Proposed Biennial Budget

Fiscal Years 2018 & 2019

Supplemental Material

Capital Project Summaries

East Bay Municipal Utility District
Oakland, California

Fiscal Years 2018 & 2019

Proposed Biennial Budget

Volume 1 *District Overview*
Water System Budget
Wastewater System Budget

Volume 2 ***Supplemental Material:***
Capital Project Summaries

Presented to the Board of Directors
April 11, 2017

East Bay Municipal Utility District

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FY18-22 CAPITAL PROJECTS SUMMARY

This chapter contains a Project Summary for each project that has work planned in FY18-22, 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 FY18-22 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 the District's water policies to promote the efficient use of our limited water supply. The Water Supply Management Program (WSMP) is evaluating conservation goals to achieve as high as an additional 39 MGD of water savings by the year 2040.

Description:

In 2016, the District adopted an updated 2015 Urban Water Management Plan that included water conservation programs designed to reduce potable water demand by a cumulative 62 million gallons per day (MGD) by the year 2040. Estimated
conservation savings achieved through 2016 toward the long-term goal totaled 33.5 MGD.

In FY16-17, customers continued to achieve substantial water savings through their individual drought response including participation in District indoor and outdoor conservation incentives, water use and leak detection surveys, and education programs. Overall conservation savings have remained 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.

Going forward, greater focus will be applied toward customer water use management services and tools, and outdoor landscape water budgets and incentives as indoor high-efficiency toilet and clothes washer rebates come to an end due to state efficiency codes. Other areas of focus include water loss control programs and Advanced Metering Infrastructure.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Conservation Incentives	31,636,016	3,450,000	0	35,086,016
Water Management Services	10,437,123	9,780,000	0	20,217,123
Research and Development	7,849,433	1,600,000	0	9,449,433
Education and Outreach	4,777,242	3,200,000	0	7,977,242
Supply-Side Conservation	825,000	1,352,500	0	2,177,500
Regulation and Legislation	654,977	800,000	0	1,454,977

Appropriations:	
Prior Years	$ 63,631,991
2018	$ 3,800,000
2019	$ 3,917,500
2020	$ 4,030,000
2021	$ 4,155,000
2022	$ 4,280,000
Future Years	$ 0
Total Cost	**$ 83,814,491**

Lead Dept: CUS
Recurring: No

Funding:

BOND/REV	89%
GRANTS	1%
OAG	10%

In Service Date: 31-Dec-30

Capital Improvement Program - Project Summary

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

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

Justification:

Existing systems, equipment and flooring are over 25 years old, beyond their useful service life, and a source of higher than normal energy consumption and operating and maintenance costs. Replacement of building systems with newer technology and design will improve productivity and sustainability and reduce costs.

Description:

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

In FY16-17, the Building Management Control System upgrade was completed; the fire alarm system was replaced; construction began to modernize the building's eight elevators; design began on improvements to Data Center air conditioning, backup power supply, and power distribution modules; planning for the replacement of roofing systems was completed; an assessment was performed to identify safety improvements to the building facade access system used for maintenance of exterior pre-cast concrete panels, sealant and glazing; and work was performed to replace traffic coatings and to replace sealant at rainwater infiltration locations on the 4th floor terrace.

FY18-19 works includes completing construction of passenger and freight elevator upgrades; design and construction of reliability and energy efficiency improvements to the HVAC system; replacement of air conditioning, backup power systems, and power distribution units in the computer server center; building-wide duct cleaning; sealing of utility penetrations through fire walls; design and installation of improvements to the building facade access system; replacement of roofing systems on the terraces and penthouse roof; and development of a comprehensive carpet replacement program.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
AB HVAC System Upgrade	4,006,629	3,950,736	0	7,957,365
Roofing Systems Improvements	1,119,000	4,040,000	0	5,159,000
Elevator Upgrades	1,578,196	1,287,042	0	2,865,238
Adm Bldg Carpet Replacement	1,067,300	1,019,236	0	2,086,536
Building Envelope Sealing	83,372	0	1,036,628	1,120,000
Facade Access System Upgrade	250,000	296,000	0	546,000
Space Plng & Reconfiguration	116,000	334,000	0	450,000
A/V System Upgrades	100,000	337,000	0	437,000

Appropriations:	
Prior Years	$ 20,376,132
2018	$ 5,996,778
2019	$ 5,355,236
2020	$ 337,000
2021	$ 0
2022	$ 0
Future Years	$ 1,036,628
Total Cost	**$ 33,101,774**

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 and eliminate aging infrastructure, improve operating efficiency and reliability, and improve water quality in the Almond Pressure Zone by removing excess storage which is causing low reservoir turnover. The projects will improve level of service and reduce long-term operation 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, and rehabilitation of the Fire Trail Pumping Plant which will be implemented by the Pumping Plant Rehabilitation Program. The existing open-cut Almond Reservoir, located in Castro Valley, 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 FY16 and the California Environmental Quality Act (CEQA) process was initiated in FY17 and is scheduled to be completed in FY18. Design is scheduled for FY19-20 followed by construction in FY22-23.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Almond Reservoir Replacement	11,372,000	4,000,000	0	15,372,000
Almond/Fire Trail PZ Planning	488,000	200,000	0	688,000

Appropriations:	
Prior Years	$ 11,860,000
2018	$ 200,000
2019	$ 4,000,000
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 16,060,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-23

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 to the steel pipelines.

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 and require periodic replacement of expendable components, such as anode beds and power supplies.

In FY17-18, work includes renewal of CPSs at Monument Boulevard, G Street, and Astrid Drive.

FY18-22 work includes renewal of CPSs at Franklin Avenue, West Portal, Old River, Port Chicago, Richard Avenue, Waterloo Hwy, Holt Rd, Bixler Rd, Eden Plains Rd, and Larch Way.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Aqueduct Cathodic Protection	3,392,000	1,311,273	2,988,000	7,691,273

Appropriations:	
Prior Years	$ 3,392,000
2018	$ 0
2019	$ 0
2020	$ 211,273
2021	$ 454,000
2022	$ 646,000
Future Years	$ 2,988,000
Total Cost	**$ 7,691,273**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

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 furnished 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. The project includes assessment of: (1) compliance with building codes, zoning ordinances, health and safety regulations and District standards for space utilization, furniture and finishes; and (2) the condition of building structural, mechanical and electrical systems and equipment. It provides improvements to meet operational needs, improve energy efficiency and reduce carbon footprint.

In FY16, upgrade of the fire alarm systems at four buildings was completed. In FY17, the Oakport office exterior was rehabilitated and upgraded with an energy efficient cool roof, a roof safety access ladder, removal of fascia and coping materials containing asbestos, and the addition of new fascia and paint.

In FY18-19, and future years the conversion of an acquired property into the new Fleet Maintenance East facility will be completed; upgrade lighting, HVAC and controls at the Adeline Maintenance Center Administration Building; replace fire alarm systems at service centers, Orinda Watershed Headquarters and Orinda Water Treatment Plant; improvements at Stockton Yard, Bixler and Walnut Creek Pumping Plants No. 1 and 2 to meet ADA requirements; replace the warehouse roof and convert office building un-insulated space into workstations at Oakport; evaluate improvements to Central Maintenance Services and Anderson Buildings to meet storage and crew space needs; and assess the condition of occupied facilities to evaluate and prioritize building modifications.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Fleet Maintenance East Improve	7,100,000	267,000	0	7,367,000
CMS Building Improvmements	120,000	4,100,000	0	4,220,000
Master Plan Implementation	0	885,000	2,300,000	3,185,000
Aqueduct Facilitie ADA Upgrade	0	2,717,000	0	2,717,000
Oakport Storage Facility Roof	400,000	1,145,000	0	1,545,000
Anderson Building Modification	720,000	0	0	720,000
Small Misc. Projects	252,338	249,839	0	502,177
Assessments & Master Plan Dev	367,000	0	0	367,000

Appropriations:	
Prior Years	$ 10,327,997
2018	$ 654,839
2019	$ 4,132,000
2020	$ 945,000
2021	$ 4,045,000
2022	$ 0
Future Years	$ 2,300,000
Total Cost	**$ 22,404,836**

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 District's 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 provide data, engineering drawings, and maps required for infrastructure planning, emergency response and maintenance.

