82,588,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 82,588,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-21

Capital Improvement Program - Project Summary

Project: Service Lateral Replacements **Project Number:** 000654

Strategy: Maintaining Infrastructure **Program:** Polybutylene Lateral Replcmt

Justification:

This project is needed to manage the cost-effective replacement of defective and/or failed service laterals.

Description:

This project previously focused on the replacement of defective polybutylene service laterals, but has been restructured to encompass the replacement of all types of service laterals.

The District responds to 4 to 5 service lateral failures each day (classified as emergency replacements). The majority of this work involves replacing defective polybutylene laterals that were installed during the 1970s and 1980s. A large portion also involves replacing corroding copper laterals that were installed during the 1990s.

The District recognizes the need to identify and replace laterals within areas that have suffered high failure rates. This project continues the practice of pre-emptively replacing polybutylene and copper service laterals where cost-effective opportunities arise. Pre-emptive service lateral replacements is estimated at 300-400 planned replacements (300 services for FY18-19, and 400 services for FY20-21 and thereafter).

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Unplanned Svc Repls	15,941,000	65,671,000	40,856,000	122,468,000
Planned Copper Svc Repls	2,754,000	15,019,000	10,486,000	28,259,000
Planned Polybutylene Svc Repls	2,270,000	3,831,000	0	6,101,000

Appropriations:	
Prior Years	$ 207,731,000
2020	$ 24,844,000
2021	$ 16,116,000
2022	$ 16,052,000
2023	$ 14,124,000
2024	$ 13,385,000
Future Years	$ 51,342,000
Total Cost	**$ 343,594,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: So Oakland Hills Cascades PZI **Project Number:** 2003493

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

The project is needed to replace aging infrastructure, improve water quality, and improve operating efficiency and reliability in the South Oakland Hills Cascades Pressure Zone, which has excess storage capacity causing low reservoir turnover. The project will improve the level of service and reduce long-term operation and maintenance costs.

Description:

The South Oakland Hills Cascades Pressure Zone Improvements (PZI) is a detailed master plan that identified a series of projects within the South Oakland Hills, including Palo Seco, Madrone, City Line, Country Club and Peralta Pressure Zones. Work under this project includes 4,700 feet of 16-inch pipeline between May Reservoir and a new Peralta Regulator.

Projects to be implemented under other infrastructure rehabilitation programs include demolition of May Pumping Plant, Peralta Reservoir, Peralta Pumping Plant and 1.5 miles of discharge pipeline; installation of a new Peralta Regulator; replacement of the 2.3 million gallon (MG) Country Club Reservoir with a 0.9 MG reservoir; construction of a second 0.7 MG May Reservoir; replacement of the 0.9 MG City Line Reservoir with a 0.4 MG reservoir; replacement of the 1.8 MG Palo Seco Reservoir with dual 0.8 MG reservoirs; replacement of the 2.8 MG Madrone Reservoir with a 1.2 MG reservoir; and increasing capacities of the Country Club, City Line, Madrone, and Palo Seco PPs. Interim operating plans were developed to improve conveyance and fire flows, and size reservoirs and pumping plants commensurate with demands in the area as part of the master plan.

In FY19, design was completed for the pipeline between May Reservoir and the new Peralta Regulator. Construction of the 4,700 feet of 16-inch pipeline is scheduled for FY20.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Country Club-Peralta PZI	3,058,000	0	0	3,058,000
South Oakland Hills Master Pl	221,000	70,000	0	291,000

Appropriations:	
Prior Years	$ 3,279,000
2020	$ 70,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 3,349,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-21

Capital Improvement Program - Project Summary

Project: Summit Pressure Zone Improve **Project Number:** 2001457

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

Summit Pressure Zone has hydraulic (transmission) issues, excess storage that creates water quality issues, and aging facilities that require significant maintenance and the mitigation of hazardous materials. The projects will address regulatory requirements, improve level of service, and reduce long-term operation and maintenance costs.

Description:

This project includes the replacement of Berryman and Summit Reservoirs, Woods and Shasta Pumping Plants, and a new proposed Lawrence Reservoir, all located in Berkeley.

Construction of the Summit Reservoir and Woods and Shasta Pumping Plants replacement was completed in FY19.

This project also includes a study to be performed in FY21 to determine the required storage at the proposed Lawrence Reservoir site in Strawberry Canyon and the existing Woods Reservoir site. Based on the results of the study, the Lawrence Reservoir would include negotiations with the Lawrence Berkeley National Laboratory and the University of California concerning candidate reservoir sites in FY22, followed by environmental reviews in FY23-24, and design and construction of a new reservoir in FY27-28.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Lawrence Tank Des & Construct	0	0	16,700,000	16,700,000
Pressure Zone Improvemnt Study	2,604,000	0	0	2,604,000

Appropriations:	
Prior Years	$ 40,259,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 16,700,000
Total Cost	**$ 56,959,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-28

Capital Improvement Program - Project Summary

Project: Tice Pumping Plant **Project Number:** 2001476

Strategy: Extensions and Improvements **Program:** Water Trmt and Trans Impr

Justification:

The project is needed to correct hydraulic and water quality issues in the Colorados Pressure Zone, and to use available capacity from the Walnut Creek Water Treatment Plant (WTP) instead of the Lafayette WTP. The project will improve level of service and reduce long-term operation and maintenance costs.

Description:

This project includes a new 10 million gallon per day Tice Pumping Plant (PP) in Walnut Creek and approximately 2,700 feet of 20-inch inlet pipeline. The Tice PP project will allow for rezoning of the Tice area of the Colorados Pressure Zone into a new Tice Pressure Zone. Facility sizing will be finalized in FY22 using results from the 2050 Demand Study, and design is scheduled for FY23-24 followed by construction in FY24-26.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Tice PP and I/O Pipeline	888,930	19,179,330	0	20,068,260

Appropriations:	
Prior Years	$ 888,930
2020	$ 0
2021	$ 0
2022	$ 19,179,330
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 20,068,260**

Lead Dept: ENG

Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 30-Jun-26

Capital Improvement Program - Project Summary

Project: Trans Main Cathodic Protection **Project Number:** 003026

Strategy: Maintaining Infrastructure **Program:** Corrosion

Justification:

Transmission mains and large diameter pipelines constitute the District's costliest pipelines. Many cathodic protection systems have reached the end of their useful life and need rehabilitation to continue to control pipeline corrosion and prevent leaks and breaks.

Description:

This project will investigate and prioritize cathodic protection (CP) upgrades for transmission mains and large diameter pipelines, and reconfigure existing, but obsolete CP systems.

In FY18-19, a replacement anode well for the Southern Loop Pipeline was designed, and the CP system evaluations were completed for the Southern Loop Pipeline, USL South 30 Pipeline, Freeport Pipeline, Briones/Orinda Aqueducts and the Walnut Creek/San Ramon Valley Transmission Pipelines.

In FY20-24, CP systems for the Upper San Leandro Raw Water Pipeline and the South 30 Aqueduct will be replaced, and replacement of galvanic anodes on a District-wide basis will commence on plastic-coated steel transmission mains.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Transmission Mains Cathodic Pr	3,434,000	4,262,000	6,268,000	13,964,000

Appropriations:	
Prior Years	$ 3,434,000
2020	$ 791,000
2021	$ 821,000
2022	$ 851,000
2023	$ 883,000
2024	$ 916,000
Future Years	$ 6,268,000
Total Cost	**$ 13,964,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Treatment Plant Upgrades **Project Number:** 000437

Strategy: Water Quality **Program:** Water Treatment Upgrade

Justification:

The project is needed to comply with water quality regulations and to improve the operation, reliability and safety of the water treatment plants (WTPs).

Description:

Work completed in FY18-19 included construction of new ozone systems at the Sobrante and Upper San Leandro (USL) WTPs; filter rehabilitation and sodium hypochlorite system replacement at the Orinda WTP; and rehabilitation of old filters and solids handling improvements at the Walnut Creek WTP.

In FY20-24, planned improvements at six water treatment plants include: (1) Orinda WTP - disinfection improvements, including UV and a chlorine contact basin (CCB), and adding a filter air scour system; (2) USL WTP - renovating the solids removal, spent washwater reclamation, and solids handling systems; (3) Sobrante WTP - adding new spent washwater reclamation and solids handling systems, and installing an oxygenation/mixing system in the San Pablo Reservoir to improve water quality; (4) Walnut Creek WTP - rehabilitating Filters 1-4 and initiating the addition of pretreatment for half of the plant and ozone; (5) Lafayette WTP - upgrading the control system and resolving mechanical and structural issues; and (6) San Pablo WTP - upgrading the control system and resolving mechanical and structural issues prior to operation during the Orinda Disinfection (UV/CCB) Project shutdown. Additional work in FY20-24 includes improving the chemical system safety at the five WTPs and upgrading the controls systems at USL and Sobrante WTPs.

Planned work in FY25-28 includes completing construction of Phase I of the Walnut Creek WTP pre-treatment system, and the Sobrante WTP Maintenance and Reliability Improvements.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Orinda WTP	67,597,000	96,200,000	0	163,797,000
WTP Work - Multiple Locations	43,813,102	31,000,000	0	74,813,102
Sobrante WTP	31,074,000	25,500,000	0	56,574,000
USL WTP	20,961,100	26,200,000	0	47,161,100
Walnut Creek WTP	8,150,000	0	0	8,150,000
San Pablo WTP	3,960,000	2,300,000	0	6,260,000
Lafayette WTP	5,044,000	0	0	5,044,000

Appropriations:	
Prior Years	$ 256,211,032
2020	$ 150,200,000
2021	$ 31,000,000
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 437,411,032**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Trench Soils Storage Sites **Project Number:** 000652

Strategy: Regulatory Compliance **Program:** Trench Spoils

Justification:

The project is needed to ensure adequate capacity for ongoing and future operations at the storage sites; continued regulatory compliance; and cost- efficient and sustainable management practices to address the generation, storage and final end use of trench soils.

Description:

Trench soils are continually generated from ongoing pipeline installations and repairs. The majority of excavated trench soils, over 40,000 cubic yards (CY) per year, are temporarily stockpiled for future reuse or disposal at three District-owned storage sites: Miller Road in Castro Valley, Briones in Orinda and Amador in San Ramon. Potentially contaminated trench soils are handled separately, sampled, and disposed of appropriately. Trench soils production will increase as more pipes are installed under the Pipeline Rebuild Program.

The project includes site management and maintenance to comply with regulatory requirements, periodic removal and reuse of trench soils, and evaluation of potential soils reduction and reuse alternatives. Work in FY18-19 included maintenance of the storage sites to meet stormwater control regulations, annual aerial survey of the sites, development of a trench soils database, removal and reuse of over 300,000 CY of trench soils from the storage sites, development of an RFP for a master plan, and development of a pilot to address the handling of vacuum slurry.

In FY20-24, work will include ongoing maintenance of the storage sites, master plan implementation, vacuum slurry pilot implementation, development of a long-term solution for handling vacuum slurry, potential purchase and planning for the use of an additional storage site, and planning of future off-haul events.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Trench Soils Management Prog	30,236,786	15,698,000	13,067,000	59,001,786

Appropriations:	
Prior Years	-
2020	$ 10,756,000
2021	$ 1,058,000
2022	$ 1,098,000
2023	$ 1,440,000
2024	$ 1,346,000
Future Years	-
Total Cost	**-**

Lead Dept: ENG
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: USL Pressure Zone Impr **Project Number:** 2001462

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

This project is needed to improve monitoring, demand management and operational efficiency in the Upper San Leandro and Aqueduct Pressure Zones, and to improve water quality in El Portal Reservoir.

Description:

This project will install bi-directional distribution system flow monitors and pressure transducers at rate control stations to better control and operate the distribution system. Design and construction of two flow monitors in the Upper San Leandro Pressure Zone are scheduled for completion by FY24.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Distribution System Monitors	479,000	310,000	0	789,000

Appropriations:	
Prior Years	$ 722,000
2020	$ 0
2021	$ 30,000
2022	$ 0
2023	$ 280,000
2024	$ 0
Future Years	$ 0
Total Cost	**$ 1,032,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-24

Capital Improvement Program - Project Summary

Project: WTTIP Distribution Improvs **Project Number:** 2003498

Strategy: Extensions and Improvements **Program:** Water Trmt and Trans Impr

Justification:

The project is needed to improve the distribution system by addressing existing and future system capacity and demand deficiencies in the Lamorinda and western Walnut Creek area. In addition, the Moraga and Fay Hill open cut reservoirs need replacement due to concerns about the reservoir lining materials that affect opererational reliability.

Description:

In FY19, design of the Happy Valley Pumping Plant (PP) in Orinda and the Sunnyside PP in Lafayette was completed. In addition, an addendum to the Water Treatment and Transmission Improvements Program Environmental Impact Report was prepared analyzing the change to replace Fay Hill PP at a new location (Rheem PP).

This project includes the following distribution system improvements in Lafayette, Orinda, Moraga and western Walnut Creek: (1) 3,900 feet of 16-inch suction/discharge pipeline and a new 3.2 million gallon per day (MGD) Happy Valley PP, along with a new 1.5 MGD Sunnyside PP in FY20-21; (2) replacement of the 1.6 MGD Fay Hill PP with a 2.6 MGD pumping plant and 3,700 feet of 12-inch suction/discharge pipeline in Rheem Boulevard in Moraga in FY21-23; and (3) a new 2.0 million gallon (MG) Ardith Reservoir and a replacement 1.3 MGD Donald PP in Orinda in FY24-25.

The project also includes: (1) 1,525 feet of 12-inch pipeline in Glen Road and Nordstrom Lane in Lafayette in FY20, which allows for the decommission of Glen Reservoir in FY22; and (2) a 3.0 MGD Withers PP in Lafayette in FY27-28. Beyond FY29, work includes replacement of the Fay Hill Reservoir with two 0.75 MG reservoirs, and replacement of the Moraga Reservoir with a 6.6-MG reservoir.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Happy Valley PP and Pipeline	16,175,547	1,252,358	0	17,427,905
Ardith Reservoir/Donald PP	8,946,525	2,809,475	0	11,756,000
Withers Pumping Plant	455,000	0	7,821,000	8,276,000
Fay Hill Pumping Plant Upgrade	5,175,000	1,225,000	0	6,400,000
Fay Hill Pipeline	328,350	3,034,000	0	3,362,350
Glen Pipeline & Res Decommiss	1,132,050	922,000	0	2,054,050

Appropriations:	
Prior Years	$ 38,979,978
2020	$ 6,433,358
2021	$ 0
2022	$ 2,809,475
2023	$ 0
2024	$ 0
Future Years	$ 43,834,000
Total Cost	**$ 92,056,811**

Lead Dept: ENG
Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 30-Jun-40

Capital Improvement Program - Project Summary

Project: WTTIP WTP Improvements **Project Number:** 2003499

Strategy: Extensions and Improvements **Program:** Water Trmt and Trans Impr

Justification:

The project is needed to meet existing and future water demands in the Lamorinda and western Walnut Creek area, to meet future water quality standards when treating a diversified water supply, to comply with environmental permit conditions, and to replace and upgrade aging infrastructure.

Description:

This project includes upgrades to the Water Treatment Plant (WTPs). In FY19, construction was completed for the Upper San Leandro WTP and Sobrante WTP ozone upgrades. This project also includes the East of Hills System Study, a Contra Costa Water District (CCWD) Intertie, Walnut Creek Aqueduct, Orinda Aqueduct, Castro Valley Pumping Plant (PP) and Rate Control Stations (RCSs), and Lafayette WTP Decommissioning. The East of Hills System Study will be completed in FY21 and will study the decommissioning of the Lafayette WTP and new facilities that can provide treated water supply to the East of Hills during an outage of the Walnut Creek WTP. A new intertie between CCWD and the Leland Pressure Zone will provide backup treated water to the East of Hills with design scheduled for FY23-24 and construction in FY24-26.

The Walnut Creek Aqueduct will convey treated water from the Walnut Creek WTP to the Lafayette WTP with design scheduled for FY23-25, and construction in FY26-29. The Orinda Aqueduct will convey treated water from Orinda WTP to Lafayette WTP or vice versa so that Walnut Creek or Orinda WTPs could supply water to each other during outages with design scheduled for FY26-28, and construction in FY29-32. The Castro Valley PP and two RCSs provide the ability to pump water east through the Southern Loop Pipeline with design scheduled for FY23-24 and construction in FY25-26.The Lafayette WTP Decommissioning has a four year planning study in FY29-32 to identify future property needs, develop a site plan and complete environmental review, followed by design and construction.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Orinda Aqueduct	0	1,900,000	257,900,000	259,800,000
Walnut Creek Aqueduct	0	141,300,000	0	141,300,000
Castro Valley PP and RCSs	0	28,050,000	0	28,050,000
CCWD Interties	0	9,035,000	0	9,035,000
Lafayette WTP Decom. Impr.	0	0	4,362,000	4,362,000
East of Hills System Study	2,327,000	34,000	0	2,361,000

Appropriations:	
Prior Years	$ 22,114,409
2020	$ 34,000
2021	$ 3,439,000
2022	$ 0
2023	$ 174,946,000
2024	$ 1,900,000
Future Years	$ 262,262,000
Total Cost	**$ 464,695,409**

Lead Dept: ENG
Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 30-Jun-34

Capital Improvement Program - Project Summary

Project: Water Demand Projection Update **Project Number:** 2001472

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

Long-term water supply demand projections are required for distribution system facility sizing, water supply assessments for large developments, updates to the Urban Water Management Plan and Water Supply Management Plan, and other planning needs such as facility outages.

Description:

This project tracks and updates District-wide water demand forecasts. A detailed update is completed approximately every 10 years, followed by a mid-cycle update five years later. The upcoming detailed update, called the 2050 Demand Study, will be completed in FY20 and will project demands to the year 2050. A mid-cycle update will be completed in FY24. The project also includes annual tracking of actual water demands compared to forecasts.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Demand Study Update	1,490,000	546,000	1,883,000	3,919,000

Appropriations:	
Prior Years	$ 1,490,000
2020	$ 546,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 1,883,000
Total Cost	**$ 3,919,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-40

Capital Improvement Program - Project Summary

Project: West of Hills Master Plan **Project Number:** 2001475

Strategy: Extensions and Improvements **Program:** Pressure Zone Improvements

Justification:

The project is needed to improve water transmission and water treatment plant capacities to address deficiencies and meet future water demands in the West of Hills distribution system, and decommission the San Pablo Water Treatment Plant (WTP). Also, the Fontaine Pumping Plant (PP) in Oakland is located close to the Hayward Fault and needs to be relocated.

Description:

The West of Hills (WOH) Master Plan is a comprehensive regional plan that addresses water treatment plant storage and transmission capacity for the west of hills area, focusing on the Central, Aqueduct and Upper San Leandro Pressure Zones.

The WOH Master Plan recommended improvements at three water treatment plants; two pumping plants; five water storage reservoirs; and approximately 120,000 feet of transmission pipelines. In FY19, an additional project was recommended to decommission the San Pablo WTP.

Individual projects will be grouped together into several Environmental Impact Reports (EIRs), Mitigated Negative Declarations (MNDs), and Notice of Exemptions (NOEs). In FY19, planning was started on the Wildcat PP MND, Fontaine PP MND, Sobrante WTP Supplemental EIR, and WOH Central Pipelines EIR.

In FY19, design was completed on the Wildcat Aqueduct (Berkeley and El Cerrito) Pipeline improvements, which includes 5,450 feet of 48-inch pipeline and 13,500 feet of 36-inch pipeline, with construction scheduled in FY20-21. FY20-25 also includes replacement of the 82nd St Rate Control Station (RCS), Crockett PP Regulator, Wildcat PP, new Fontaine PP, North Wildcat Aqueduct Pipeline improvements, and Sequoia Aqueduct Pipeline improvements.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Sequoia Aq Pipeline Impr.	0	78,421,000	0	78,421,000
Central North Pipeline Impr.	37,272,000	23,972,000	0	61,244,000
No. & So. Wildcat Aq Pipe Impr	33,707,493	12,434,000	0	46,141,493
Wildcat Pumping Plant	0	10,863,000	23,480,000	34,343,000
South 30 Pipeline Impr.	0	0	32,262,000	32,262,000
Genoa Pipeline	0	0	24,816,000	24,816,000
Relocate Fontaine PP	13,266,000	11,018,000	0	24,284,000
West of Hills EIRs	7,742,430	172,000	4,896,000	12,810,430

Appropriations:	
Prior Years	$ 92,972,923
2020	$ 14,871,000
2021	$ 89,439,000
2022	$ 10,863,000
2023	$ 0
2024	$ 23,972,000
Future Years	$ 515,186,000
Total Cost	**$ 747,303,923**

Lead Dept: ENG

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-40

Capital Improvement Program - Project Summary

Project: Contingency Project Water **Project Number:** 001300

Strategy: Non-Program Specific **Program:** Non-Program Specific

Justification:

This project is required to ensure quick response to unforeseen hazards and emergency situations. Rapid response is critical for maintaining regulatory compliance, public safety, employee safety or addressing other unanticipated essential needs.

Description:

This is an ongoing project to provide funding for unanticipated needs which arise before the next budget preparation cycle. Typical examples of such needs include replacement or repairs to facilities and equipment as a result of failures or safety deficiencies, and new projects or the acceleration of planned projects requiring funding before the next budget cycle.

This project also sets aside funds for various projects in the event that grant funding is received such as habitat enhancement and restoration, watershed fencing and trails, Bay Area Regional Desalination Project, water conservation projects, raw water improvements, and East Bayshore recycled water.

In FY20, funds have been set aside for two possible large scale photovoltaic (PV) projects up to 8 MW on District property. In FY20-21, funds have been set aside for the possible replacement of paving rollers and a dump truck for Aqueduct staff. In FY21-22, funds have been set aside for the possible development of additional office and warehouse space at the Oakport facility.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Contingency Proj Water	28,400,111	0	0	28,400,111

Appropriations:	
Prior Years	-
2020	$ 5,502,000
2021	$ 3,061,500
2022	$ 23,000,000
2023	$ 0
2024	$ 0
Future Years	-
Total Cost	**-**

Lead Dept: FIN
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Data & Telecom Infrastructure **Project Number:** 000363

Strategy: Facilities, Servc and Equip **Program:** Communications

Justification:

The District supports a myriad of disparate, older phone systems interconnected via a Centrex-Mate service offering. This project provides a single, geographically redundant and manageable telecommunications service to District staff.

Description:

This project upgrades the networking cables, equipment and telephony circuits at office locations outside of the Administration Building to implement a Voice over IP (VoIP) phone system.

Currently, the Administration Building, Pardee, Stockton, Mokelumne, and various departments at the Adeline Maintenance Center are utilizing VoIP phone technology. The VoIP phone system implementation requires the existing network cabling be brought up to specification, and the replacement of network switches, voice gateways and telephony circuits. The project is expected to be completed in FY23.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Phone Infrastructure Upgrade	430,000	0	0	430,000

Appropriations:	
Prior Years	$ 3,602,756
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 3,602,756**

Lead Dept: ISD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-23

Capital Improvement Program - Project Summary

Project: FIS / MMIS Replacement **Project Number:** 2003539

Strategy: Facilities, Servc and Equip **Program:** Communications

Justification:

The Financial Information System is a PeopleSoft product that is no longer supported and is difficult to maintain. A new purchasing/accounting/inventory system will reduce the risk of system failure, reduce vendor dependence, and improve system integration with other District applications.

Description:

This project is a joint effort of the Finance, Information Systems, and user departments to replace both the Financial Information System (FIS) and the Materials Management Information System (MMIS) with a new financial, budget, procurement and vendor management system to reduce risks associated with vendor dependence. Evaluating and selecting a replacement alternative and vendor was completed in FY19, along with an implementation plan. The FIS replacement alternative was evaluated along with the MMIS replacement to ensure the necessary functionality between the systems is addressed. Implementation of the new system will take place in FY20-22.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
FIS/MMIS Implementation	7,650,000	7,500,000	0	15,150,000

Appropriations:	
Prior Years	$ 8,959,155
2020	$ 7,500,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 16,459,155**

Lead Dept: ISD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-22

Capital Improvement Program - Project Summary

Project: HRIS Replacement **Project Number:** 2003543

Strategy: Facilities, Servc and Equip **Program:** Communications

Justification:

The PeopleSoft Human Resources Information System is reaching the end of its useful life and support for the product is winding down. Loss of support would increase the risk of failure of the District's HR functions and make it difficult to implement required tax and regulatory updates.

Description:

This project is a joint effort of the Information Systems, Human Resources and user departments to replace the Human Resources Information System (HRIS), using the best of breed replacement approach which allows for selection and implementation of HRIS modules rather than the entire system in one effort. Documenting high-level requirements for all modules took place in FY18 and will facilitate the sequencing of system module replacement. Preparing a Requests for Proposals, evaluating and selecting alternatives, and implementing the new system modules will take place in FY20-22.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Implementation	6,000,000	900,000	0	6,900,000
Evaluation Option Selection	1,200,000	600,000	0	1,800,000

Appropriations:	
Prior Years	$ 7,200,000
2020	$ 1,500,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 8,700,000**

Lead Dept: ISD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-22

Capital Improvement Program - Project Summary

Project: Work Mgmt Systems Replacement **Project Number:** 2009564

Strategy: Facilities, Servc and Equip **Program:** Communications

Justification:

The existing environment consists of multiple standalone applications that are written in outdated languages and provide overlapping functionality. This project consolidates the functionality into a single application that will minimize maintenance and improve the ability to leverage information between work groups to ensure a reliable system for field maintenance work.

Description:

This project is a joint effort of Information Systems, Operation Maintenance and user departments to replace the group of work management systems (WMS) which include the general work order system, concrete order system, paving order system and the asset and infrastructure management system. The District supports multiple WMS applications that are written in outdated software and difficult to maintain. Evaluating and selecting replacement alternatives is scheduled for FY19-20, followed by creating an implementation plan, selecting a vendor and implementing a new WMS in FY20-22.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Implementation	1,500,000	2,400,000	0	3,900,000
Evaluation Option Selection	200,000	650,000	0	850,000

Appropriations:	
Prior Years	$ 1,700,000
2020	$ 3,050,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 4,750,000**

Lead Dept: ISD

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-22

Capital Improvement Program - Project Summary

Project: Diesel Engine Retrofit **Project Number:** 1002588

Strategy: Facilities, Servc and Equip **Program:** Vehicle/Equipment

Justification:

The California Air Resources Board establishes and enforces regulations for air emissions. Not being in compliance with established deadlines can result in fines and civil actions against the District.

Description:

This project will install Best Available Control Technology (BACT) on off-road, on-road, portable and stationary diesel engines to comply with air quality regulations.

All portable diesel engines greater than 50 HP must meet regulations for diesel particulate matter. A single portable diesel electric generator is scheduled for replacement in FY21.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Portable Pump & Generator Repl	5,353,000	0	0	5,353,000

Appropriations:	
Prior Years	$ 16,528,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 16,528,000**

Lead Dept: MCD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-21

Capital Improvement Program - Project Summary

Project: Facility Paving Project **Project Number:** 000089

Strategy: Maintaining Infrastructure **Program:** Reservoir Rehab Program

Justification:

This project ensures safe access to distribution reservoirs for District and non-District individuals who use these roads. Deteriorated roads limit access for staff that operate and maintain the distribution reservoirs.

Description:

This project maintains and replaces distribution reservoir access roads and other facility roads and parking areas.

Planned work in FY20-24 includes paving repairs and replacements for reservoir access roads, Adeline Maintenance Center facilities, and Service Yards.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Facility Paving	0	2,410,000	1,050,000	3,460,000

Appropriations:	
Prior Years	$ 2,524,909
2020	$ 780,000
2021	$ 525,000
2022	$ 725,000
2023	$ 230,000
2024	$ 150,000
Future Years	$ 1,050,000
Total Cost	**$ 5,984,909**

Lead Dept: MCD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Fueling Facility Upgrades **Project Number:** 1002589

Strategy: Facilities, Servc and Equip **Program:** Vehicle/Equipment

Justification:

This project is required to replace existing equipment that is at the end of its useful life cycle. Most of the fuel dispenser units that will be replaced were installed in 1985 and are over 30 years old. There have been numerous service calls for repairs to these facilities.

Description:

This project includes planning, design and construction to upgrade District fueling facilities. FY18-19 accomplishments include upgrading the automated fuel management system at thirteen sites to improve the District's ability to track fuel usage and vehicle mileage, and replacing the fuel dispensers at five fueling sites. Improvements scheduled for FY20-23 include replacing fuel dispensers at sixteen sites, and installing the Enhanced Vapor Recovery Phase II equipment for the above ground storage tanks.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Fuel Facility Major Upgrades	7,337,000	2,500,000	0	9,837,000
Fuel Facility Improvements	1,929,000	930,000	0	2,859,000

Appropriations:	
Prior Years	$ 9,266,000
2020	$ 2,765,000
2021	$ 565,000
2022	$ 100,000
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 12,696,000**

Lead Dept: MCD

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Nov-23

Capital Improvement Program - Project Summary

Project: Meter Replacements **Project Number:** 000738

Strategy: Maintaining Infrastructure **Program:** Pipelines/Appurtenances

Justification:

Meters need to be replaced periodically to accurately record water use and bill customers. Meter boxes need to be replaced periodically to eliminate tripping liability. New meter installation costs are included as part of the new service installation cost.