Description:

This project provides for maintenance and upgrade of the District's Computer-Aided Drafting and Mapping System (CAD/CAM) and Geographic Information System (GIS), and resources for maintaining and updating distribution system maps and associated data. Mapping and GIS data is produced which 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 FY16-17, an online BMap using ArcGIS online was implemented, which allowed District-wide access to current distribution system data. In addition, a major database upgrade is underway, which will pave the way for implementation of additional data analysis and field tools, as envisioned in the Geospatial Strategic Plan.

In FY18-22 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. The GIS database and desktop software will be upgraded. Hardware will be replaced to ensure system integrity and there will be periodic major upgrades of CAD Drafting and GIS software.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Cad Cam Sys Development	32,813,200	7,941,418	26,500,000	67,254,618

Appropriations:	
Prior Years	-
2018	$ 1,210,632
2019	$ 1,457,609
2020	$ 1,706,033
2021	$ 1,757,214
2022	$ 1,809,930
Future Years	-
Total Cost	**-**

Lead Dept: ENG
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

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 Improvements are a series of projects within the Oakland Hills, including the 39th Avenue, Dingee, Joaquin Miller, Piedmont, Pinehaven, and Skyline Pressure Zones. Work includes replacement of the 39th Avenue Reservoir and Joaquin Miller Pumping Plant (PP), and demolition of the Dingee, Oak Knoll, Piedmont, and Swainland Reservoirs. The Swainland Reservoir demolition may also include construction of a 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 demolition and replacement of the Estates Reservoir. As part of the Piedmont Reservoir project, a planning study will be completed in FY18 to evaluate the need for storage at the Piedmont Reservoir site, which will determine the schedule for the demolition of the Piedmont Reservoir, the need for drainage improvements if a portion of the site can be sold, and if and when a new reservoir is needed at the site.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Joaquin Miller PP Rehab	0	0	15,171,000	15,171,000
39th Ave Res Rehab	2,553,998	0	11,919,636	14,473,634
Swainland Res and Regulator	175,000	3,434,000	0	3,609,000
Piedmont Res Decommission	397,000	1,028,000	0	1,425,000
Oak Knoll Res. Decommission	0	691,000	0	691,000

Appropriations:	
Prior Years	$ 26,045,998
2018	$ 0
2019	$ 5,153,000
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 27,771,493
Total Cost	**$ 58,970,491**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

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.

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 were identified for FY21 and beyond and include: (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 FY18 by the Colorados PZI Update Study.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Brook Street Pipeline	0	2,751,500	0	2,751,500
Old Tunnel Rd. Pipeline	750,000	96,250	0	846,250
Colorados PZI Update	50,000	3,000	0	53,000

Appropriations:	
Prior Years	$ 955,000
2018	$ 3,000
2019	$ 0
2020	$ 0
2021	$ 2,847,750
2022	$ 0
Future Years	$ 5,400,000
Total Cost	**$ 9,205,750**

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 FY16-17 include repairs to the Watson Reservoir lining to mitigate leaks and performing Lafayette Tunnel lining inspections.

Upcoming work includes: 1) completion of terminal reservoir inundation maps in FY18-19; 2) lining repairs at Watson Reservoir in San Ramon in FY18-19, with replacement of the reservoir lining in FY20-21; and 3) dam tunnel/conduit inspections and repairs.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Reservoir Tunnel Inspection	220,000	2,780,000	0	3,000,000
Dam and Spillway Upgrades	1,445,000	500,000	0	1,945,000
Watson Res Lining Repairs	1,070,000	700,000	0	1,770,000
Terminal Res Inundation Maps	700,000	300,000	0	1,000,000
Maloney Reservoir Improvments	0	578,000	0	578,000

Appropriations:	
Prior Years	$ 5,885,000
2018	$ 2,780,000
2019	$ 578,000
2020	$ 1,500,000
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 10,743,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-22

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. Retrofit construction has been completed for Dunsmuir in Oakland and San Pablo in Kensington.

Dam freeboard has been increased by making structural modifications to the spillways at North Dam in Richmond, Estates Dam in Oakland (subsequently replaced with tanks), and Danville Dam; and by operational modifications at Maloney Dam in Pinole, Moraga Dam, San Pablo Clearwell in Kensington and Argyle #2 in El Sobrante.

Planning and design of the seismic upgrade at Chabot Dam in San Leandro began in FY11, and construction is expected to be completed in FY18. Upgrades at Camanche Dam are dependent on Federal Energy Regulatory Commission (FERC) review, approval, and subsequent directive, but are currently planned to begin in FY18.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Chabot Dam Seismic Upgrade	22,026,000	0	0	22,026,000
Camanche Dam Seismic Upgrade	11,400,000	0	0	11,400,000
Pardee Dam and Spillway	500,000	0	0	500,000

Appropriations:	
Prior Years	$ 40,841,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 40,841,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-27

Capital Improvement Program - Project Summary

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

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

Justification:

On-going 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 dam safety issues.

Description:

The District regularly monitors the performance and safety of its 23 active dams and 5 inactive dams, with routine inspections and measurements using over 2,000 instruments. These instruments include piezometers to measure water levels below the dam, seepage weir and relief well flow measurements, dam settlement monitoring, tie-down anchor load measurements, and seismographs to measure ground motions.

In FY16-17, the District installed seismographs at Pardee and Camanche Reservoirs; constructed seepage monitoring devices at multiple open-cut reservoirs; upgraded the Camanche Dike 2 relief wells collection and monitoring; completed the automated GPS topographic survey system at Pardee and Camanche Dams; and replaced vibrating wire piezometer equipment.

In FY18-22, the proposed work includes: 1) continue to operate and maintain the automated GPS survey system at Camanche and Pardee Dams; 2) flush and clean the Camanche Main Dam relief wells; 3) evaluate and re-tension the tie-down anchors on the Pardee concrete spillway; 4) install seismographs at Briones and Lafayette Reservoirs; 5) plan, design and install an automated GPS survey system at Briones and Upper San Leandro Reservoirs; and 6) replace, repair, or add new instruments as necessary to maintain effective dam safety surveillance.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Pardee Camanche Survey Imprvts	1,500,000	490,000	0	1,990,000
Pardee Camanche Instruments	595,000	1,055,000	0	1,650,000
Dam Instrumentation Upgrades	1,215,000	425,000	0	1,640,000
Terminal Reservoir Survey Impr	0	1,500,000	0	1,500,000
Terminal Res Seismographs	900,000	250,000	0	1,150,000
GIS-Based Dam Monitoring	0	525,000	0	525,000

Appropriations:	
Prior Years	$ 7,153,322
2018	$ 570,000
2019	$ 340,000
2020	$ 1,225,000
2021	$ 965,000
2022	$ 1,145,000
Future Years	$ 0
Total Cost	**$ 11,398,322**

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 provide more flexibility 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. In 2004, the 5.0 MG Diablo Reservoir, located in Danville, was removed from service and demolished due to foundation issues, leaving the 5.5 MG Emmons Reservoir, 2.5 MG Miranda Reservoir, and temporary regulator at the Scenic Pumping Plant to serve the area formerly served by the Diablo Reservoir. Design will begin in FY20 followed by construction in FY22.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Diablo PZI	13,555,058	1,980,000	0	15,535,058

Appropriations:	
Prior Years	$ 13,555,058
2018	$ 0
2019	$ 0
2020	$ 1,980,000
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 15,535,058**

Lead Dept: ENG
Recurring: No

Funding:

BOND/REV	20%
SCC	80%

In Service Date: 30-Jun-23

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 1,300 galvanic anode units and 110 impressed current units. Many of the existing units have become deficient and no longer provide adequate cathodic protection.

In FY18-22, work includes repair of 20 galvanic anode units per year, repair or replacement of 10 impressed current units, and start of the copper service lateral anode program to install 18,000 anodes over the course of four years.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Distr System Corrosion Protect	8,593,000	5,761,000	5,273,000	19,627,000

Appropriations:	
Prior Years	$ 8,593,000
2018	$ 2,732,000
2019	$ 724,000
2020	$ 746,000
2021	$ 768,000
2022	$ 791,000
Future Years	$ 5,273,000
Total Cost	**$ 19,627,000**

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 service levels 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 FY16-17, the Seneca Reservoir (Oakland) demolition study, Crockett Aqueduct realignment study, and four pressure zone rezonings were completed. Planned projects for FY18-22 include additional rezonings, related pipeline system improvements and valve improvements for storage cycling optimization.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
New Pressure Zone Studies	2,041,812	600,000	2,250,000	4,891,812
PZ Rezonings	680,000	800,000	1,800,000	3,280,000
Dual Tank Isolation Valves	177,000	795,000	0	972,000
Hill Mutual PZ Rezoning	856,000	100,000	0	956,000
Cultural Resources	0	500,000	0	500,000

Appropriations:	
Prior Years	$ 5,926,808
2018	$ 600,000
2019	$ 539,000
2020	$ 546,000
2021	$ 552,000
2022	$ 558,000
Future Years	$ 4,050,000
Total Cost	**$ 12,771,808**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

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 includes the remodel of the existing office building and was completed in FY11. 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 that provides men's and women's accessible restrooms, lockers, showers, and storage.

In FY18-19, 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	FY18-22	Future Yrs	Total
Main Switchgear and Generator	600,000	0	0	600,000

Appropriations:	
Prior Years	$ 9,440,248
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 9,440,248**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-18

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 enable the District to 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 5, 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 nine pumping plants in FY18, six office buildings in FY19, and four service areas in FY19.

In addition, arc flash studies are required to be reviewed every five years by OSHA. In FY18, studies completed prior to FY13 will be reviewed.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
PP Arc Flash Evaluation	1,363,000	50,000	0	1,413,000
Arc Flash 5 Year Review	328,000	898,000	0	1,226,000
Admin Buildings Arc Flash Eval	326,000	25,000	0	351,000

Appropriations:	
Prior Years	$ 2,393,000
2018	$ 70,000
2019	$ 213,000
2020	$ 220,000
2021	$ 236,000
2022	$ 234,000
Future Years	$ 0
Total Cost	**$ 3,366,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-22

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 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 and low reservoir turnover. The projects will improve level of service and reduce long-term operation and maintenance costs.

Description:

The Encinal Cascade Pressure Zone improvements address high priority pumping plant and reservoir rehabilitation and replacement projects within the Encinal, Westside and Dos Osos Pressure Zones (PZ) located in Orinda. Encinal PZ improvements include construction of a new Encinal Regulator and demolition of Encinal Pumping Plant (PP) and Encinal Reservoir to make it a fully-regulated PZ. Westside PZ improvements include relocation of Westside PP to the existing Encinal PP site and construction of 1,500 feet of new 8-inch discharge pipeline and replacement of 2,000 feet of 6-inch and 8-inch pipeline. Dos Osos PZ improvements include replacement of Dos Osos Reservoir with dual tanks at a higher elevation and rehabilitation of the Dos Osos PP.

The facilities improvements and outage plan was completed in FY15 and updated in FY17. Environmental documentation was completed in FY17, and environmental permitting for the Dos Osos Reservoir replacement will be completed in FY19. Design of the Encinal PZ and Westside PZ improvements will take place in FY18-19. Construction of the Encinal PZ improvements will take place in FY19-21, and the Westside PZ improvements in FY20-21. Design of the Dos Osos PZ improvements is scheduled for FY20-21 followed by construction in FY22-23.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Dos Osos Res Repl and PP Rehab	0	7,035,448	0	7,035,448
Westside PP Relocation	0	5,753,674	0	5,753,674
Enc Res Westsd PP Dem, Enc Reg	0	848,322	0	848,322

Appropriations:	
Prior Years	$ 0
2018	$ 6,601,996
2019	$ 0
2020	$ 0
2021	$ 7,035,448
2022	$ 0
Future Years	$ 0
Total Cost	**$ 13,637,444**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-23

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 District-wide water distribution system energy use and 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) with the District's ArcGIS-based hydraulic modeling software (InfoWater). The Enterprise Hydraulic Modeling Project will implement new tools to further leverage hydraulic models and enterprise systems to streamline and improve workflows and infrastructure planning decision making, and optimize water distribution operations for energy and water quality management.

In FY16-17, the Enterprise Hydraulic Modeling Study and Strategic Plan was completed which included a project recommendation and implementation plan. Enterprise Hydraulic Modeling is scheduled to occur in multiple phases beginning with implementation of SCADAWatch and the GIS Gateway in FY18, pilot testing and evaluation of IWLive in FY18-19, and implementation of IWLive in FY19-20, if it is selected for full implementation.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Enterprise Model Study	520,000	265,270	0	785,270

Appropriations:	
Prior Years	$ 520,000
2018	$ 265,270
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 785,270**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-20

Capital Improvement Program - Project Summary

Project: Faria PZI (formerly Purdue) **Project Number:** 2003495

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

Justification:

The project is needed to create a new pressure zone to serve the Faria Preserve Development in San Ramon that includes 618 dwelling units, a school site and community facilities.

Description:

This is a new pressure zone needed to serve the Faria Preserve Development located in San Ramon. The project includes two new 0.5 million gallon reservoirs, a new 1.6 million gallon per day pumping plant, and related inlet-outlet pipeline. Initial facility planning was completed in FY07 and included in the City of San Ramon's approved Environmental Impact Report. Due to delays in the development project and acquisition by a new developer, the City of San Ramon prepared a subsequent Mitigated Negative Declaration that was approved in FY15. Final planning was completed in FY16 and design was completed in FY17. Construction commenced in FY17 and is scheduled to be completed in FY19.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Purdue Pumping and Reservoirs	14,342,000	0	0	14,342,000

Appropriations:	
Prior Years	$ 14,342,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 14,342,000**

Lead Dept: ENG
Recurring: No

Funding:

APPL	83%
BOND/REV	17%

In Service Date: 31-Dec-20

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. In prior years, the number of hydrants installed decreased to as few as 50 hydrants due to a reduction in new developments. However, development activity has rebounded 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 includes installation of approximately 90 new hydrants annually. In FY20-22, the installation rate is planned to increase to 100 hydrants annually in anticipation of favorable development conditions.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Hydrants Instlld By Dist	19,587,000	6,910,000	8,230,000	34,727,000

Appropriations:	
Prior Years	-
2018	$ 1,210,000
2019	$ 1,310,000
2020	$ 1,420,000
2021	$ 1,460,000
2022	$ 1,510,000
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 any of these pipelines were to fail, there would be a major service disruption, a high cost of repair, and a 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.

FY16-17 work included completing construction of the Dingee Pipeline and Aqueducts at Claremont Center in Oakland and El Portal in Castro Valley; and beginning construction of Grand Avenue, MacArthur/Davenport, and International Boulevard in Oakland. Also, planning and design took place on several projects.

FY18-19 projects include completing construction of MacArthur/Davenport, Grand Ave, and International Blvd; design of Berryman South Reservoir Pipeline Improvements in Oakland, D Street in Hayward, and East 15th Street in Oakland; Golf Links Road and Webster Street planning in Oakland; beginning construction of Alameda Crossing #1, and Estudillo Avenue in Hayward; and beginning design of Summit Pressure Zone (PZ) Transmission. The Large Diameter Pipeline Master Plan (LDPMP) will also be updated.

In FY20-27, work includes completing construction of Summit PZ Transmission, Berryman South Reservoir Pipeline Improvements, D Street, and East 15th Street, and design and construction on Alameda Crossings #2 and #3. The LDPMP will be updated bi-annually to confirm the priority of existing projects and identify the need for any new projects.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Lg Diameter Pipeline Replace	84,047,150	104,817,793	408,988,310	597,853,253
Master Planning	822,000	682,866	5,482,000	6,986,866
Danville PP PL Property Rights	1,010,411	105,589	0	1,116,000

Appropriations:	
Prior Years	-
2018	$ 41,652,000
2019	$ 0
2020	$ 16,359,866
2021	$ 29,940,030
2022	$ 17,654,352
Future Years	-
Total Cost	**-**

Lead Dept: ENG
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

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 due to a deteriorating concrete roof and seismic stability issues of the earthen embankment. The project will improve the level of service and reduce long-term operation and maintenance costs.