Description:

This is an ongoing project to replace water meters and meter boxes at the end of their useful life, and to replace meters that are believed to be reading inaccurately. In FY18, approximately 15,200 residential meters, 300 small commercial meters and 10 large commercial meters were replaced. An estimated total of 16,000 meters are expected to be replaced in FY19. In future years, replacements will be increased to 20,500 meters to improve reading accuracy.

Also under this project, 300 meters that were difficult or dangerous to read were replaced in FY18 with automated electronic meters under a meter reading mitigation program.

In FY18-19, 10,000 meters were replaced with an integrated system of smart meters under the new Advanced Metering Infrastructure (AMI) pilot project for which the District has received a grant. The project also includes equipment to collect data from these automated meters.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Planned Meter Replacements	23,198,457	21,437,300	36,420,000	81,055,757

Appropriations:	
Prior Years	-
2020	$ 4,091,600
2021	$ 4,129,400
2022	$ 4,272,700
2023	$ 4,420,600
2024	$ 4,523,000
Future Years	-
Total Cost	**-**

Lead Dept: MCD

Recurring: Yes

Funding:

BOND/REV	93%
GRANTS	7%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Minor Facility Improvements **Project Number:** 1002676

Strategy: Facilities, Servc and Equip **Program:** Area Service Center/Bldg Prog

Justification:

Each year various relatively low-cost capital improvements and modifications to existing facilities are required. Most involve equipment or structural problems impacting facility integrity, or health and safety issues.

Description:

This project consists of low-cost capital improvements to existing facilities that do not require extensive planning or design, or justify a stand alone project. The project also includes cost sharing with the Wastewater System for laboratory upgrades and equipment.

In FY20, projects will include replacing HVAC equipment at the Adeline Maintenance Center (AMC) administration building; lighting upgrades at the AMC Campus; repaving of the AMC Administration parking area; shear and brake press replacements; and the rehabilitation of two kitchenettes at the main Administration Building.

In FY21, projects will include paving and striping of the AMC Shops parking area; HVAC equipment replacement at AMC Shops building; paving and striping at two area yards; and the rehabilitation of six kitchenettes at the main Administration Building.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Laboratory Upgrds-Waterside	2,068,700	5,285,000	0	7,353,700
Minor Facilities Work	2,847,689	3,362,000	0	6,209,689

Appropriations:	
Prior Years	-
2020	$ 6,130,000
2021	$ 765,000
2022	$ 520,000
2023	$ 820,000
2024	$ 412,000
Future Years	-
Total Cost	**-**

Lead Dept: MCD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: OP/NET System **Project Number:** 000628

Strategy: Extensions and Improvements **Program:** OP/NET

Justification:

The OP/NET System is necessary for the operation of the water system. The Remote Terminal Units (RTU) have reached the end of their useful life, and replacing and upgrading system components is necessary to maintain system reliability. The Supervisory Control and Data Acquisition (SCADA) system needs continuous upgrades to ensure its reliability and security.

Description:

This project consists of ongoing component upgrades and replacements for the OP/NET System to ensure that it reliably obtains water system information and reports process data to system operators, engineers and planners. The OP/NET System includes the Security System, SCADA system at more than 20 locations, wired and wireless communication networks, monitoring and control equipment at over 300 facilities, and distributed control systems to provide operations staff with the ability to control and monitor water production, treatment, distribution, hydroelectric power generation and field facilities.

In FY18-19, the SCADA system was upgraded with new software and hardware; high speed SCADA communication lines and industrial network routers were added; the wireless broadband communications network was expanded; and 30 RTUs were replaced. The Distributed Control Systems at Sobrante and Walnut Creek Water Treatment Plants were upgraded. In addition, a cyber security vulnerability assessment was performed on our Industrial Control System (ICS) that includes water control, building management control, centralized security, and wastewater control systems. The majority of the cyber security mitigation recommendations were completed in FY19.

In FY20-24, upgrade of the SCADA system will continue, and deployment of additional wireless communication and security/network equipment will coincide with the RTU replacement project. Also, ICS cyber security hardening will continue.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Op/Net Sys Improvements	12,287,000	3,449,000	4,527,700	20,263,700
Recurring Op/Net Improvements	5,752,200	2,270,000	5,840,000	13,862,200
Control System Improvements	2,078,100	2,052,000	3,531,000	7,661,100

Appropriations:	
Prior Years	-
2020	$ 1,083,000
2021	$ 1,017,000
2022	$ 1,902,000
2023	$ 1,968,400
2024	$ 1,800,600
Future Years	-
Total Cost	**-**

Lead Dept: MCD

Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Pipeline Appurtenances **Project Number:** 000218

Strategy: Maintaining Infrastructure **Program:** Pipelines/Appurtenances

Justification:

Inoperable water main appurtenances can cause distribution system outages or extend the duration of system outages, adversely affecting customers. Replacement of these appurtenances improves system reliability. This project also includes corrective maintenance on the valves and appurtenances throughout the distribution system.

Description:

This is an ongoing project to replace distribution system isolation valves, blow-off assemblies, air valves and other appurtenances that have reached the end of their useful lives, or no longer meet current installation practices. A goal is to inspect and operate 10% of distribution valves annually. The Large Valve Master Plan has identified a number of appurtenances that need to be upgraded to ensure system reliability. In FY17-18, 51 appurtenances, and 45 gate valves were replaced.

In FY17-18, 1,087 gate valve pots were upgraded to G-5's which allow improved access during emergency and routine valve operations and are safer for workers to remove. This level of replacement has continued to increase due to increased funding within cities and counties for paving restoration and street reconstruction.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Annual Appurtenance Work	12,645,970	6,526,000	15,727,000	34,898,970

Appropriations:	
Prior Years	-
2020	$ 1,238,000
2021	$ 1,275,000
2022	$ 1,313,000
2023	$ 1,350,000
2024	$ 1,350,000
Future Years	-
Total Cost	**-**

Lead Dept: MCD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Small Capital Improvements **Project Number:** 2006310

Strategy: Maintaining Infrastructure **Program:** Pumping Plant Rehabilitation

Justification:

This project replaces critical electrical, mechanical, instrument, and structural components at distribution and treatment facilities that have reached the end of their useful life. Failure of the components can affect water service to customers, fire suppression capability and water quality.

Description:

This project provides small, urgent capital improvements to maintain the reliability and safety of pumping plants, reservoirs, regulators, treatment plants, rate control stations, and administration buildings. There are 425 of these facilities, of which 135 have improvements scheduled in the Infrastructure Rehabilitation Plan (IRP). This project provides improvements and the accelerated replacement of failed or unreliable components in some of the 135 facilities slated for eventual rehabilitation. Such improvements are smaller in scale than the typical project under the IRP.

Major projects completed in FY18-19 include the replacement of the emergency generator at Lafayette Water Treatment Plant (WTP); installation of 10-year roofs on Leland and Almond Reservoirs; purchase of six large replacement valves for pumping plants; repair of the Administration Building roof track and carriage system; and repair or replacement of motors at Summit North (El Cerrito), Bryant No. 1 (Lafayette), Danville No. 1 (Danville), Maloney (El Sobrante), Blackhawk East (Danville), and several other smaller pumping plants.

Planned projects for FY20-21 include replacement of electrical components at 10 to15 pumping plants. Other projects include repair and replacement of motors, valves, piping, instrumentation, retaining walls and roofs at various pumping plants, water treatment plants, regulators and rate control stations.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Small Capital Improvements	12,490,958	9,569,687	18,555,739	40,616,384
Pump Rebuild	0	1,755,732	0	1,755,732

Appropriations:	
Prior Years	$ 14,784,351
2020	$ 0
2021	$ 2,254,269
2022	$ 2,913,110
2023	$ 3,022,351
2024	$ 3,135,689
Future Years	$ 18,555,739
Total Cost	**$ 44,665,509**

Lead Dept: MCD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-40

Capital Improvement Program - Project Summary

Project: Upcountry WW Trmt Imprvmts **Project Number:** 1000816

Strategy: Regulatory Compliance **Program:** Remediation

Justification:

Improvements to the upcountry wastewater systems are needed to protect the environment from spills and overflows, and to maintain permit requirements issued by the California Regional Water Quality Control Board.

Description:

The Upcountry Wastewater Improvement Program includes multiple projects to upgrade the wastewater collection systems and the treatment and disposal systems serving the Pardee and Camanche facilities. An Upcountry Utility Infrastructure Master Plan recommends upgrading the existing collection facilities to meet new regulatory requirements. In FY18-19 there were no capital projects competed.

FY20-21 priorities include design and construction of the sewer collection system improvements for all remaining areas at Camanche South Shore (CASS). Design and construction for comprehensive improvements to the collection system at Camanche North Shore (CANS) will take place in FY21-22. Design and construction for the remainder of the collection systems at Pardee Center (PACT) and Pardee Recreation Area (PARA) will take place in FY23-24.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Collection System Improvements	9,000,061	18,985,000	500,000	28,485,061

Appropriations:	
Prior Years	$ 21,057,000
2020	$ 11,000,000
2021	$ 0
2022	$ 0
2023	$ 4,985,000
2024	$ 3,000,000
Future Years	$ 500,000
Total Cost	**$ 40,542,000**

Lead Dept: MCD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-26

Capital Improvement Program - Project Summary

Project: VA Security System Imprmts **Project Number:** 1005899

Strategy: Facilities, Servc and Equip **Program:** Security

Justification:

The District seeks to maintain a level of security at its facilities to provide a secure workplace; maintain safe and reliable water and wastewater services; ensure compliance with federal, state, and local regulations; and to prevent or mitigate potential damage or loss of assets.

Description:

This project includes planning, design, and construction of critical security improvements recommended in the Security Vulnerability Assessment. FY18-19 accomplishments included the installation of new security improvements at South Yard in San Lorenzo and miscellaneous security improvements to various facilities.

Work in FY20-24 includes security improvements for six water treatment plants; Pardee and Camanche Area Control Centers and Powerhouse Warehouses; key pumping plants, reservoirs and distribution facilities; Castenada (San Ramon) and South Yards; and miscellaneous security improvements to various facilities as needed to address regulatory requirements and personnel safety concerns. Future work includes security improvements at the aqueduct and distribution facilities.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Admin Yard Facilities	12,394,500	0	0	12,394,500
Water Treatment Facilities	6,966,200	1,500,000	2,800,000	11,266,200
Distribution Facilities	3,773,500	2,850,000	800,000	7,423,500
Security VA Program Support	2,800,000	1,950,000	300,000	5,050,000
Aqueduct Watershed Facilities	230,000	450,000	1,000,000	1,680,000
Op Sec Improvements	226,000	839,000	187,000	1,252,000
Upcountry Facilities	306,600	150,000	0	456,600

Appropriations:	
Prior Years	$ 26,696,800
2020	$ 906,000
2021	$ 511,000
2022	$ 1,668,000
2023	$ 2,124,000
2024	$ 2,530,000
Future Years	$ 5,087,000
Total Cost	**$ 39,522,800**

Lead Dept: MCD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Veh & Hvy Equip Additions, Wtr **Project Number:** 000528

Strategy: Facilities, Servc and Equip **Program:** Vehicle/Equipment

Justification:

Providing staff with the necessary equipment enhances the District's ability to ensure field productivity, and result in reduced operating costs by limiting the need to rent equipment.

Description:

This is an ongoing project to acquire additions to the fleet resulting from new positions that require a vehicle to perform necessary job responsibilities, or changing demands on the existing work force and redirection of priorities.

In FY20-21, the District will purchase the necessary equipment to outfit additional staff including new pipeline rebuild crews, replace long-term leased vehicles and decrease the reliance on fully manned and operated contracts (FM&O).

Vehicles and equipment includes skid-steer loaders, compaction equipment, a backhoe, a tractor, an excavator, a dump truck, a bulldozer, utility trucks and vans, a compactor, sedans or SUVs, and concrete and saw trucks and equipment.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Trucks and Heavy Eq Additions	23,841,500	2,700,000	0	26,541,500

Appropriations:	
Prior Years	-
2020	$ 2,700,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	-
Total Cost	**-**

Lead Dept: MCD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Vehicle Replacements **Project Number:** 000526

Strategy: Facilities, Servc and Equip **Program:** Vehicle/Equipment

Justification:

The Vehicle Study indicates that the criteria for evaluating replacement needs provides the most cost-effective means of fleet management.

Description:

This is an ongoing project to replace existing vehicles and construction equipment. Under the replacement policy, all vehicles that meet or exceed specific thresholds of age, mileage or clock hours are systematically evaluated. A major consideration is the impact of equipment failure on productivity.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Fleet & Equip Repl/Purchases	94,748,635	17,770,367	0	112,519,002

Appropriations:	
Prior Years	-
2020	$ 5,000,000
2021	$ 3,370,734
2022	$ 2,874,723
2023	$ 3,868,524
2024	$ 2,656,386
Future Years	-
Total Cost	**-**

Lead Dept: MCD
Recurring: Yes

Funding: VRF 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: East Bay Watershed Rec Projs **Project Number:** 000198

Strategy: Resource Management **Program:** Watershed Recreation

Justification:

Public facilities need to be maintained; new facilities may need to be constructed; and health, safety and regulatory requirements need to be addressed in a planned and proactive manner to better serve the public and District staff.

Description:

In accordance with the East Bay Watershed Master Plan, Range and Fire plans, and regulatory requirements, work includes upgrades and enhancements to watershed land, facilities and recreation areas.

In FY18-19, completed recreation projects at the San Pablo and Lafayette Recreation Areas include: upgraded picnic areas, repaving of 3 miles of hiking trails, play structure upgrades, and upgraded rental boats and fishing docks. Completed watershed projects include 2.5 miles of watershed boundary fencing.