Description:

The project includes replacement of the existing 18 million gallon (MG) open-cut Leland Reservoir in Lafayette with two 8-MG concrete tanks in the existing basin and 3,650 feet of 36-inch transmission pipeline. Leland Reservoir is the major storage serving Lafayette and most of Walnut Creek. In FY16, preparation of an Environmental Impact Report commenced which will be completed in FY18. Design of the replacement reservoirs and pipeline is scheduled for FY21-22, followed by construction in FY23-25.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Leland Reservoir Upgrade	6,176,000	31,261,000	0	37,437,000

Appropriations:	
Prior Years	$ 8,121,480
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 31,261,000
2022	$ 0
Future Years	$ 0
Total Cost	**$ 39,382,480**

Lead Dept: ENG
Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 31-Dec-24

Capital Improvement Program - Project Summary

Project: Maloney Pressure Zone Facility **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 pipeline deficiencies. The projects will improve the level of service and reduce long-term operation and maintenance costs.

Description:

The Maloney Pressure Zone Improvements include 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; and 18,500 feet of 36-inch pipeline to improve transmission capacity from the Crockett PP to the new Selby Reservoir.

In FY17, the Maloney PP transient analysis was completed. Design of the Maloney PP which includes electrical upgrades at the Sobrante Water Treatment Plant (WTP) commenced in FY17 and is scheduled to be completed in FY19. A Maloney Reservoir outage plan is scheduled for FY20, with construction of both the Maloney PP and Sobrante WTP improvements scheduled for FY19-21. Planning, design and construction of the Selby Reservoir replacement is scheduled for FY23-27.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Maloney PP & SOWTP Imprvmts	9,500,000	9,300,000	0	18,800,000
Selby Reservoir Replacement	0	0	13,190,000	13,190,000
Crockett PP Capacity	180,000	450,000	5,830,000	6,460,000
Maloney PZI Planning Study	709,000	0	0	709,000

Appropriations:	
Prior Years	$ 10,389,000
2018	$ 9,300,000
2019	$ 0
2020	$ 0
2021	$ 450,000
2022	$ 0
Future Years	$ 44,640,000
Total Cost	**$ 64,779,000**

Lead Dept: ENG
Recurring: No

Funding:

BOND/REV	59%
SCC	41%

In Service Date: 30-Jun-31

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 and restore hydraulic capacity. 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.

Description:

This project will replace the deteriorated cement mortar lining in Mokelumne Aqueduct Nos. 2 and 3 to protect the steel pipeline from internal corrosion. Previous spot inspections of the elevated Delta reach revealed that 10 miles of the lining in Mokelumne Aqueduct No. 3 is in need of replacement. Limited inspections of Mokelumne Aqueduct No. 2 indicate that 65 miles of the lining in this pipeline also needs replacement.

FY16-17 work included completion of a study on lining materials/technologies, and an assessment of water quality improvement options. Work also included a comprehensive internal inspection of the above-ground segment of Mokelumne No. 2 (15 miles).

FY18-22 planned work includes design and construction of water treatment improvements, pilot testing of lining materials, and a comprehensive internal inspection of the below-ground segment of Mokelumne No. 2 (65 miles) and the above-ground section of Mokelumne No. 3 (10 miles).

In FY23-30, work includes design and construction of approximately six relining project phases.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Mok Aqueduct No. 2 Relining	24,419,000	0	186,000,000	210,419,000
Mok Aqueduct No. 3 Relining	29,023,000	0	9,000,000	38,023,000
Lining Studies & Improvements	11,980,347	0	0	11,980,347

Appropriations:	
Prior Years	$ 65,422,347
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 195,000,000
Total Cost	**$ 260,422,347**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

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.

FY18-22 work includes recoating Aqueduct No. 1 Phases 12 and 13, which covers the Orwood Tract and Woodward Island, and approximately sixty gully crossings.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Mokelumne Aqueducts Recoating	23,804,000	1,335,369	0	25,139,369

Appropriations:	
Prior Years	$ 43,315,153
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 1,335,369
Future Years	$ 0
Total Cost	**$ 44,650,522**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-24

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 FY18-19, work is estimated at 500 new services per year. In FY20-22, work is estimated to increase up to 550 new services per year.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
New Svc Installs	169,579,000	28,230,000	27,530,000	225,339,000

Appropriations:	
Prior Years	-
2018	$ 8,950,000
2019	$ 4,610,000
2020	$ 4,750,000
2021	$ 4,890,000
2022	$ 5,030,000
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 the rehabilitation and replacement of the District's open-cut reservoirs. In FY16-17, construction was completed for Phase I of the replacement of South Reservoir in Castro Valley, a 50 Million Gallon (MG) open-cut reservoir that was removed from service in 2008 due to roof leaks. In addition, construction of Phase II of the replacement of South Reservoir commenced. Also in FY16-17, design for the replacement of the San Pablo Clearwell in Kensington commenced, and plans to replace the District's largest distribution reservoir, Central Reservoir in Oakland continued.

Planned accomplishments for FY18-22 include completion of Phase II construction of the replacement of South Reservoir; completion of design and construction of the San Pablo Clearwell replacement; completion of the planning phase and kickoff of the design phase for the Central Reservoir replacement; completion of the environmental review documents to replace North Reservoir in Richmond; and completion of the Seneca Reservoir demolition project. Construction of the Central Reservoir replacement is planned beyond FY22.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Central Reservoir Replacement	2,787,402	2,234,000	151,894,000	156,915,402
North Reservoir Replacement	182,000	0	76,300,000	76,482,000
San Pablo Clearwell Replacemnt	19,064,000	6,219,000	0	25,283,000
South Reservoir Replacement	22,915,000	0	0	22,915,000
Seneca Reservoir Demolition	2,400,000	2,548,000	0	4,948,000

Appropriations:	
Prior Years	$ 57,326,402
2018	$ 8,767,000
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 2,234,000
Future Years	$ 228,194,000
Total Cost	**$ 296,521,402**

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 on problem pipelines.

Description:

This is an ongoing project to replace deteriorating water distribution pipelines. Candidate pipelines for renewal are identified primarily through evaluation of maintenance histories and consideration of consequences associated with future leaks and cost benefits of immediate replacement. In FY16, a total of 13.5 miles of pipeline replacements took place. In FY17, a total of 15 miles of pipeline replacements was planned which included the baseline 10 miles per year installed by existing District crews, and an additional 5 miles installed under the new Pipeline Rebuild Program. In FY18-22, work includes a total of 15 miles in FY18, ramping up to 20 miles per year by FY22. An increase in production is expected each year as Pipeline Rebuild implements more efficient processes and installation methods.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Infrastructure Renewals	238,902,476	143,726,000	181,571,000	564,199,476
Pipeline Rebuild Program	25,213,000	116,105,000	312,503,880	453,821,880
Pipeline Research-Development	3,878,000	1,288,000	1,518,000	6,684,000

Appropriations:	
Prior Years	-
2018	$ 42,080,000
2019	$ 43,337,000
2020	$ 44,605,000
2021	$ 60,814,000
2022	$ 70,283,000
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 including cities, counties, Caltrans and BART.

Description:

This is an ongoing project to relocate pipelines and accommodate projects of other agencies, such as roadway improvements, bridge replacements, or rail system expansions. The work is non-discretionary and typically cannot be forecasted accurately 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, while costs for pipeline relocations driven by agencies, such as Caltrans and BART are typically reimbursable.

In FY18-22, anticipated work includes design and construction of approximately 1.5 miles of pipeline relocations per year, which includes 0.5 mile of reimbursable and 1 mile of non-reimbursable work.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Non Reimbursable	37,204,166	22,299,000	29,994,000	89,497,166
Reimbursable	13,629,127	5,164,000	11,248,000	30,041,127

Appropriations:	
Prior Years	-
2018	$ 4,200,000
2019	$ 4,326,000
2020	$ 6,127,000
2021	$ 6,311,000
2022	$ 6,499,000
Future Years	-
Total Cost	**-**

Lead Dept: ENG
Recurring: Yes

Funding:

BOND/REV	73%
OAG	27%

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.

The District averaged approximately twelve miles of extensions per year in FY00-08, with two miles installed by District forces and ten miles by applicants. Although demand had been reduced to about three miles per year from FY09-13 due to the economic downturn, there is currently an increasing demand in applicant work. 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, work is anticipated to ramp up to eight miles per year of system extensions, with 1.5 miles constructed by District forces and 6.5 miles installed by applicants per year. Projecting further, FY20-22 will include approximately eight miles per year of system extensions.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
New Pipeline Installations	56,490,353	47,750,000	77,569,000	181,809,353

Appropriations:	
Prior Years	-
2018	$ 8,940,000
2019	$ 9,207,000
2020	$ 9,530,000
2021	$ 9,864,000
2022	$ 10,209,000
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 on-going project that serves to enhance the water distribution system by improving water quality, system performance, capacity, reliability, and maintainability of the distribution system.

In FY17, work included the design of approximately 0.25 miles of pipeline system improvements in Oakland and Orinda, the design and construction of 0.5 miles of 4-inch main replacements, and the on-going design and construction of system improvement projects currently underway throughout the District.

In FY18-22, work will include the design and construction of 1.0 mile per year of pipeline system improvements and 0.5 miles 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 and the Encinal Pumping Plant replacement in Orinda.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Maintainability Imprv Projects	5,723,290	7,640,000	17,472,000	30,835,290
4-inch Reliability Imprv	1,000,000	4,895,000	8,518,000	14,413,000

Appropriations:	
Prior Years	-
2018	$ 0
2019	$ 1,170,000
2020	$ 3,677,000
2021	$ 3,787,000
2022	$ 3,901,000
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 support ongoing and future capital projects including pipeline and major facility rehabilitation. The PZPP will report current District facilities 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 project to support ongoing and future capital projects. Individual PZPP studies define pressure zone issues, describe conceptual solutions for those issues, identify facility priority, and provide planning level cost estimates. The studies are compiled into the Distribution System Master Plan (DSMP).

No major work was completed in FY16-17. Starting in FY18 and occurring on an ongoing basis, numerous PZPPs will be updated in advance of upcoming infrastructure renewal priorities. The PZPPs require updates to incorporate recommendations for pipeline improvements where operational issues are identified, address more detailed hydraulic modeling and emerging priorities, and beginning in FY20 will reflect updates to the demand projections based on the results of the 2050 Demand Study, which is planned to be completed in FY18. An update to the DSMP will be completed in FY19.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Pressure Zone Planning Studies	1,567,000	581,119	725,000	2,873,119

Appropriations:	
Prior Years	$ 2,684,000
2018	$ 581,119
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 725,000
Total Cost	**$ 3,990,119**

Lead Dept: ENG
Recurring: No

Funding:

BOND/REV	80%
SCC	20%

In Service Date: 30-Jun-27

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 District updated the Distribution Pumping Plant Infrastructure Rehabilitation Plan (IRP) in 2016. The IRP identifies the 53 highest priority pumping plants (PPs) for rehabilitation, replacement, or demolition.

In FY15-16, the District awarded construction contracts for replacement of Shasta, Woods, and Diablo Vista PPs; rehabilitation of Moyers, Road 24 No. 2, Diablo, and Gwin PPs; and demolition of Laguna No. 1. PP. In FY17, construction contracts were awarded for Country Club, Schapiro, Road 24, Berryman, and University PPs.

In FY18-22, work includes planning, design and construction at 31 of the District's 130 distribution pumping plants. The following pumping plants are included: Gwin, Laguna, Country Club, Schapiro, Road 24 #1, Berryman North, University, Fire Trail, Jensen #1, Bayfair, Peralta, May, Proctor, Summit West, Montclair, Madrone, Palo Seco, Hill Mutual, Crest, Ridgewood, Valory, Quarry, Summit North, Echo Springs, Summit South, Aqueduct, Crockett, Larkey, Stott, Pearl, Welle, and Rolph. Work will also continue on PP Arc Flash Mitigation.

Future work will include design and construction on the remaining priority PP rehabilitation projects, as well as any priorities that may arise.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Future PP Rehabs	0	30,606,000	31,750,000	62,356,000
Summit West Montclair PP	0	16,234,000	0	16,234,000
Diablo Vista PP Rehabilitation	12,607,000	0	0	12,607,000
Country Club/Schapiro/Rd24#1PP	11,800,000	0	0	11,800,000
Quarry,Sumt North,EchoSprings	0	10,964,000	0	10,964,000
Fire Trail-Jensen #1 PP Rehab	9,012,807	0	0	9,012,807
HillMutl,Crest,Rdgwd,Valory PP	0	7,406,000	0	7,406,000
Bayfr,Prlta,Mdrne,PlSeco,MayPP	31,000	7,154,000	0	7,185,000

Appropriations:	
Prior Years	$ 98,988,039
2018	$ 28,491,000
2019	$ 12,487,000
2020	$ 11,237,000
2021	$ 16,780,000
2022	$ 13,826,000
Future Years	$ 31,823,000
Total Cost	**$ 213,632,039**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-28

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:

This project rehabilitates or replaces deteriorated Rate Control Stations (RCSs) in the distribution system. The District operates 36 RCSs with many older than 50 years. Over the next five years, the plan is to rehabilitate or replace an average of two RCSs per year. Access safety will be improved by replacing street manholes and outdated hatches with safer sidewalk hatches, and Occupational Safety and Health Administration approved ladders and ventilation where required. It will also replace deteriorated structures or enlarge existing structures with seismically safe, appropriately sized concrete structures, and replace deteriorated mechanical equipment and telemetry. In addition, this project includes site inspections and evaluations of RCSs to prioritize rehabilitations and replacements.

The RCS Infrastructure Rehabilitation Plan was updated in FY16 and will be updated every four years. In FY16-17, 82nd Avenue and Hollis RCS were designed and are currently in construction, and seven others are currently in design. RCS facilities scheduled for design and construction in FY18-22 include Oak, 98th Avenue, Sequoia, Ney, Victoria, Church, and Golf Links.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Future RCS Rehabs	0	1,001,000	10,035,000	11,036,000
CastroValley Dunsmuir,Lahonda	0	2,338,000	2,970,000	5,308,000
Alcsta,Bolngr,SanLuisNo1,Wbstr	0	2,219,000	3,050,000	5,269,000
Ney,Vctria,Chrch,GolfLinks	2,730,000	1,885,000	0	4,615,000
Oak,98Av,Sequoia RCS Rehabs	1,791,000	687,000	0	2,478,000
RCS Facility Assessments	275,000	0	100,000	375,000
RCS Planning	105,000	0	0	105,000

Appropriations:	
Prior Years	$ 8,897,000
2018	$ 0
2019	$ 387,000
2020	$ 419,000
2021	$ 1,887,000
2022	$ 5,437,000
Future Years	$ 16,155,000
Total Cost	**$ 33,182,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-27

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, 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. FY16-17 accomplishments included completion of the inspection of Lafayette Aqueduct #2; continued retrofit work of the settling temperature anchors on Mokelumne Aqueduct #1; extensive geotechnical investigations for the Delta Tunnel study; and inspection of the Pardee Tunnel.

In FY18-22, work includes continuing to monitor and retrofit the temperature anchors on Mokelumne Aqueduct #1; design and construction of the Briones Center upgrades; design and construction of the Walnut Creek Raw Water PP upgrades; completion of the Mokelumne Aqueduct wasteways facility plan and design and construction of identified upgrades; and selective demolition of the Bixler PP.

Beyond FY22, planned work includes installing a liner in Lafayette Aqueduct #1 and completing the preliminary design for the Delta Tunnel.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Delta Tunnel	2,474,000	11,247,000	94,401,000	108,122,000
Raw Wtr Improvements	19,683,000	22,931,000	39,066,000	81,680,000
Mok Aq No3	22,069,260	27,038,000	24,477,000	73,584,260
Raw Wtr Infrastructure Std	4,444,000	827,000	755,000	6,026,000

Appropriations:	
Prior Years	$ 53,088,610
2018	$ 6,739,000
2019	$ 16,588,000
2020	$ 16,660,000
2021	$ 8,687,000
2022	$ 13,369,000
Future Years	$ 158,699,000
Total Cost	**$ 273,830,610**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-27

Capital Improvement Program - Project Summary

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

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

Justification:

This project is needed to rehabilitate regulators 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 replacing 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. In addition, this project includes site inspections and evaluations of regulator facilities.