In FY20-24, recreation area projects include sewer system upgrades (lift station and force main), and parking control access improvements. Watershed projects include: trail staging area upgrades (including signage and paving), habitat and pond restoration, fire fuel reduction at Grizzly Peak, replacement of old fire pumps, boundary fence replacement, infrastructure upgrades at the Orinda Watershed Headquarters, and maintenance of Upper San Leandro and San Pablo Reservoir Dams as required by the Division of Safety of Dams.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Lafayette Rec Infrastructure	4,727,000	1,385,000	10,000	6,122,000
San Pablo Rec Infrastructure	2,084,993	934,000	0	3,018,993
EB Public Safety/Reg/Wtr Qual	1,989,210	540,000	0	2,529,210
EB Range/Fire Mgmt Prog Upgrds	1,327,000	310,000	130,000	1,767,000
EB Facilities/Watershed Imprvs	723,500	115,000	0	838,500

Appropriations:	
Prior Years	$ 13,183,202
2020	$ 1,250,000
2021	$ 240,000
2022	$ 527,000
2023	$ 412,000
2024	$ 855,000
Future Years	$ 140,000
Total Cost	**$ 16,607,202**

Lead Dept: NRD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-24

Capital Improvement Program - Project Summary

Project: F&W Projects and Mok Hatchery **Project Number:** 1002592

Strategy: Resource Management **Program:** Watershed Recreation

Justification:

This project is required to comply with agreements with regulatory agencies to maximize hatchery fish production, to implement measures to protect and enhance the natural (in-river) production of anadromous fish, and to implement habitat and species protection and enhancement measures required by the East Bay Habitat Conservation Plan (HCP).

Description:

This project includes the purchase and installation of equipment needed to operate the Mokelumne River Fish Hatchery (MRFH) to ensure compliance with the California Department of Fish and Wildlife operation agreement; and to meet the fisheries monitoring and assessment requirements in the Mokelumne River, Endangered Species Act listings, and Sacramento - San Joaquin Delta operations. The project also includes species and habitat protection and enhancement measures as required by the East Bay HCP.

FY20-24 planned work includes a new fish transport barge, improving the drinking water supply at the MRFH, and implementing habitat construction actions related to Water Quality Control Plan Settlement Agreement. California red-legged frog habitat enhancements, Alameda whipsnake monitoring and invasive species control will be implemented on the East Bay Watershed.

Future work plans include an in-stream fish collection system, upgrades to MRFH to meet new regulatory requirements, and installation of a passive integrated transponder tag reader to support fish monitoring requirements.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Mok River & Hatchery Equipment	1,389,198	1,575,000	150,000	3,114,198
Mok Rvr Riparian Habitat Rest	1,175,000	830,000	115,000	2,120,000
EB Habitat Conservation Plan	460,332	0	0	460,332
Hatchery Reform Measures	220,000	80,000	30,000	330,000
SL Creek Fisheries Mgmt Plan	160,000	0	0	160,000

Appropriations:	
Prior Years	$ 4,211,332
2020	$ 325,000
2021	$ 1,275,000
2022	$ 475,000
2023	$ 295,000
2024	$ 115,000
Future Years	$ 295,000
Total Cost	**$ 6,991,332**

Lead Dept: NRD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-24

Capital Improvement Program - Project Summary

Project: Mokelumne Watershed Rec HQ **Project Number:** 000158

Strategy: Resource Management **Program:** Watershed Recreation

Justification:

New fuel, warehouse and office facilities are needed due to the condition, size, and lack of critical office and crew facilities in the current headquarters.

Description:

This project replaced the Mokelumne headquarters that accommodates 22 staff with a pre-engineered modular administration building with energy efficient and sustainable features.

Phase 2 consists of a new fuel station, a back-up generator, construction of a modular warehouse/shop building, site improvements and vehicle access improvements. Planning, design, and construction of these improvements is planned for FY20-22.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Mok Watershed HQ - Phase 2	1,048,500	2,600,000	0	3,648,500

Appropriations:	
Prior Years	$ 4,159,500
2020	$ 2,600,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 6,759,500**

Lead Dept: NRD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Jan-22

Capital Improvement Program - Project Summary

Project: Mokelumne Watershed Rec Projs **Project Number:** 2008687

Strategy: Resource Management **Program:** Watershed Recreation

Justification:

Planned improvements address public safety issues and regulatory requirements for the public and staff facilities in the Mokelumne Watershed.

Description:

In accordance with the Mokelumne Watershed Master Plan, Range and Fire plans, and regulatory requirements, work includes upgrades and enhancements to watershed land, facilities and recreation areas.

In FY18-19, the boat restraining barriers and the debris booms at Pardee Reservoir were replaced and upgraded. Boundary fencing was installed/replaced on the Pardee watershed.

In FY20-24, recreation projects include boat barrier protections at Camanche Dam and spillway, cafe and retail upgrades, and repaving of primary roadways. Watershed projects include habitat restoration, hazardous tree removal, and continued boundary fence upgrade and replacement.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Mokelumne Watershed Fencing	1,240,000	600,000	1,050,000	2,890,000
Moke Facilities/Infrastructure	1,305,301	175,000	0	1,480,301
Mok Public Safety/Reg/Wtr Qual	837,200	150,000	0	987,200

Appropriations:	
Prior Years	$ 5,841,284
2020	$ 225,000
2021	$ 200,000
2022	$ 200,000
2023	$ 150,000
2024	$ 150,000
Future Years	$ 1,050,000
Total Cost	**$ 7,816,284**

Lead Dept: NRD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-40

Capital Improvement Program - Project Summary

Project: Pardee/Cam Rec Areas Impr Plan **Project Number:** 2003500

Strategy: Resource Management **Program:** Recreation Areas

Justification:

The Camanche and Pardee Recreation Areas are over 50 years old and require upgrades to the utilities, structures and traffic circulation for continued safe operations.

Description:

The Pardee and Camanche Recreation Area facilities require periodic upgrades and replacements. This project includes improvements to the roads, parking lots, fuel docks, launch ramps and docks, covered boat berths, stores, recreation halls, maintenance facilities, campgrounds, concession structures, and bathroom and shower buildings.

In FY20-21, the Camanche South Shore above ground fuel tank will be replaced to meet regulatory requirements, and the Camanche South Shore general store will be evaluated for replacement due to settling issues. Also, the piping and delivery equipment will be replaced between the fuel tanks and floating fuel dock at Camanche North Shore. At both Pardee and Camanche, upgrade of the communications networks will be pursued.

Also in FY20-21, a new vault toilet will be installed at the Pardee Recreation Area and the coffee shop will be evaluated for replacement. The restroom at Camanche South Shore Oaks Campground will be evaluated for renovation including the addition of shower facilities.

In FY22-24, major restroom replacements at both Pardee and Camanche Recreation Areas will be undertaken.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Pardee Recreation Area	6,947,312	0	0	6,947,312
Camanche Recreation Area	3,206,000	0	0	3,206,000

Appropriations:	
Prior Years	$ 10,204,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 10,204,000**

Lead Dept: NRD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-40

Capital Improvement Program - Project Summary

Project: Penn Mine Remediation **Project Number:** 001337

Strategy: Regulatory Compliance **Program:** Penn Mine

Justification:

Remediation work at Penn Mine landfill was required per a now-rescinded Environmental Protection Agency Order, and a settlement agreement with the State Water Resources Control Board. The Regional Water Quality Control Board (RWQCB) has directed the District to conduct an environmental assessment and remediation of the three mine tailing ponds.

Description:

This project evaluates and implements long-term remedial solutions for two sites: former Penn Mine and Poison Lake, with the goal of restoring the Penn Mine site to pre-mining conditions.

Recent accomplishments for Penn Mine include continued leachate removal and the bi-annual groundwater monitoring was conducted and the report delivered to the California Regional Water Quality Control Board (CA RWQCB). The report documents a downward trend in leachate production since the landfill cap was repaired in 2013. The downward trend has continued even after the extremely wet winter of 2016-17 which indicates the landfill cap repair was effective.

Planned activities for FY20-24 include continued leachate removal, continued bi-annual reporting of groundwater conditions, and removal of a weir from an onsite stream.

Recent accomplishments for Poison Lake include completion of the remediation project which involved scraping and capping surface mine waste and armoring the drainage channels with boulders and re-seeding bare areas which have now filled in with grasses The annual surface water quality monitoring was conducted and the report delivered to the CA RWQCB.

Planned activities for FY20-24 include post-remediation monitoring and surface water quality monitoring and reporting to evaluate any potential impacts from the site to the reservoir.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Penn Mine Restoration - 5A	13,841,462	85,000	595,000	14,521,462

Appropriations:	
Prior Years	$ 18,221,472
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 85,000
Future Years	$ 595,000
Total Cost	**$ 18,901,472**

Lead Dept: OSD
Recurring: No

Funding: OAG 100%

In Service Date: 30-Jun-32

Capital Improvement Program - Project Summary

Project: Water Loss Control **Project Number:** 2012651

Strategy: Maintaining Infrastructure **Program:** Pipelines/Appurtenances

Justification:

This project directly supports the District's compliance with California Senate Bill 555, Water Loss Management.

Description:

This project implements compliance measures associated with California Senate Bill 555, Water Loss Management. Planned accomplishments in FY20-24 include design and construction of water treatment plant flow meter verification pipeline vaults; completion of the District's water loss control master plan; and installation of acoustic leak detection devices.

Planned accomplishments in FY25-29 include manual leak detection surveys and annual verification of water treatment plant flow rates to improve the accuracy of the District's water audit.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Senate Bill 555 Projects	0	10,923,000	1,437,000	12,360,000

Appropriations:	
Prior Years	-
2020	$ 8,989,000
2021	$ 1,749,000
2022	$ 52,000
2023	$ 65,000
2024	$ 68,000
Future Years	-
Total Cost	**-**

Lead Dept: OSD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: 3rd St Sewer Interceptor Rehab **Project Number:** 2003554

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Interceptor concrete pipelines and structures experience sulfide-related corrosion over time. Rehabilitation of the concrete in the aging, over 60-year-old interceptor system is needed to prevent further deterioration and potential collapse, which would create a public health risk and be costly to replace.

Description:

This project includes rehabilitation of a 105" diameter segment of the South Interceptor along 3rd Street, as well as the structural rehabilitation of 14 manholes and 7 pipe reaches totaling approximately 11,000 linear feet.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
3rd St Sewer Intrcpt Rehab Ph2	15,803,000	0	0	15,803,000
Special Structures Sewer Rehab	950,000	10,100,000	0	11,050,000
Embarcadero Interceptor Rehab	0	7,900,000	0	7,900,000
2nd St Sewer Intcptr Rhb	0	0	0	0
Abandon QMS at MH S66	0	0	0	0

Appropriations:	
Prior Years	$ 24,285,667
2020	$ 4,000,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 14,000,000
Future Years	$ 0
Total Cost	**$ 42,285,667**

Lead Dept: WAS

Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-28

Capital Improvement Program - Project Summary

Project: Centrifuge Replacement **Project Number:** 000989

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Periodic replacement of the centrifuges with state-of-the-art equipment is necessary to maintain a reliable, cost-effective solids handling process.

Description:

This project provides for the cyclic replacement of centrifuges for sludge dewatering at the Main Wastewater Treatment Plant. The first centrifuge has been replaced. Two additional centrifuges are planned to be replaced in FY24-28.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Centrifuge Replacement - Ph 2	0	11,726,000	0	11,726,000
Centrifuge Replacement - Ph 3	0	0	0	0

Appropriations:	
Prior Years	$ 22,402,832
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 11,726,000
Future Years	$ 0
Total Cost	**$ 34,128,832**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-28

Capital Improvement Program - Project Summary

Project: Collection System Master Plan **Project Number:** 2006691

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Master planning for the collection system is required to identify and prioritize infrastructure renewal projects to maintain reliable operation of the wet weather facilities, pump stations, gravity interceptors, and force mains.

Description:

This project includes master plans for wastewater interceptors, pump stations, and wet weather facilities. Master planning activities include evaluating the condition of existing infrastructure, identifying future needs, and developing a prioritized rehabilitation and replacement schedule. This work will build on recent inspections and asset management activities. An update to the Interceptor Master Plan will be completed in FY24.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Interceptor Master Plan Update	0	200,000	0	200,000

Appropriations:	
Prior Years	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 200,000
Future Years	$ 0
Total Cost	**$ 200,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-24

Capital Improvement Program - Project Summary

Project: Concrete Rehab at SD1 **Project Number:** 000969

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Concrete rehabilitation must be completed to prevent degradation of structures to the point where the steel reinforcement bars are exposed, replacement costs increase significantly, and/or treatment processes are disrupted.

Description:

This project includes design and construction for rehabilitating critical concrete hydraulic structures, channels, and gates at the Main Wastewater Treatment Plant. It includes the primary sedimentation basins and channels, secondary aeration reactor basins, grit channels, and the plant effluent channel. Sulfides and other constituents in wastewater have accelerated corrosion of the concrete in these aging facilities.

Repair of the Primary Tank Channels is being conducted in six phases. The fourth phase was completed in FY18, and Phases 5 through 6 are scheduled to take place from FY19 through FY24. Repair of the secondary aeration reactor basins will be completed in four phases, including the repair of two tanks per year beginning in FY20. Inspection of the secondary clarifiers is scheduled for FY21-22.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Repair Prim Tank Channels Ph 5	13,880,000	1,000,000	0	14,880,000
Repair Reactor Basin Conc Ph 2	0	3,610,000	0	3,610,000
Repair Reactor Basin Conc Ph1	2,709,000	900,000	0	3,609,000
Repair Prim Tank Channels Ph 6	230,000	1,900,000	0	2,130,000
IPS Infl & Effl Channel Assess	200,000	0	0	200,000
Sec Clarifier Concrete Rehab	0	184,000	0	184,000
Sec Effluent Channel Assess	0	50,000	0	50,000
Repair Reactor Basin Conc Ph 3	0	0	0	0

Appropriations:	
Prior Years	$ 40,681,838
2020	$ 1,950,000
2021	$ 184,000
2022	$ 1,900,000
2023	$ 3,610,000
2024	$ 0
Future Years	$ 0
Total Cost	**$ 48,325,838**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-40

Capital Improvement Program - Project Summary

Project: DCS Upgrades **Project Number:** 1005995

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

The DCS operator and engineering workstations, servers, network equipment, and associated software require periodic upgrade to maintain reliable operations and to keep the system current.

Description:

This project will replace the Distributed Control System (DCS), including operator and engineering work stations, servers, network equipment and associated software. This work will bring the DCS up to current standards. Regular replacement will take place every four to five years. The next replacement cycle is scheduled for FY23-FY24.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
DCS Console Replacement - Ph 3	0	4,000,000	0	4,000,000
Wastewater DCS Alarm Mgmnt Sys	0	275,000	0	275,000

Appropriations:	
Prior Years	$ 10,237,263
2020	$ 275,000
2021	$ 0
2022	$ 0
2023	$ 4,000,000
2024	$ 0
Future Years	$ 0
Total Cost	**$ 14,512,263**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-24

Capital Improvement Program - Project Summary

Project: Dechlorination Facility Impmts **Project Number:** 1000800

Strategy: Regulatory Compliance **Program:** WW Regulatory Compliance

Justification:

Upgrades to the dechlorination facilities are required to ensure performance and continuous dechlorination of effluent prior to discharge to San Francisco Bay.