In FY16-17, planning was completed on seven regulator projects, design was completed on five projects and construction was completed on one project. Castle regulator was replaced in FY17. Designs for the rehabilitation of Black Feather, Grand, Painted Pony, Circle and Orion regulators were completed in FY17.

In FY18-22, designs for the rehabilitation of fifteen regulators are planned at an average of three regulators per year. After FY22, the plan is to rehabilitate or replace regulators at an average of two per year. If this schedule is maintained, each regulator will be upgraded once every 50 years.

Planning and design will be completed in FY20-22 for Ascot, Bayfair, Campus, Columbia, Crockett, Girvin, Gramercy, Henry, Keller, Laloma, Maud, Norris Canyon, Potrero, and Villareal regulators.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
RegulatorBundlePhase1Rehabs	6,570,000	0	0	6,570,000
RegulatorBundlePhase2Rehabs	2,770,000	0	2,878,300	5,648,300
Future Regulator Rehabs	0	394,000	4,077,000	4,471,000
BlkFeathr,PntdPony,Crcle,Orion	1,930,932	0	0	1,930,932
Regulator Facility Assessments	275,000	0	100,000	375,000
Standby regulator evaluation	210,000	10,000	0	220,000

Appropriations:	
Prior Years	$ 22,414,000
2018	$ 0
2019	$ 0
2020	$ 10,000
2021	$ 0
2022	$ 394,000
Future Years	$ 7,055,300
Total Cost	**$ 29,873,300**

Lead Dept: ENG
Recurring: No

Funding:

BOND/REV	90%
SCC	10%

In Service Date: 30-Jun-27

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 District's reservoirs.

Description:

This project includes the rehabilitation, replacement, and demolition of the District's 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 FY16-17, construction contracts were awarded to rehabilitate, replace, or demolish three steel reservoirs each year. The design phase to demolish the Berkeley View No. 2, Muir, and Potrero reservoirs was completed in FY16 and the design phase to rehabilitate the Bacon, Mendocino, and Pearl reservoirs is on schedule for completion in FY17. The construction phases for the rehabilitation of Round Hill and El Portal reservoirs, the replacement of Eden Reservoir, and the demolition of three steel reservoirs were completed in FY16-17. Also in FY17, the design of the Carisbrook, Montclair, and Skyline Pumping Plant project was completed and the reservoir rehabilitation priorities were updated.

In FY18-22, the District will continue the sustainable rehabilitation rate for steel reservoirs of three to four reservoirs each year. Other planned accomplishments for FY18-22 include completion of the construction phase for the new Carisbrook Reservoir and the rehabilitation of Montclair Reservoir, and completion of the reservoir roof safety program which includes improvements for reservoir roof and ladder fall protection.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Res Rehab/Mai Prog (Coatings)	106,356,000	63,593,000	52,438,000	222,387,000
Res Supplemental Imprv Proj	25,251,000	13,313,000	0	38,564,000
Reservoir Roof Safety Program	1,342,000	0	0	1,342,000
Reservoir Facility Assessments	636,000	202,000	0	838,000

Appropriations:	
Prior Years	$ 133,633,000
2018	$ 12,395,000
2019	$ 17,248,000
2020	$ 20,127,000
2021	$ 14,231,000
2022	$ 13,107,000
Future Years	$ 52,438,000
Total Cost	**$ 263,179,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-30

Capital Improvement Program - Project Summary

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

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

Justification:

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

Description:

This project encompasses the seismic retrofit of six reservoir towers. Retrofits to Chabot Tower started in FY15 as part of the seismic upgrades being made to Chabot Dam in San Leandro. The Briones Tower in Orinda requires upgrades to resist earthquake loads. Planning and design of the upgrades started in FY16, with construction planned in FY21-22. Lafayette Reservoir Tower modifications include seismic and gate control upgrades, and modification of the tower to act as a spillway capable of handling the revised Probable Maximum Flood. Planning is underway, with construction planned to start in FY22.

A seismic evaluation of the Pardee Reservoir Outlet Tower included the evaluation of the seepage from Pardee Tunnel in the vicinity of the West Portal. Design fixes were delayed because it was not possible to take the tunnel out of service for operational reasons. The tunnel is scheduled to be repaired in FY21, assuming an outage is possible.

A stability analysis was conducted for the Upper San Leandro Reservoir Tower in Oakland. Design of structural and mechanical upgrades for this critical tower is ongoing, with construction planned to take place in FY18.

The need for the San Pablo Filter Plant is uncertain. Therefore, the San Pablo Tower in Richmond will undergo only minor seismic rehabilitation for safety, and the gate valves will be replaced.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Briones & Lafayette Tower Mods	21,688,000	7,000,000	0	28,688,000
USL-San Pablo-Chabot Tower Mod	11,294,000	0	0	11,294,000
Pardee Outlet Tower & Tunnel	750,000	2,750,000	0	3,500,000

Appropriations:	
Prior Years	$ 33,732,000
2018	$ 150,000
2019	$ 0
2020	$ 0
2021	$ 9,600,000
2022	$ 0
Future Years	$ 0
Total Cost	**$ 43,482,000**

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 indicates that the slopes may become unstable and the crest settlements may be excessive during the maximum credible earthquake. Therefore, retrofit measures are required to stabilize the dam to prevent an uncontrolled release of reservoir water.

Description:

This project provides for modifications to the downstream slope of the San Pablo Dam embankment in Orinda to prevent slope instability and crest settlement during a maximum credible 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. Mitigation measures during construction have been completed, resulting in the lifting of the California Division of Safety of Dams (DSOD) restrictions on the maximum operating level.

The replacement of old valves in the tunnel scheduled for FY14-16 was not completed due to the continued use of the Sobrante Water Treatment Plant during the drought. The work is now scheduled for completion in FY18-19, along with replacing the total station survey equipment. Ongoing work includes maintenance and monitoring for the mitigation structures and meeting reporting requirements to the regulatory agencies. Mitigation maintenance and monitoring will continue through FY21.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
San Pablo Dam Mods	81,613,000	0	0	81,613,000

Appropriations:	
Prior Years	$ 82,588,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 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.

District crews respond 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 with known problems 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. Funding for pre-emptive service lateral replacements is set to cover an estimated 400 planned replacements.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Unplanned Svc Repls	0	58,885,000	53,142,000	112,027,000
Planned Copper Svc Repls	0	8,657,000	8,730,000	17,387,000
Planned Polybutylene Svc Repls	0	6,073,000	0	6,073,000

Appropriations:	
Prior Years	$ 186,766,000
2018	$ 13,753,000
2019	$ 13,779,000
2020	$ 15,161,000
2021	$ 15,443,000
2022	$ 15,479,000
Future Years	$ 61,872,000
Total Cost	**$ 322,253,000**

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 and/or eliminate aging infrastructure, improve water quality, and improve operating efficiency and reliability in the South Oakland Hills Cascades which have 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 Improvement (PZI) study 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. Projects under the South Oakland Hills Cascades PZI include removal of May Pumping Plant (PP) from service and a new Peralta Regulator and 4,700 feet of 16-inch pipeline.

Projects to be implemented under other infrastructure rehabilitation programs include demolition of Peralta Reservoir, Peralta Pumping Plant and 1.5 miles of discharge pipeline; 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 which coordinates capital improvements.

In FY17, planning was completed for the Peralta Regulator and supporting pipeline. Design and construction is scheduled for FY18-20.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Country Club-Peralta PZI	2,190,000	1,088,000	0	3,278,000

Appropriations:	
Prior Years	$ 2,411,000
2018	$ 1,088,000
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 3,499,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-20

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 significant hydraulic (transmission) limitations, excess storage that creates water quality issues, and aging facilities that require major maintenance/replacement and 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 Berryman Reservoir replacement was completed in FY13. The Summit Reservoir Replacement includes demolition of Summit Reservoir and Woods and Shasta Pumping Plants located at the Summit Reservoir site, and replacement with a partially buried 3.5 million gallon concrete tank, a new flow control valve to access excess Woods Reservoir storage, and replacement pumping plants. In FY16-17, construction of the replacement facilities at the Summit Reservoir site was completed, with final site work to be completed in FY18.