Description:

This project includes a variety of improvements to the dechlorination facilities including automating the dechlorination process; relocating the sampling and Sodium Bisulfite System (SBS); installing a new SBS injection/mixing system in the outfall pipeline; replacing the existing SBS storage tanks; and installing plant effluent metering to allow for automatic dechlorination control. The work is being completed in three phases.

Design for the Phase 2B work is in progress and includes seismic upgrades to the Injector Building and standby power and modification of the Distributed Control System controls for greater reliability. Phase 3 includes automation of the dechlorination process and replacement of the SBS storage tanks and is scheduled to take place in FY21- 24.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Dechlorination Facility Impr	3,382,500	4,077,000	0	7,459,500
Navy Pipeline Modifications	705,000	0	0	705,000

Appropriations:	
Prior Years	$ 4,356,500
2020	$ 4,077,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 8,433,500**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-24

Capital Improvement Program - Project Summary

Project: Digester Upgrade **Project Number:** 000987

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Loss of digesters due to corrosion of covers would adversely impact operations at the Main Wastewater Treatment Plant, and inadequate mixing and heating can hinder sludge treatment and compliance with EPA regulations.

Description:

This project includes four phases to rehabilitate 11 digesters with new fixed covers and upgraded mixing infrastructure. The second phase, rehabilitating four additional digesters, was completed in FY15.

The third phase includes seismic upgrades for the three second-stage digesters and replacing the floating covers with new dual-membrane covers. Construction is scheduled for FY20-22.

The fourth phase includes the addition of external pump mixing for the second-stage digesters, replacing the digester control building roof, and electrical upgrades. Design for the fourth phase is scheduled to begin in FY27 and construction is scheduled to begin in FY28.

This project also includes ongoing digester coating inspections and rehabilitation.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Digester Upgrades Ph 3	17,138,000	2,000,000	0	19,138,000
Digester Coating Insp & Rehab	7,725,000	0	0	7,725,000
Digester Upgrades Ph 4	0	0	0	0

Appropriations:	
Prior Years	$ 126,495,163
2020	$ 2,000,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 128,495,163**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-30

Capital Improvement Program - Project Summary

Project: Infiltration/Inflow Contrl Prj **Project Number:** 000570

Strategy: Regulatory Compliance **Program:** WW Regulatory Compliance

Justification:

This project is required to comply with conditions of the District's wet weather facility NPDES permits and the Wet Weather Consent Decree (effective September 2014).

Description:

This project includes work required by the National Pollutant Discharge Elimination System (NPDES) permit and the Wet Weather Consent Decree. Ongoing work is required for the continued implementation of the regional private sewer lateral ordinance, and continued flow modeling and reporting. This project also includes several components to promote the more efficient operation of the interceptor system and pump stations to reduce wet weather facility discharges.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Infiltration/Inflow Program	11,696,000	1,900,000	0	13,596,000

Appropriations:	
Prior Years	$ 27,011,913
2020	$ 1,900,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 28,911,913**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-32

Capital Improvement Program - Project Summary

Project: Interceptor Corrosion Prevent **Project Number:** 2005283

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Recent inspection of portions of the interceptor system identified areas with severe corrosion. Cathodic protection, corrosion prevention, condition assessments, and asset management are essential elements in maintaining the integrity of the interceptor system.

Description:

This project provides for cathodic protection and corrosion prevention in the interceptor system. Based on an evaluation of potential methods for corrosion prevention, various improvements to rehabilitate the cathodic protection system have been recommended. The project also includes periodic inspection of the interceptors and force mains, and ongoing work to raise buried manholes to grade and locate missing manholes.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Alameda Interceptor Rehab Ph 3	0	8,480,000	0	8,480,000
Alameda Channel Crossing Imprv	0	6,900,000	0	6,900,000
Interceptor Pipe and MH Inspec	0	3,284,000	0	3,284,000
Remote Fac Locate & MH Raising	1,117,000	409,000	0	1,526,000
Cathodic Protection Project	1,399,000	0	0	1,399,000
Intercept Corrosion Prevention	350,000	0	0	350,000

Appropriations:	
Prior Years	$ 8,220,543
2020	$ 409,000
2021	$ 0
2022	$ 6,900,000
2023	$ 11,764,000
2024	$ 0
Future Years	$ 0
Total Cost	**$ 27,293,543**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-30

Capital Improvement Program - Project Summary

Project: Lab Improvements & Equip't **Project Number:** 2011852

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Laboratory rehabilitation and upgrades provide operational efficiencies and improved regulatory compliance monitoring and reporting for the entire District.

Description:

This project will provide for the periodic replacement and rehabilitation of facilities, equipment, and information management systems in the District Laboratory located at the Main Wastewater Treatment Plant. Improvements planned in FY20-24 include the design and implementation of a replacement for the Laboratory Information Management System (LIMS) and the replacement of various pieces of laboratory analytical equipment. Routine replacement of laboratory equipment is planned to continue in FY25-29.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Lab Equipment	2,622,023	486,000	1,000,000	4,108,023
LIMS Replacement Project	1,250,000	1,025,000	0	2,275,000
Laboratory Upgrades	200,000	1,030,000	0	1,230,000

Appropriations:	
Prior Years	$ 4,072,023
2020	$ 2,156,000
2021	$ 85,000
2022	$ 100,000
2023	$ 100,000
2024	$ 100,000
Future Years	$ 1,000,000
Total Cost	**$ 7,613,023**

Lead Dept: WAS

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: MWWTP Master Planning **Project Number:** 000601

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

The Main Wastewater Treatment Plant (MWWTP) was constructed in 1951. Many of the facilities are aging and require improvements, repairs and rehabilitation to maintain reliable service. Also, changing water quality and environmental regulations require investigation into viable options for MWWTP infrastructure upgrades.

Description:

This project will develop an integrated MWWTP Master Plan which will serve as a roadmap to guide improvement projects, land uses, power supply plans, and the Resource Recovery Program for the next 30 years. The Master Plan will help to prioritize projects and determine funding needed to repair and upgrade the MWWTP's aging infrastructure. It will proactively address increasingly stringent water quality and environmental regulations to protect public health and promote stewardship of the San Francisco Bay. It will also address potential climate change impacts and incorporate principles of sustainability.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
MWWTP Master Plan	1,209,000	1,600,000	0	2,809,000
OAB Purch Environ Remediation	2,025,000	0	0	2,025,000
Master Land Use/Facility Plan	1,585,000	0	0	1,585,000

Appropriations:	
Prior Years	$ 19,827,263
2020	$ 1,600,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 21,427,263**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-29

Capital Improvement Program - Project Summary

Project: MWWTP Pwr Dist Sys Upgrade **Project Number:** 000140

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Electrical reliability improvements are required to maintain the power supply to key facilities and quickly restore power following an outage. A prolonged power outage at the the Main Wastewater Treatment Plant (MWWTP) would likely result in permit violations.

Description:

This project includes a number of tasks to increase the reliability of the power distribution system at the MWWTP. Work in FY18-24 include arc flash studies, replacement of power meters, reconfiguration of the internal power distribution system for added redundancy, seismic improvements, and an electrical system master plan.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Split IPS & EPS Power Dist Sys	1,683,000	0	0	1,683,000
Arc Flash	582,000	398,000	0	980,000
Power Distribution Sys Equip	0	515,000	0	515,000
Electrical Master Plan	300,000	0	0	300,000
MWWTP Elctrcl Reliability Impr	275,000	0	0	275,000

Appropriations:	
Prior Years	$ 15,138,737
2020	$ 913,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 16,051,737**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-27

Capital Improvement Program - Project Summary

Project: Motor Control Center Repl **Project Number:** 001004

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Replacement of Motor Control Centers (MCCs) nearing the end of their service life is required to ensure continued reliable operation of equipment at the Main Wastewater Treatment Plant.

Description:

This project provides for the cyclical replacement of all MCCs that are at the end of their service life and includes the MCCs at the Secondary Reactor Deck (Oxygenation Tank) and Aerated Grit. The most critical MCC was replaced in FY16; the next MCC replacement is scheduled for FY23-24.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Main Plant MCC Replace - Ph 2	1,560,000	1,350,000	0	2,910,000

Appropriations:	
Prior Years	$ 2,529,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 1,350,000
2024	$ 0
Future Years	$ 0
Total Cost	**$ 3,879,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-24

Capital Improvement Program - Project Summary

Project: NPDES Compliance **Project Number:** 000599

Strategy: Regulatory Compliance **Program:** WW Regulatory Compliance

Justification:

The project is necessary to reduce the risk of permit violations, including upgrades to ensure timely activation of the wet weather facilities to comply with the MWWTP NPDES permit.

Description:

This project consists of improvements necessary to meet the Main Wastewater Treatment Plant (MWWTP) National Pollutant Discharge Elimination System (NPDES) permit requirements. Work remaining under this project includes the installation of new level monitoring stations in the South Interceptor, which is scheduled for completion in FY20. Upgrades to secondary reactors are scheduled for FY23-27.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Reactors Stage 3 Aerator Conv	0	6,090,000	0	6,090,000
So Intercept Level Monitor Sta	779,500	1,200,000	0	1,979,500

Appropriations:	
Prior Years	$ 8,643,234
2020	$ 1,200,000
2021	$ 0
2022	$ 0
2023	$ 6,090,000
2024	$ 0
Future Years	$ 0
Total Cost	**$ 15,933,234**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-27

Capital Improvement Program - Project Summary

Project: North Interceptor Rehab **Project Number:** 2009794

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Interceptor concrete pipelines and structures experience sulfide-related corrosion over time. Rehabilitation of the concrete in the aging, over 60-year-old interceptor system is needed to prevent further deterioration and potential collapse, which would create a public health risk and be costly to replace.

Description:

This project includes the rehabilitation of 450 linear feet of the 66-inch diameter North Interceptor, and the rehabilitation of four manholes. The work was identified based on a condition assessment and is scheduled for FY25-26.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
North Interceptor Rehab	0	0	0	0

Appropriations:	
Prior Years	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 0**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-26

Capital Improvement Program - Project Summary

Project: Nutrient Management **Project Number:** 2011022

Strategy: Regulatory Compliance **Program:** WW Regulatory Compliance

Justification:

Future nutrient watershed permits may have more stringent requirements and require implementation of sidestream treatment to maintain compliance with the National Pollutant Discharge Elimination System (NPDES) permit.

Description:

Nutrient discharge to the San Francisco Bay continues to be a key area of concern for regulators. This project includes the development of strategic nutrient management solutions to meet current and future regulatory requirements. A master plan will be conducted to identify and evaluate a range of cost-effective alternatives to achieve nutrient reductions for the Main Wastewater Treatment Plant that provide broad environmental and public health benefits. Work planned for FY25-29 represents the potential implementation of nutrient reduction alternatives, pending Master Plan recommendations and regulatory developments.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Nutrient Sidestream Treatment	5,300,000	0	0	5,300,000
Nutrient Mainstream Treatment	0	0	0	0

Appropriations:	
Prior Years	$ 5,300,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 5,300,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-30

Capital Improvement Program - Project Summary

Project: Odor Control Improvements **Project Number:** 000963

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Odor control projects reduce onsite and offsite odor impacts and also result in reduced offsite odor complaints, improved community relationships, an improved work environment, and continued compliance with Bay Area Air Quality Management requirements.

Description:

This project provides for the design and construction of odor control facilities in the wastewater collection system and at the Main Wastewater Treatment Plant. This project implements improvements that were identified and prioritized in the Odor Control Master Plan.

The replacement and upgrade of an odor control unit at the influent pump station was completed in FY19. Planning and design for the replacement of the odor control system at the solids dewatering building will begin in FY28. Improvements to the odor control systems for high strength wastes are being completed as part of the Digester Upgrades Phase 3 Project.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Odor Control Dewatering Bldg	2,850,000	0	0	2,850,000

Appropriations:	
Prior Years	$ 23,880,966
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 23,880,966**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-29

Capital Improvement Program - Project Summary

Project: Outfall Investigation Project **Project Number:** 000985

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

The integrity of the effluent outfall is essential for compliance with the Main Wastewater Treatment Plant (MWWTP) National Pollutant Discharge Elimination System (NPDES) permit.

Description:

The effluent outfall, which is over 60 years old, must be inspected periodically to identify corrosion and/or deterioration damage and plan for future rehabilitation. Inspection of the entire submerged portions is required by MWWTP NPDES permit, and was completed in 2015. Repeat inspections are planned for FY20-25, and upgrades are scheduled to begin in FY26.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Outfall Investigation	1,089,000	0	0	1,089,000
MWWTP Outfall Upgrades	0	0	0	0

Appropriations:	
Prior Years	$ 4,085,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 4,085,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-30

Capital Improvement Program - Project Summary

Project: PGS Engine Overhaul **Project Number:** 2001379

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Proper operation and performance of the cogeneration engines is necessary to avoid air permit violations. In addition, an outage to the engines would require the District to flare biogas and to purchase power.

Description:

This project covers the recurring major rebuild of the three cogeneration engines at the Main Wastewater Treatment Plant (MWWTP) Power Generation Station (PGS). These engines utilize biogas to produce power and process heat for use at the MWWTP. The current overhaul will be completed in FY20, with the next overhaul scheduled for FY23.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
PGS Engine Overhaul	9,829,000	1,800,000	0	11,629,000

Appropriations:	
Prior Years	$ 9,829,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 1,800,000
2024	$ 0
Future Years	$ 0
Total Cost	**$ 11,629,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-24

Capital Improvement Program - Project Summary

Project: PGS Expansion **Project Number:** 2003556

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

The Power Generation Station (PGS) expansion results in additional power production and revenue, reduces flaring, provides additional process heat, increases electrical reliability at the Main Wastewater Treatment Plant (MWWTP), and is consistent with the District's Energy and Sustainability Policies.