This project also includes a study to be performed in FY20 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 FY21, followed by environmental reviews in FY22-23, and then design and construction of a new reservoir in FY24-26.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Summit Reservoir Replacement	28,025,000	0	0	28,025,000
Lawrence Tank Des & Construct	0	1,260,000	15,600,000	16,860,000
Pressure Zone Improvemnt Study	2,604,000	0	0	2,604,000

Appropriations:	
Prior Years	$ 40,259,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 1,260,000
2022	$ 0
Future Years	$ 15,600,000
Total Cost	**$ 57,119,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-26

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 access available capacity from the Walnut Creek Water Treatment Plant (WTP) and remove its dependence on 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. Property was purchased in FY12, and design is scheduled for FY23 followed by construction in FY24-25.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Tice PP and I/O Pipeline	888,930	0	14,905,000	15,793,930

Appropriations:	
Prior Years	$ 888,930
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 14,905,000
Total Cost	**$ 15,793,930**

Lead Dept: ENG
Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 30-Jun-25

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 FY18-22, the CP systems on the Upper San Leandro Raw Water Pipeline and 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	FY18-22	Future Yrs	Total
Transmission Mains Cathodic Pr	2,021,000	3,326,000	5,589,000	10,936,000

Appropriations:	
Prior Years	$ 2,551,000
2018	$ 115,000
2019	$ 768,000
2020	$ 791,000
2021	$ 814,000
2022	$ 838,000
Future Years	$ 5,589,000
Total Cost	**$ 11,466,000**

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.

Description:

Work completed in FY16-17 included reviving the San Pablo Water Treatment Plant (WTP) to support drought operations, and renovating and upgrading the Orinda WTP to improve treatment plant reliability and maintainability. In FY18-22, work is planned at five water treatment plants, including: (1) at the Orinda WTP filter renovation, sodium hypochlorite system replacement, and adding a filter air scour system; (2) at the Upper San Leandro (USL) WTP renovating the solids removal, backwash water reclamation, and solids handling systems; (3) at the Sobrante WTP new wash water reclamation and solids handling systems, and installing an oxygenation/mixing system in the San Pablo Reservoir to improve water quality; (4) at the Walnut Creek WTP rehabilitating the old filters, improving the solids handling, and designing a new pretreatment system; and (5) at Lafayette WTP conducting interim safety and reliability upgrades. Additional work in FY18-22 includes improving the chemical system safety at five WTPs and upgrading the controls systems at USL and Sobrante WTPs.

Planned work in FY23-27 includes completion of Phase I of the Walnut Creek WTP pretreatment system construction, and design of Phase II of the pretreatment system.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Walnut Creek WTP	1,650,000	46,200,000	33,500,000	81,350,000
Orinda WTP	45,339,000	3,000,000	0	48,339,000
WTP Work - Multiple Locations	6,052,102	36,561,000	3,500,000	46,113,102
Sobrante WTP	6,155,000	33,060,000	0	39,215,000
USL WTP	3,661,100	17,300,000	0	20,961,100
Lafayette WTP	3,903,000	1,141,000	2,000,000	7,044,000

Appropriations:	
Prior Years	$ 98,584,957
2018	$ 51,962,000
2019	$ 82,300,000
2020	$ 3,000,000
2021	$ 0
2022	$ 0
Future Years	$ 39,000,000
Total Cost	**$ 274,846,957**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-31

Capital Improvement Program - Project Summary

Project: Trench Spoils Disposal Sites **Project Number:** 000652

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

Justification:

The project is needed to ensure that adequate storage capacity is maintained at the District's trench spoils disposal sites, and operations continue to comply with regulatory requirements.

Description:

The District continually generates trench spoils material from ongoing pipeline installation and maintenance repairs. The excavated trench spoils are temporarily stockpiled for future reuse or final disposal at three District-owned disposal sites: Miller Road in Castro Valley, Briones in Orinda and Amador in San Ramon.

The project includes periodic removal of trench spoils material, site management and maintenance in accordance with regulatory requirements, and evaluation of potential spoils reduction and disposal alternatives. Work in FY16-17 included management of the trench spoils sites in compliance with stormwater control regulations, preparation of a Master Plan and off-haul of trench spoils at Miller Road.

In FY18-22, work includes implementation of the Master Plan and a 5-year update, ongoing management of the trench spoils sites, and off-haul of the Briones site in FY19-20. Trench spoils production is expected to increase as more pipe is installed in the future under the Pipeline Rebuild Program. Once off hauling of Briones and Miller Road is completed, the sites will be on a 5 -7 year cycle for off hauling of stored spoils.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Trench Spoils Management Prog	14,323,786	18,815,000	17,202,000	50,340,786

Appropriations:	
Prior Years	-
2018	$ 15,101,000
2019	$ 812,000
2020	$ 836,000
2021	$ 861,000
2022	$ 1,205,000
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 is scheduled for completion by FY21.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Distribution System Monitors	429,000	300,000	0	729,000

Appropriations:	
Prior Years	$ 672,000
2018	$ 50,000
2019	$ 0
2020	$ 250,000
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 972,000**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-21

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 infrastructure age, operational reliability, and concerns about the reservoir lining materials.

Description:

In FY16-17, design of the Happy Valley Pumping Plant (PP) in Orinda and the Sunnyside PP in Lafayette was initiated.

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 replacement of 500 feet of 12-inch pipeline in Rheem Boulevard in Moraga in FY19-21; and (3) a new 2.0 million gallon (MG) Ardith Reservoir and a replacement 1.3 MGD Donald PP in Orinda in FY21-22.

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 FY21; (2) construction of 21,600 of 20-inch pipeline in St. Mary's Road/Rohrer Drive in FY24-25; and (3) a 3.0 MGD Withers PP in Lafayette in FY27-28.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Moraga Reservoir	200,000	0	20,596,000	20,796,000
St. Mary's/Rohrer Dr. Pipeline	100,000	16,965,700	0	17,065,700
Happy Valley/Sunnyside PP & PL	16,175,547	0	0	16,175,547
Ardith Reservoir/Donald PP	9,073,525	1,303,085	0	10,376,610
Withers Pumping Plant	455,000	0	7,281,000	7,736,000
Fay Hill Pumping Plant Upgrade	2,436,712	3,063,288	0	5,500,000
Glen Pipeline & Res Decommiss	914,000	218,050	0	1,132,050
Fay Hill Pipeline	304,000	24,350	0	328,350

Appropriations:	
Prior Years	$ 36,186,290
2018	$ 3,305,688
2019	$ 0
2020	$ 1,303,085
2021	$ 16,965,700
2022	$ 0
Future Years	$ 33,288,292
Total Cost	**$ 91,049,055**

Lead Dept: ENG

Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 30-Jun-37

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 at the Water Treatment Plants (WTPs). Planning and design was completed in FY17 on the Upper San Leandro WTP and Sobrante WTP for ozone upgrades which includes conversion of the existing air feed ozone generator to a liquid oxygen feed system. Construction commenced in FY17 and will be completed in FY19. Future work includes a Lafayette WTP Master Plan including environmental reviews which will determine the operational need for the Lafayette WTP in FY19-21.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Sobrante and USL WTPs Ozone	40,264,075	0	0	40,264,075
Lafayette WTP Master Plan	0	2,200,000	0	2,200,000

Appropriations:	
Prior Years	$ 60,051,484
2018	$ 0
2019	$ 2,200,000
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 402,825,199
Total Cost	**$ 465,076,683**

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:

Demand projections are required for long-term water supply projections, 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 updates District-wide water demand projections. A detailed update is completed approximately every 10 years, followed by a mid-cycle update five years later. The last detailed update, called the 2040 Demand Study, was completed in FY09 and the Mid-Cycle Update was completed in FY14. The next detailed update will be completed in FY19 and will project demands to 2050, while incorporating changes in city and county land use plans, estimating changes in water use within the service area, estimating the influence of climate change, and reflecting recent plans for water conservation and recycled water. A Mid-Cycle Update will be completed in FY24.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Demand Study Update	550,000	390,000	120,000	1,060,000

Appropriations:	
Prior Years	$ 550,000
2018	$ 390,000
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 120,000
Total Cost	**$ 1,060,000**

Lead Dept: ENG

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-24

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, pumping and treatment plant capacities to address existing deficiencies and meet future water demands in the West of Hills distribution system. In addition, the existing Fontaine PP in Oakland is located close 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 23 individual projects including improvements at three water treatment plants; two pumping plants; five water storage reservoirs; and approximately 120,000 feet of transmission pipelines. The individual projects will be grouped together into several Environmental Impact Reports (EIRs) and Mitigated Negative Declarations (MNDs). In FY16-17, design of a portion of the WOH Northern Pipelines was initiated and property was purchased for the Fontaine Pumping Plant (PP).