Description:

This renewable energy project expanded the PGS at the MWWTP from 6.5 to 11 megawatts when a new biogas-powered turbine was installed in FY12. A follow-up phase to install two new flares was completed in FY17. The project includes work to improve reliability by replacing aging gas piping and mechanical equipment in FY20-23. In addition, the original four flares will be rehabilitated in FY20-21. Further expansion is planned for FY28-29.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
PGS Reliability Improv Ph 3	4,562,000	3,038,000	0	7,600,000
PGS Reliability Improvements	7,300,000	117,000	0	7,417,000
PGS Reliability Improv Ph 4	0	3,400,000	0	3,400,000
Upgrades to Original Flares	1,200,000	121,000	0	1,321,000
Gas Flare Expansion	0	0	0	0

Appropriations:	
Prior Years	$ 50,540,723
2020	$ 3,276,000
2021	$ 0
2022	$ 3,400,000
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 57,216,723**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-29

Capital Improvement Program - Project Summary

Project: PS Q FM Dual-Mode Operation **Project Number:** 2006716

Strategy: Regulatory Compliance **Program:** WW Regulatory Compliance

Justification:

This project is required to comply with the Wet Weather Consent Decree (effective September 2014).

Description:

This project includes the design and construction of modifications to portions of the North Interceptor to allow dual-mode operation of Pump Station Q (PS Q) for use as either a gravity relief sewer (north to south flow) or a force main (south to north flow). Based on wet weather flow modeling work completed to date, discharges from the wet weather facilities may be reduced by operating the PS Q force main as a gravity sewer with relatively minor modifications. Construction began in FY17 and is expected to be completed in FY20.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
PS Q FM Dual-Mode Operation	15,308,000	0	0	15,308,000

Appropriations:	
Prior Years	$ 15,308,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 15,308,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-19

Capital Improvement Program - Project Summary

Project: Plant Pipe Replacement **Project Number:** 000959

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Regular replacement of piping systems is necessary to prevent failures that could require extended shutdowns and impact the District's ability to properly chlorinate wastewater and comply with the National Pollutant Discharge Elimination System permit requirements.

Description:

This project provides cyclical replacement of piping systems that are critical to the operation of the Main Wastewater Treatment Plant. The first phase, completed in FY17, included repair or replacement of sodium hypochlorite distribution piping. The second phase, scheduled for FY18-23, includes replacement of sodium hypochlorite piping within the storage area and at individual feed points. Assessment of the Secondary Reactor Piping is scheduled for FY21-22.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
MWWTP Hypo Pipe Replace Ph 2	2,658,012	4,538,000	0	7,196,012
Secondary Clarif RAS Pipe Insp	0	143,000	0	143,000

Appropriations:	
Prior Years	$ 7,178,000
2020	$ 4,538,000
2021	$ 143,000
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 11,859,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-23

Capital Improvement Program - Project Summary

Project: Procure Emerg Response Equipmt **Project Number:** 000392

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

This project is necessary to provide emergency backup equipment to ensure employee safety, public health, and the maintenance of critical operations following an emergency or disaster, such as an earthquake.

Description:

This is an ongoing project for the procurement of emergency response equipment including pumps, pipes, fittings, trailers, generators, traffic control equipment, communications equipment, and storage containers for emergency pumping and bypassing of pump stations to ensure timely emergency response in a disaster.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Emergency Response Equipment	1,875,000	0	0	1,875,000

Appropriations:	
Prior Years	$ 1,875,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 1,875,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-30

Capital Improvement Program - Project Summary

Project: Pump Station A Improvements **Project Number:** 2009792

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Pump rehabilitation is required to continue to provide reliable service. Improved access is needed for personnel safety.

Description:

This project includes mechanical and electrical upgrades to Pump Station A in Albany. The mechanical work includes the investigation of pump station hydraulics, refurbishing the ventilation system, replacing/repairing the influent isolation gate, and upgrading the sump and main pumps. The electrical and instrumentation work includes replacing equipment in the wet well and upgrading switches, alarms, and displays. Other work includes investigating the wet well concrete condition, improving site access conditions, and upgrading stairs to access below grade infrastructure. This work is scheduled for FY25-27.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Pump Station A Improvements	0	0	0	0

Appropriations:	
Prior Years	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 0**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-27

Capital Improvement Program - Project Summary

Project: Pump Station C Upgrades **Project Number:** 1006000

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

The dry weather pumps have no standby capacity, and inadequate ventilation can cause excessive equipment corrosion. Chemical flow monitoring is needed for effective monitoring. A wet well isolation gate is needed to take the wet well out of service.

Description:

This project increases the reliability of Pump Station C in Alameda by implementing improvements identified in the Pump Station Master Plan. Improvements include replacing the dry weather submersible pumps to double the capacity, improving ventilation in the dry weather wet well and chemical storage vault, and other upgrades to increase reliability and safety. This work is scheduled for FY25-27.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Pump Station C Upgrades	1,864,000	0	0	1,864,000

Appropriations:	
Prior Years	$ 1,864,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 1,864,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-27

Capital Improvement Program - Project Summary

Project: Pump Station H Imprvmts **Project Number:** 001352

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Pump Station H is the largest pump station and is critical to maintain in reliable operating condition. The pumps and drives require periodic rehabilitation to meet current standards.

Description:

This project will increase the reliability of Pump Station H in Oakland by implementing improvements identified in the Pump Station Master Plan and a criticality assessment. The project will be implemented in two phases.

Phase 1 is complete. It replaced all of the mechanical, electrical, and instrumentation equipment that was no longer cost-effective to maintain or did not meet operational standards. The main pumps and discharge piping will be replaced under Phase 2. Design and construction of Phase 2 is scheduled for FY26-28.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Pump Station H Imprvmts Ph 2	0	0	0	0

Appropriations:	
Prior Years	$ 6,134,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 6,134,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-27

Capital Improvement Program - Project Summary

Project: Pump Station J Upgrades **Project Number:** 1006001

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Pump rehabilitation is required to continue to provide reliable wet weather pumping capacity. System alarms and improved access are needed for personnel safety. Remote telemetry is needed for improved monitoring.

Description:

This project increases the reliability of Pump Station J in Oakland by implementing improvements identified in the Pump Station Master Plan. Improvements include ventilation fan replacement, access improvements, and adding Distributed Control System monitoring. Design and construction is planned for FY24-26.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Pump Station J Improvements	0	4,250,000	0	4,250,000

Appropriations:	
Prior Years	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 4,250,000
Future Years	$ 0
Total Cost	**$ 4,250,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-26

Capital Improvement Program - Project Summary

Project: Pump Station L Improvement **Project Number:** 2005285

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

The equipment is reaching the end of its useful life and additional remote monitoring telemetry is needed to improve monitoring.

Description:

This project increases the reliability of Pump Station L in Oakland by implementing improvements identified in the Pump Station Master Plan. Improvements include replacement of all mechanical and electrical equipment. Implementation is scheduled for FY20-22.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Pump Station L Imprv	1,490,000	0	0	1,490,000

Appropriations:	
Prior Years	$ 1,490,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 1,490,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-21

Capital Improvement Program - Project Summary

Project: Pump Station M Imprvmts **Project Number:** 001372

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Electrical equipment is located below grade and is susceptible to failure if flooded. Improved access is needed for personnel safety. Additional remote monitoring telemetry is needed to improve monitoring.

Description:

This project increases the reliability of Pump Station M in Alameda by implementing improvements identified in the Pump Station Master Plan. Improvements include replacing the pumps with dry-pit submersible pumps and piping modifications; upgrading the ventilation system and odor controls; replacing electrical equipment; adding a programmable logic controller and software; modifying below grade access; and adding a restroom. Construction of these improvements will take place in FY18-22.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Pump Station M Improvements	5,898,000	1,200,000	0	7,098,000

Appropriations:	
Prior Years	$ 5,898,000
2020	$ 1,200,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 7,098,000**

Lead Dept: WAS
Recurring: No

Funding: ERF 100%

In Service Date: 31-Dec-22

Capital Improvement Program - Project Summary

Project: Pump Station Rehab and Upgrade **Project Number:** 2005287

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Rehabilitation of pump station equipment and structures is necessary to provide reliable service. Upgrades are needed at some pump stations to improve access and emergency operations.

Description:

This project includes work at multiple pump stations. Safety improvements include relocating existing or adding new exhaust fans from rooftops. New hand rails and anchor points will be installed where needed to mitigate potential fall hazards associated with the existing roof-mounted ventilation systems. Emergency operation upgrades include installation of bypass systems to help avoid sanitary sewer overflows in the event of power loss or equipment failure.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Storage Building at PS R	0	600,000	0	600,000
PS G Wet Well Liner Repair	0	60,000	0	60,000
Pump Station Bypass Piping Upg	0	0	0	0

Appropriations:	
Prior Years	$ 181,000
2020	$ 0
2021	$ 60,000
2022	$ 600,000
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 841,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-27

Capital Improvement Program - Project Summary

Project: Resource Recovery Project **Project Number:** 1004872

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

This project will provide infrastructure for the acceptance of trucked waste that will continue to generate revenues through tipping fees and power sales from converting excess biogas to electricity.

Description:

The Resource Recovery (R2) program was developed to accept a variety of solid and liquid wastes delivered by truck to the Main Wastewater Treatment Plant. This project includes studies and capital improvements to support the program. Numerous improvements to the R2 facilities have already been implemented under this project.

Planned upgrades in FY20-24 include improvements to the existing Solid/Liquid Waste Receiving Station and the new Blend Tank Receiving Station. These improvements will result in reduced odors, enhanced monitoring, and the ability to accept additional high-strength waste.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
R2 Odor Grit & Misc Improv	5,551,000	5,137,000	0	10,688,000
R2 S/L Waste Tanks Concrete	1,280,000	0	0	1,280,000
SLW Receiving Station Improve	1,250,000	0	0	1,250,000
R2 S/L Waste Tanks 1-2 Coating	0	1,250,000	0	1,250,000
High Brine Waste Storage Tank	0	1,137,000	0	1,137,000
R2 IS Automation Monitoring	0	300,000	0	300,000
Dewatering Expansion	0	200,000	0	200,000

Appropriations:	
Prior Years	$ 36,837,587
2020	$ 5,637,000
2021	$ 0
2022	$ 2,387,000
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 44,861,587**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-24

Capital Improvement Program - Project Summary

Project: Routine Cap Equip Replacement **Project Number:** 000943

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

The programmatic repair and replacement of equipment maximizes equipment availability to ensure continued permit compliance.

Description:

Work includes repair and replacement of equipment throughout the wastewater system such as valves, piping, electrical systems, instrumentation components, and communications equipment.

Projects identified for FY20-24 include rebuilding numerous pumps, motors, and other equipment. In FY20-21, it also includes identification and prioritization of coating repairs for equipment at the Main Wastewater Treatment Plant, pump stations, and wet weather facilities.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Capital Equipment Replacement	31,114,249	12,500,000	12,500,000	56,114,249
Coating Rehab Project	1,500,000	0	0	1,500,000

Appropriations:	
Prior Years	-
2020	$ 2,500,000
2021	$ 2,500,000
2022	$ 2,500,000
2023	$ 2,500,000
2024	$ 2,500,000
Future Years	-
Total Cost	**-**

Lead Dept: WAS
Recurring: Yes

Funding: ERF 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Seismic Retrofits **Project Number:** 2012929

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

The Main Wastewater Treatment Plant (MWWTP) is located in a seismic hazard zone. Several facilities were constructed prior to building code changes and have been identified as not meeting current seismic codes. Without improvements, damage may occur throughout the MWWTP in the event of a major earthquake.

Description:

This project includes prioritized seismic retrofits based on the 2018 MWWTP Seismic Evaluation Update Project. Near-term work includes improved bracing and supports for electrical distribution lines and improved unit anchorage for substations throughout the MWWTP. Long-term retrofits include the addition of perimeter foundations, micro piles and caps; buttress walls; concrete wall and steel braced frame modifications; new concrete beams; new exterior veneer; and other improvements to various structures at the MWWTP.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Seismic Retrofit IPS	0	22,000,000	0	22,000,000
Seismic Retrofit Maint Center	0	14,800,000	0	14,800,000
Seismic Retro Pwr Dist Sys	0	4,050,000	0	4,050,000
Seismic Evaluation of MWWTP	555,000	834,000	0	1,389,000

Appropriations:	
Prior Years	$ 0
2020	$ 4,884,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 36,800,000
Future Years	$ 0
Total Cost	**$ 41,684,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-29

Capital Improvement Program - Project Summary

Project: Treatment Plant Infra Ph 2 **Project Number:** 2009787

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Replace or rehabilitate equipment, structures and support systems that are reaching the end of their design lives or do not provide the level of service necessary to maintain compliance with the Main Wastewater Treatment Plant (MWWTP) National Pollutant Discharge Elimination System permit, safe working conditions and reliable, cost-effective treatment.

Description:

This project provides for the cyclical replacement and rehabilitation of various treatment process facilities at the MWWTP.

Work planned in FY20-24 includes improvements to plant gallery drains; upgrades to the security system; improvements to the East Gate Undercrossing; replacement of grit handling equipment; and improvements to the Administration and Operations Buildings.

Work planned in FY25-29 includes additional improvements to plant gallery drains; replacing aging motors and variable frequency drives for the main pumps at the Influent Pump Station and the Effluent Pump Station; and replacing fire protection systems.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
IPS Main Pump Improvements	63,000	21,280,000	0	21,343,000
Grit Handling Eqpmt Rplcmt	8,104,000	7,059,000	0	15,163,000
O2 Plant RHX & Cntrl Sys Rplc	0	10,879,000	0	10,879,000
Plant Gallery Drains	4,909,000	5,600,000	0	10,509,000
Clarifier Weir Leveling Improv	0	7,051,000	0	7,051,000
MWWTP Admin Bldg Improvements	1,801,000	4,299,000	0	6,100,000
Ops Center Improvements	1,648,000	3,201,000	0	4,849,000
Plant Drain Sys Improvements	0	3,710,000	0	3,710,000

Appropriations:	
Prior Years	$ 20,379,000
2020	$ 14,410,000
2021	$ 21,818,000
2022	$ 6,422,000
2023	$ 27,251,000
2024	$ 0
Future Years	$ 0
Total Cost	**$ 90,280,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Treatment Plant Infrastructure **Project Number:** 000932

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Replace or rehabilitate equipment, structures and support systems that are reaching the end of their design lives or do not provide the level of service necessary to maintain compliance with the Main Wastewater Treatment Plant (MWWTP) National Pollutant Discharge Elimination System permit, safe working conditions and reliable, cost-effective treatment.

Description:

This project provides for the cyclical replacement and rehabilitation of various treatment process facilities at the MWWTP.

Improvements planned in FY20-24 include replacement of large variable frequency drives; replacement of influent screens; repair or replacement of flow meters; paving; rehabilitation of the secondary clarifiers; reactor piping condition assessment and the installation of a plant-wide intercom system.

Improvements planned in FY25-29 include rehabilitation of the remaining clarifiers along with the installation of online total suspended solids monitors.

This project also includes engineering support for urgent capital projects and preparation and maintenance of record drawings.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Sec Clarifier Mech Rehab Ph 2	0	5,623,000	11,002,000	16,625,000
WW Fac Records Documentation	6,802,000	2,949,000	3,504,000	13,255,000
Urgent Capital Projects	4,972,000	2,550,000	3,050,000	10,572,000
Reactor Piping Condition Asses	925,000	3,675,000	3,075,000	7,675,000
MWWTP 3W System Improvements	0	7,281,000	0	7,281,000
MWWTP Influent Screen Repl	4,146,000	1,700,000	0	5,846,000
Large VFD Replacement	2,968,000	0	0	2,968,000
MWWTP Intercom Paging Sys Upgr	1,637,000	1,250,000	0	2,887,000

Appropriations:	
Prior Years	$ 56,415,300
2020	$ 8,522,000
2021	$ 13,963,000
2022	$ 5,646,000
2023	$ 1,140,000
2024	$ 1,381,000
Future Years	$ 21,131,000
Total Cost	**$ 108,198,300**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-35

Capital Improvement Program - Project Summary

Project: Vehicle & Equip Additions, WW **Project Number:** 2003558

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

New and upgraded vehicles are required to support emergency response needs and for new field employees performing inspection and monitoring duties.

Description:

This project provides for new or upgraded vehicles to support continued operations at the Main Wastewater Treatment Plant and remote facilities. This project includes the purchase of a sedan in FY20 for use at remote facilities. This vehicle will enable staff to respond to issues at various facilities in a timely manner.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Vehicle & Equip Additions	1,237,000	27,000	0	1,264,000

Appropriations:	
Prior Years	$ 1,237,000
2020	$ 27,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 1,264,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-22

Capital Improvement Program - Project Summary

Project: WW Energy Management **Project Number:** 1002730

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Energy is a significant portion of the operating costs at the Main Wastewater Treatment Plant (MWWTP). Improved energy management provides opportunities to improve efficiency and reduce costs.

Description:

The goal of this project is to improve energy efficiency at the MWWTP and to maximize the production of biogas used to generate renewable energy. The Wastewater Energy System Master Plan provides the basis for prioritizing energy efficiency alternatives and energy management projects.

In FY20-24, submeters will be installed at several MWWTP substations to help identify ways to increase operating efficiency and reduce energy costs. Also, a comprehensive lighting survey will be conducted to prioritize and replace lights to maximize energy savings.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Electrical Sub-Metering Data	932,000	90,000	0	1,022,000
MWWTP Lighting Improvements	155,000	90,000	0	245,000

Appropriations:	
Prior Years	$ 2,989,748
2020	$ 0
2021	$ 0
2022	$ 180,000
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 3,169,748**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-22

Capital Improvement Program - Project Summary

Project: WW Information System Upgrades **Project Number:** 003057

Strategy: Maintaining Infrastructure **Program:** WW Infrastructure Program

Justification:

Software enhancements and applications development provide operational efficiencies and improved regulatory compliance monitoring and reporting. Hardware replacement is necessary to ensure the reliability, performance, and security of the information systems.

Description:

This project provides for development of Wastewater Information Systems projects, including Kratos/Lenel Replacement & CCURE Alignment, PIMS Replacement, TruckTrack Replacement, Wastewater Enterprise Resource Planning platform (Plant Operation Database), TWIST Replacement or Plant-Wide Modelling Tool, Wet Weather Billing Database, and Mobile Application Refactoring.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
WW Applications	690,641	2,981,000	0	3,671,641

Appropriations:	
Prior Years	$ 2,160,000
2020	$ 2,981,000
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 5,141,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-24

Capital Improvement Program - Project Summary

Project: Wet Weather Plant Imprmts **Project Number:** 000657

Strategy: Regulatory Compliance **Program:** WW Regulatory Compliance

Justification:

This project is necessary to ensure compliance with the District's National Pollutant Discharge Elimination System Wet Weather Permit by reducing the risk of chemical piping failures.

Description:

This project addresses upgrades at the Wet Weather Treatment Facilities (WWFs) to maintain reliable operations. It includes electrical and chemical system improvements at the WWFs at Point Isabel in Richmond, and at Oakport and San Antonio Creek in Oakland.

Instrumentation upgrades at Point Isabel are scheduled for FY20-21, and concrete rehabilitation and liner repairs at Point Isabel and Oakport are scheduled for FY22-25. New washdown monitors/water cannons will be installed at Point Isabel in FY23-24.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
PT Isabel Remote I/O Ctrl Add	1,200,000	0	0	1,200,000
Pt Isabel WWF Concrete Rehab	0	758,000	0	758,000
Oakport Concrete Rehab	0	550,000	0	550,000
Remote Facility Main Brkr Repl	0	525,000	0	525,000
Pt Isabel WWF Water Cannon Rpl	0	373,000	0	373,000
Pt Isabel PS N Wet Well Liner	0	300,000	0	300,000
Oakport WWF Chemical Tank Rehb	0	295,000	0	295,000

Appropriations:	
Prior Years	$ 9,267,000
2020	$ 820,000
2021	$ 0
2022	$ 923,000
2023	$ 1,058,000
2024	$ 0
Future Years	$ 0
Total Cost	**$ 12,068,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-25

Capital Improvement Program - Project Summary

Project: Camanche WTP Improvement **Project Number:** 1000797

Strategy: Water Supply **Program:** Supply Reservoirs

Justification:

The Interim Enhanced Surface Water Treatment Rule requires a higher level of water treatment than that currently provided by the Camanche South and North Shore Water Treatment Plants.

Description:

This project will replace the Camanche South Shore Recreation Area water treatment plant with a 0.5 million gallon per day (MGD) water treatment plant that meets Department of Public Health regulations.

The existing plant has reached the end of its useful life and the new plant will be completed in FY20.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Cam So Shore WTP Repl	7,519,000	0	0	7,519,000

Appropriations:	
Prior Years	$ 7,519,000
2020	$ 0
2021	$ 0
2022	$ 0
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 7,519,000**

Lead Dept: WOD

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-21

Capital Improvement Program - Project Summary

Project: Distrib Sys Wtr Quality Imprv **Project Number:** 000919

Strategy: Water Quality **Program:** Water Quality Improvement

Justification:

Improvements to the distribution system are necessary to address water quality issues.

Description:

This project provides ongoing improvements related to water quality in the distribution system which is composed of over 4,100 miles of pipeline and 165 reservoirs.

In FY20, four variable frequency drives at the Skywest Pump Station will be replaced to provide for 100% readiness of the shared Hayward Intertie facility.

In FY20-22, chloramine boosting stations and UV treatment systems will be installed at distribution reservoirs, along with the installation of electrical or hydraulic mixers at the rate of one per year to improve water quality by controlling trihalomethanes (THMs).

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Distrib Sys Imps - Water Qual	5,960,746	0	0	5,960,746
Chloramine Boosting Stations	3,316,000	850,000	0	4,166,000
Dynamic Sect Leak Support	1,216,000	0	0	1,216,000
Pilot Treatment Plant Relocate	0	1,000,000	0	1,000,000
Reservoir Mixing System	320,000	600,000	0	920,000
Hayward Intertie Improvements	0	0	0	0

Appropriations:	
Prior Years	-
2020	$ 1,200,000
2021	$ 200,000
2022	$ 1,050,000
2023	$ 0
2024	$ 0
Future Years	-
Total Cost	**-**

Lead Dept: WOD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Enhanced Power Revenue **Project Number:** 1002593

Strategy: Water Supply **Program:** Supply Reservoirs

Justification:

Developing cost-effective renewable generation and improving energy efficiency to reduce the District's reliance on energy purchases and greenhouse gas emissions supports the District's Energy Policy.

Description:

This project provides ongoing support for the District's goal to develop renewable generation projects or purchase renewable energy to reduce indirect greenhouse gas emissions to zero and direct emissions by 50% by 2040. The project also supports efforts to fund efficiency projects that directly reduce energy consumption.

A 325 kW PV project at the North Richmond Water Reclamation Plant was completed in FY 18, and the 380kW PV project at Camanche Dam will be complete in FY19.

In FY19-20, two large PV projects totaling up to 8 MW on the District's watershed land will be pursued with efforts directed at PG&E interconnection, environmental review and permitting and approvals from the City or County.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Briones Hydro Project	1,377,610	1,500,000	0	2,877,610
Large Scale PV	1,750,000	0	0	1,750,000
Advanced Metering Project	50,000	100,000	0	150,000

Appropriations:	
Prior Years	-
2020	$ 20,000
2021	$ 20,000
2022	$ 20,000
2023	$ 1,520,000
2024	$ 20,000
Future Years	-
Total Cost	**-**

Lead Dept: WOD

Recurring: Yes

Funding:

BOND/REV	81%
GRANTS	19%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Minor WTP Capital Work **Project Number:** 2003502

Strategy: Water Quality **Program:** Water Treatment Upgrade

Justification:

Each year various relatively low-cost improvements and modifications to existing water treatment plants are required. Most involve equipment or structural problems impacting facility integrity, or health and safety issues.

Description:

This project consists of low-cost capital improvements to existing facilities that do not require extensive planning or design, or justify a stand alone project. This project may also address small infrastructure improvements that were unanticipated but are critical for Water Treatment Plant (WTP) operations.

Work in FY20-24 includes replacement of two 36-inch butterfly valves at the wash water basins, re-coating of the solids handling ponds, purchase of new filter valves, and improvements to the ammonia feed system at Orinda WTP; new variable frequency drive controllers for all chemical pumps at Sobrante WTP; replacement of both sedimentation isolation gates at Sobrante WTP; replenish filter media at Upper San Leandro WTP; and new chemical metering pumps and online equipment at various WTPs.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
WTP Capital Improvements	4,541,931	2,567,000	5,432,000	12,540,931

Appropriations:	
Prior Years	-
2020	$ 0
2021	$ 610,000
2022	$ 630,000
2023	$ 652,000
2024	$ 675,000
Future Years	-
Total Cost	**-**

Lead Dept: WOD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Pardee Ctr Cap Maint & Imprvmt **Project Number:** 2001367

Strategy: Water Supply **Program:** Supply Reservoirs

Justification:

Projects address regulatory compliance and reliability issues pertaining to water, wastewater and building systems; life cycle replacement of pumps, system valves and instruments; and ensure the safety of employees and guests.

Description:

This project provides for replacement and improvements to the Pardee Center Water Treatment Plant, Wastewater Treatment Plant, potable water system, collection system piping, buildings and grounds, roads, conference center, chemical plant and aqueduct control infrastructure to ensure safe and reliable systems that comply with regulatory requirements.

FY20-30 work includes replacement of power poles; replacement of siding, flooring, HVAC systems and porch tile on several buildings; purchase of a storage building for the vactor; exterior painting of the warehouse and shops; rehabilitation of the elevated fire water tank; replacement of the Pardee Ridge emergency generator; and replacement of the 800MHz radio system.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Water, WasteWtr Infrastructure	883,552	1,338,200	0	2,221,752

Appropriations:	
Prior Years	-
2020	$ 321,400
2021	$ 202,800
2022	$ 227,000
2023	$ 315,600
2024	$ 271,400
Future Years	-
Total Cost	**-**

Lead Dept: WOD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Powerhouse Improvements **Project Number:** 2001368

Strategy: Water Supply **Program:** Supply Reservoirs

Justification:

System improvements are critical to avoid non-compliance of current and new regulations, and parameters mandated by various regulatory agencies such as the Bureau of Reclamation (river flows), the Federal Energy Regulatory Commission (reservoirs and dams), and the California ISO (power marketing).

Description:

This project provides for replacement and improvements for reliable power production, management of river flows, and remote operation and monitoring of critical systems by the Pardee Area Control Center.

FY20-24 work consists of purchasing a Vanguard CT8000 timing test set and time travel analyzer; upgrading a generator and programmable logic controller; replacing piping and valves; overhauling a turbine; upgrading a lube oil system and transformer, replacing relays, disconnect switches, and oil-flled circuit breakers; installing digital fault recorders; and upgrading instrumentation.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Pardee Powerhouse	5,667,068	478,700	0	6,145,768
Camanche PH Electrical Imprv	0	3,700,000	0	3,700,000
Camanche Powerhouse	3,229,463	353,000	0	3,582,463
CPH Unit 3 Overhaul	0	640,000	0	640,000
CPH Unit 1 Overhaul	0	600,000	0	600,000
FSCC Capital Improvements	0	250,000	0	250,000
PPH Unit 3 Turbine Overhaul	0	0	0	0
CPH Unit 2 Overhaul	0	0	0	0

Appropriations:	
Prior Years	-
2020	$ 250,000
2021	$ 4,428,400
2022	$ 25,700
2023	$ 937,100
2024	$ 380,500
Future Years	-
Total Cost	**-**

Lead Dept: WOD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Raw Wtr Aq O&M Imprvmts **Project Number:** 001316

Strategy: Water Supply **Program:** Aqueduct Program

Justification:

Improvements are required to address deterioration of the Aqueducts and Raw Water Pumping Plant systems, and regulatory changes affecting system operations.

Description:

This project provides infrastructure improvements to facilitate the safe and reliable operation of the raw water aqueducts. In FY20-24, plans include improvements to raw water pipeline appurtenances, support cradles, culvert replacement, fencing and structure rehabilitation. This project also includes EBMUD monetary support of Delta Levee improvements by Reclamation Districts and other Delta area projects according to Aqueduct Levee Security Program Plans, such as the Woodward Island Bridge - a multi-agency joint project.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Moke Aqued Security - Levees	23,170,668	1,500,000	0	24,670,668
Rehab Aqueduct Facilities	8,202,730	1,437,000	0	9,639,730
Freeport Region Wtr Authority	5,600,000	1,950,000	0	7,550,000

Appropriations:	
Prior Years	-
2020	$ 0
2021	$ 600,000
2022	$ 972,000
2023	$ 2,320,000
2024	$ 995,000
Future Years	-
Total Cost	**-**

Lead Dept: WOD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Rec Area Cap Maint & Imprvmt **Project Number:** 2001369

Strategy: Water Supply **Program:** Supply Reservoirs

Justification:

This project ensures compliance with regulatory agency requirements and maintains recreation facilities in safe condition.

Description:

This project provides for replacement and improvements to the Water and Wastewater Treatment Plants, potable water systems, waste collection systems, dams, dikes and watershed lands at the Pardee and Camanche recreation areas. Much of the work is required to maintain regulatory compliance.

FY20-30 work includes replacing the Pardee Recreation Area Water Treatment Plant (WTP); connecting the cross lake pipeline to the Camanche North Shore system at China Gulch, along with replacing a steel bolted water tank, paving and piping; and upgrading the motor control center and replacing potable water isolation valves at the Camanche South Shore WTP.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Pardee/ Camanche Projects	1,993,049	1,565,100	0	3,558,149

Appropriations:	
Prior Years	-
2020	$ 450,000
2021	$ 194,000
2022	$ 365,500
2023	$ 207,100
2024	$ 348,500
Future Years	-
Total Cost	**-**

Lead Dept: WOD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Wtr Supply Monitoring System **Project Number:** 000065

Strategy: Water Supply **Program:** Supply Reservoirs

Justification:

Reliable and timely hydrologic, meteorologic, flow and water quality data is required to meet the operational needs of the District. Improved data quality, reliability and water supply forecasting is needed for expanded hydrologic monitoring in the East Bay and Mokelumne watershed.

Description:

This project provides for the development of a system for monitoring Mokelumne and East Bay Watersheds for precipitation, diversion, water flow and storage level. This monitoring system provides near real-time information for operation and forecasting plans. Work includes monitoring on the Upper and Lower Mokelumne River, and Pardee, Camanche and East Bay watersheds and reservoirs. FY20-FY30 plans include equipment and telemetry upgrades, new monitoring stations, station rehabilitation/relocation, station safety improvements and improved flow measurment capabilities during high flow events.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Res/River Inst & Monitoring	643,649	535,000	0	1,178,649

Appropriations:	
Prior Years	$ 1,857,000
2020	$ 116,000
2021	$ 108,000
2022	$ 120,000
2023	$ 88,000
2024	$ 103,000
Future Years	$ 0
Total Cost	**$ 2,392,000**

Lead Dept: WOD

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

Project: Addl Supplemental Supply Projs **Project Number:** 000460

Strategy: Water Supply **Program:** Water Supply Mgmt Program

Justification:

This project is needed to secure supplemental water supplies and provide adequate water through 2040 to help reduce rationing requirements during a drought.

Description:

The Water Supply Management Program (WSMP) 2040 identifies the need for supplemental water supply projects to reliably meet dry year needs through the year 2040. The WSMP 2040 preferred portfolio includes Mokelumne Regional Projects, Regional Desalination and Water Transfers.

In FY18-19, EBMUD completed the Bay Area Regional Reliability (BARR) Drought Contingency Plan, funded in part by a grant from the U.S. Bureau of Reclamation. Working with its partners in San Joaquin County (SJC), EBMUD also completed the environmental documents and project agreements, and secured a permit for a pilot groundwater banking project. The pilot made its first deliveries in 2018. EBMUD also worked with the Contra Costa Water District (CCWD) to develop environmental documents for the Los Vaqueros Reservoir Expansion Project and supported CCWD in its successful application for State grant funding.

In FY20-21, EBMUD will evaluate whether to participate in the Los Vaqueros Expansion Project. Construction will be completed on the SJC groundwater banking pilot to extract groundwater and convey it to EBMUD's aqueduct. EBMUD will lead the BARR partners in developing a Bay Area Regional Water Market Project, funded in part by the U.S. Bureau of Reclamation.

Water Transfers include a long-term water transfer project with the Placer County Water Agency, a 5-year project with the Yuba County Water Agency, and a short-term project with Sycamore Mutual/Sac Valley Settlement Contractors.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
WSMP Special Projects	20,522,540	36,500,000	0	57,022,540
Mokelumne Regional Projects	27,210,583	0	0	27,210,583
Water Transfers	12,821,000	0	0	12,821,000
Sacramento Basin GW Banking	880,000	0	0	880,000

Appropriations:	
Prior Years	$ 110,984,777
2020	$ 0
2021	$ 0
2022	$ 36,500,000
2023	$ 0
2024	$ 0
Future Years	$ 0
Total Cost	**$ 147,484,777**

Lead Dept: WRD

Recurring: No

Funding:

BOND/REV	30%
GRANTS	1%
SCC	69%

In Service Date: 31-Dec-30

Capital Improvement Program - Project Summary

Project: Bayside Groundwater Project **Project Number:** 1002726

Strategy: Water Supply **Program:** Water Supply Mgmt Program

Justification:

This project is needed to secure supplemental water supplies and provide adequate water through 2040 to help reduce rationing requirements during a drought.

Description:

In addition to serving as a locally-based supplemental supply source, the project will also enable the collection of groundwater and subsidence monitoring data.

A Groundwater Monitoring Plan serves as a tool to provide the California Department of Water Resources basin water level data under the California Statewide Groundwater Elevation Monitoring (CASGEM) program requirements for mid-priority groundwater basins.

Phase 1 facilities in San Leandro consist of a 1 million gallon per day (MGD) water treatment plant, a 1 MGD injection/extraction well, and associated monitoring systems. Phase 2 facility planning efforts are not expected to begin until FY25 at the earliest.

In FY17, the District became the Groundwater Sustainability Agency for the portion of the Southeast Bay Plain (SEBP) that underlies its service area. In FY18-19, EBMUD executed a Cooperating Agreement with the City of Hayward to develop a single Groundwater Sustainability Plan (GSP) for the basin. The Department of Water Resources awarded EBMUD a $1 million grant for GSP preparation. In FY20-21, EBMUD will work with the City of Hayward to develop a single GSP for the basin.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Bayside Phase II 10 MGD	0	0	10,000,000	10,000,000
Local Groundwater/SGMA	7,000,000	2,565,352	0	9,565,352

Appropriations:	
Prior Years	$ 28,452,984
2020	$ 983,057
2021	$ 0
2022	$ 1,582,295
2023	$ 0
2024	$ 0
Future Years	$ 10,000,000
Total Cost	**$ 41,018,336**

Lead Dept: WRD

Recurring: No

Funding:

BOND/REV	30%
GRANTS	48%
SCC	22%

In Service Date: 31-Dec-30

Capital Improvement Program - Project Summary

Project: East Bayshore **Project Number:** 1005395

Strategy: Water Supply **Program:** Water Recycling

Justification:

The District has set a goal of providing 20 million gallons per day (MGD) of recycled water by the year 2040, thereby offsetting the demand for potable water. This project will contribute to that goal.

Description:

The East Bayshore Phase 1A Project will provide 0.4 MGD of recycled water to the cities of Albany, Berkeley, Emeryville, and Oakland. A portion of Phase 1A began operating in 2008 and currently delivers 0.2 MGD of recycled water to customers in Oakland and Emeryville. The schedule for completion of Phase 1A is by FY26, including pipelines and customer retrofits. A water quality improvements study was conducted in FY18-19 to evaluate treatment improvements, and treatment improvements may be implemented in FY21-22. Also included are capital equipment replacements.

The East Bayshore Phase 1B Project will expand recycled water service in the East Bay area by an additional 0.2 MGD, for a total Phase 1A and 1B demand of 0.6 MGD. This is an estimated demand and may change due to the timing of redevelopment in the area. The timeframe for implementation is estimated at FY27-33.

The Phase 2 project, estimated at 1.7 MGD, is planned to be implemented from FY23-40. Recycled water will be provided to Alameda, Emeryville, Berkeley, and Oakland. The crossing of the estuary (slip lining of existing pipe) will be completed in FY23-24. The remainder of the facilities including expansion through Alameda, Berkeley, Emeryville, and Oakland would be completed by FY40 and include pipelines, treatment expansion, a possible booster pump station, and customer retrofits.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
East Bayshore Phase I	60,075,040	17,416,610	0	77,491,650
East Bayshore Phase II	0	9,386,000	0	9,386,000

Appropriations:	
Prior Years	$ 60,075,040
2020	$ 9,674,378
2021	$ 4,004,350
2022	$ 5,515,610
2023	$ 7,245,858
2024	$ 362,414
Future Years	$ 0
Total Cost	**$ 86,877,650**

Lead Dept: WRD

Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 30-Jun-40

Capital Improvement Program - Project Summary

Project: RARE Water Project **Project Number:** 2004604

Strategy: Water Supply **Program:** Water Recycling

Justification:

This project is required to meet the District's contractual obligation to provide high purity recycled water to the Chevron refinery in Richmond for use as boiler feedwater. In addition, this project helps the District to meet its water recycling goal of providing 20 million gallons per day (MGD) of recycled water by the year 2040.

Description:

Phase 1 of the Richmond Advanced Recycled Expansion (RARE) Water Project has been completed and provides 3.5 MGD of recycled water to Chevron for boiler feedwater applications to conserve the use of potable water. Facilities consist of a high-purity recycled water treatment plant at Chevron, an influent pump station, flow equalization, and a standby generator at West County. In FY20 and beyond, equipment will be replaced at the high-purity recycled water treatment plant including the microfiltration and reverse osmosis membranes. These replacements are to be funded by Chevron.

The RARE Water Project could be expanded incrementally to an additional 0.5 MGD (Phase 2) and 1.0 MGD (Future Expansion). Timing of the expansions is estimated to be FY29 and beyond depending on water supply availability.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
RARE Treatment Plant	55,304,406	0	0	55,304,406
RARE Prog Management	2,446,659	1,477,500	0	3,924,159
RARE Wtr Proj Ph2 Future Exp	3,663,000	0	0	3,663,000

Appropriations:	
Prior Years	$ 64,802,000
2020	$ 0
2021	$ 135,000
2022	$ 430,500
2023	$ 447,000
2024	$ 465,000
Future Years	$ 0
Total Cost	**$ 66,279,500**

Lead Dept: WRD
Recurring: No

Funding: OAG 100%

In Service Date: 30-Jun-36

Capital Improvement Program - Project Summary

Project: SRV Recycled Water Program **Project Number:** 1005224

Strategy: Water Supply **Program:** Water Recycling

Justification:

The District has set a goal of providing 20 million gallons per day (MGD) of recycled water by the year 2040, thereby offsetting the demand for potable water. This project will contribute to that goal.

Description:

Expansion of the Dublin San Ramon-EBMUD Recycled Water Authority (DERWA) tertiary treatment facilities from 9.7 MGD to 16.2 MGD was completed in FY19 to provide capacity as the distribution system is expanded and customers are connected. Also, additional supplemental supplies will need to be secured over the next few years to meet peak demands and future expansions.

EBMUD's portion of the San Ramon Valley (SRV) Recycled Water Program includes customer retrofits and connecting customers to the distribution system; implementation of distribution systems in San Ramon, Danville and Blackhawk; and planning/property purchase of Pump Stations 3 and 4. Phase 1 began operating in 2006 and delivers 0.5-0.7 MGD of recycled water to EBMUD customers in San Ramon.

Phase 2 distribution pipelines have been completed, and customer retrofits were completed in FY19. The Phase 3 pump station on the border between San Ramon and Danville will be completed in FY24 with distribution pipelines to be implemented in FY25. Phase 3 site retrofits will be completed in FY25-26.

Phase 5 (Blackhawk West) is anticipated to be completed in FY29. The Phase 4 pump station and pipelines in Blackhawk will be completed post FY30. Timing of all phases will be contingent on supplemental supplies.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
EBMUD/DERWA Distrib. Pipelines	41,117,956	5,456,000	0	46,573,956
DERWA/EBMUD Share of Fut Fac	11,334,146	0	0	11,334,146

Appropriations:	
Prior Years	$ 88,392,102
2020	$ 0
2021	$ 0
2022	$ 5,040,000
2023	$ 0
2024	$ 416,000
Future Years	$ 0
Total Cost	**$ 93,848,102**

Lead Dept: WRD
Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 30-Jun-40

Capital Improvement Program - Project Summary

Project: Water Recycling WSMP **Project Number:** 000890

Strategy: Water Supply **Program:** Water Recycling

Justification:

The District's Water Supply Management Program (WSMP) has set a goal of providing 20 million gallons per day (MGD) of recycled water by the year 2040, thereby offsetting the demand for potable water. These projects will contribute to the goal.

Description:

The Master Plan was updated in FY18-19. This project consists of: (1) updating the master plan every 5 years; (2) coordinating the implementation of customer satellite treatment plants including the Diablo Country Club in FY21 and Moraga Country Club pending customer financing; (3) further evaluation and implementation of the first phase of the Phillips 66 recycled water project in Rodeo in FY24-29; (4) rehabilitation of the San Leandro pump station project by FY27; (5) evaluation and development of potential recycled water opportunities in Contra Costa County in the long term; and (6) expansion of the recycled water truck program.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
Phillips 66 Recycled Wtr Proj	420,000	8,900,000	0	9,320,000
Contra Costa Reg'l RW Proj	4,121,380	0	0	4,121,380
San Leandro Rehabilitation	3,075,000	0	0	3,075,000
Satellite Trtmt Plant Pilot	1,556,000	0	0	1,556,000
Recycled Water Truck Program	774,000	583,258	0	1,357,258
Master Plan Update	670,000	535,973	0	1,205,973

Appropriations:	
Prior Years	$ 16,998,105
2020	$ 540,004
2021	$ 49,800
2022	$ 2,954,897
2023	$ 415,439
2024	$ 6,059,091
Future Years	$ 0
Total Cost	**$ 27,017,336**

Lead Dept: WRD

Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 30-Jun-40

Capital Improvement Program - Project Summary

Project: No Richmond Recy Wtr Fac Impr **Project Number:** 000876

Strategy: Water Supply **Program:** Water Recycling

Justification:

This project is required to meet the District's contractual obligations to provide recycled water to the Chevron Richmond refinery. In addition, this project helps the District to meet its water recycling goal of providing 20 million gallons per day (MGD) of recycled water by the year 2040.

Description:

This project includes upgrades at the North Richmond Water Recycling Plant (NRWRP) that are needed to maintain the facility and continue to meet the District's contractual obligations to the Chevron Richmond refinery. In FY 20-24, this project will include clarifier and thickener drive replacements, polymer improvements, 1 W bypass, and other improvements.

Expansion of the NRWRP by an additional 1 MGD is expected beyond FY29 pending recycled water supply availability.

Key Segments & Appropriations	Prior Yrs	FY20-24	Future Yrs	Total
No. Richmond Improvements/Exp	4,097,677	4,541,719	0	8,639,396
NRWRP Routine Capital Maint	5,182,335	1,539,000	0	6,721,335

Appropriations:	
Prior Years	$ 15,059,364
2020	$ 856,804
2021	$ 1,708,015
2022	$ 476,900
2023	$ 745,000
2024	$ 2,294,000
Future Years	$ 0
Total Cost	**$ 21,140,083**

Lead Dept: WRP

Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 30-Jun-40

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