The project groups include the Upper San Leandro WTP Supplemental EIR (SEIR) in FY18, Sobrante WTP SEIR in FY18-19, San Pablo WTP Master Plan and MND in FY18-20, Orinda WTP Master Plan and EIR in FY21-23, completion of Fontaine PP MND in FY18, WOH Southern Pipelines EIR in FY19-20, WOH Central Pipelines EIR in FY21-22, and Sobrante WTP Expansion Project and EIR in FY23-24.

FY18-24 also includes design and construction of the 42,150 feet of 36-inch and 48-inch pipeline and the new Fontaine PP, and the South 30 Pipeline improvements.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Sequoia Aq Pipeline Impr.	0	0	44,264,400	44,264,400
Central North Pipeline Impr.	0	37,272,000	0	37,272,000
No. & So. Wildcat Aq Pipe Impr	30,274,824	3,432,669	0	33,707,493
Relocate Fontaine PP	13,266,000	7,947,000	0	21,213,000
Wildcat Pumping Plant	0	0	18,436,000	18,436,000
West of Hills EIRs	7,588,430	4,694,000	2,381,350	14,663,780
South 30 Pipeline Impr.	0	14,502,000	0	14,502,000
Genoa Pipeline	0	8,687,000	0	8,687,000

Appropriations:	
Prior Years	$ 52,114,254
2018	$ 3,586,669
2019	$ 37,272,000
2020	$ 14,502,000
2021	$ 4,540,000
2022	$ 16,634,000
Future Years	$ 390,481,150
Total Cost	**$ 519,130,073**

Lead Dept: ENG
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-37

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 FY19, funds have been set aside for possible costs related to the implementation of new computer systems.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Contingency Proj Water	3,429,111	22,000,000	0	25,429,111
FIS / MMIS Contingency FY18	0	4,500,000	0	4,500,000

Appropriations:	
Prior Years	$ 39,700,111
2018	$ 6,000,000
2019	$ 8,500,000
2020	$ 4,000,000
2021	$ 4,000,000
2022	$ 4,000,000
Future Years	$ 0
Total Cost	**$ 66,200,111**

Lead Dept: FIN
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-22

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 FY20.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Phone Infrastructure Upgrade	300,000	230,000	0	530,000

Appropriations:	
Prior Years	-
2018	$ 50,000
2019	$ 80,000
2020	$ 100,000
2021	$ 0
2022	$ 0
Future Years	-
Total Cost	**-**

Lead Dept: ISD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: FIS 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 replacement is required to ensure a long-term, reliable function of the system.

Description:

This project is a joint effort of the Finance, Information Systems, and user departments to replace the Financial Information System (FIS) and to reduce risks associated with vendor dependence. Evaluating and selecting a replacement alternative is scheduled for completion in FY18, followed by developing an implementation plan, selecting a vendor and implementing the new financial system. Accounts payable functionality is handled by the Materials Management Information System (MMIS), so the FIS replacement alternative will be evaluated along with the MMIS Replacement project to ensure such functionality is addressed. Implementation of the new system will take place in FY18-20.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Implementation	2,300,000	4,450,000	0	6,750,000
Evaluation Option Selection	200,000	525,965	0	725,965

Appropriations:	
Prior Years	$ 2,500,000
2018	$ 525,965
2019	$ 1,850,000
2020	$ 2,600,000
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 7,475,965**

Lead Dept: ISD

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-20

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 business rules, evaluating and selecting alternatives, developing an implementation plan, and preparing associated Requests for Proposals began in FY16. High level requirements for all modules began in FY17 and will facilitate sequencing of remaining system module replacement. Implementation of the new system modules will take place in FY18-20.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Implementation	2,000,000	4,600,000	0	6,600,000
Evaluation Option Selection	1,200,000	0	0	1,200,000

Appropriations:	
Prior Years	$ 3,200,000
2018	$ 1,000,000
2019	$ 3,000,000
2020	$ 600,000
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 7,800,000**

Lead Dept: ISD

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-20

Capital Improvement Program - Project Summary

Project: MMIS Replacement **Project Number:** 2003547

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

Justification:

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 Information Systems, Purchasing, Accounting and Contract Equity Program Office to replace the Materials Management Information System (MMIS) with a new procurement and vendor management system. MMIS is a computer application written in a 25-year-old computer language and is supported by a one person consulting firm. There is no in-house staff skilled in the language and finding new staff with that knowledge is increasingly difficult. Accounts Payable functionality is handled in MMIS so the replacement alternative will be evaluated along with the Financial Information System Replacement project to ensure such functionality is addressed. The evaluation and selection of a replacement alternative is scheduled for FY18, with implementation of the new system expected in FY19-20.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Implementation	3,500,000	2,500,000	0	6,000,000

Appropriations:	
Prior Years	$ 4,000,000
2018	$ 83,190
2019	$ 0
2020	$ 2,500,000
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 6,583,190**

Lead Dept: ISD

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-20

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 FY18 followed by an implementation plan in FY19-22 which includes selecting a vendor and implementing new WMS.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Implementation	0	5,400,000	0	5,400,000
Evaluation Option Selection	200,000	0	0	200,000

Appropriations:	
Prior Years	$ 200,000
2018	$ 0
2019	$ 1,500,000
2020	$ 1,500,000
2021	$ 1,400,000
2022	$ 1,000,000
Future Years	$ 0
Total Cost	**$ 5,600,000**

Lead Dept: ISD

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-22

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 FY16, approximately 16,200 residential meters, 1,250 small commercial meters and 184 large commercial meters were replaced. An estimated total of 12,000 meters are expected to be replaced in FY17.

Also under this project, 2,250 meters that were difficult or dangerous to read were replaced in FY16-17 with automated electronic meters under a meter reading mitigation program.

In FY18-19, it is planned that 5,000 meters in each of the two years will be 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 adding equipment to collect data from these automated meters.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Planned Meter Replacements	17,144,357	12,657,600	18,336,000	48,137,957
Advanced Metering Infra	0	2,935,800	0	2,935,800
AMI Collectors	0	1,000,000	0	1,000,000

Appropriations:	
Prior Years	-
2018	$ 6,446,200
2019	$ 3,543,700
2020	$ 2,125,900
2021	$ 2,200,300
2022	$ 2,277,300
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: Meter Test Facility **Project Number:** 2003551

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

Justification:

The District's accelerated-wear testing capabilities need to be upgraded to allow for year round testing of meters of multiple sizes and flows up to 3". A new test facility and meter test bench will enable the District to more accurately test meters.

Description:

This project has two parts. The first involves building a new accelerated wear testing facility to meet the District's requirements for testing water meters up to 3". This involves construction of a remote site that provides year-round operational flows sufficient for testing multiple large meters.

The second aspect is to improve the Meter Shop's ability to test revenue meters for accuracy. This involves replacing the nearly 70 year old meter test bench at the Adeline Maintenance Center. The new bench will provide greater accuracy and efficiency in testing meters, and will result in water and labor savings. Construction of these facilities will be completed in FY18.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Meter Test Facility	750,000	0	0	750,000

Appropriations:	
Prior Years	$ 750,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 750,000**

Lead Dept: MCD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-19

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 FY16-17, the entire 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 60 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 vulnerability mitigation recommendations were completed in FY17.

In FY18-22, upgrade of the SCADA system will continue, and deployment of additional communication and security equipment will take place to coincide with the RTU replacement project. Also, ICS cyber security vulnerability assessment recommendations will continue.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Op/Net Sys Improvements	8,272,000	6,915,000	1,475,000	16,662,000
Recurring Op/Net Improvements	4,911,600	2,070,600	6,392,000	13,374,200
Control System Improvements	1,312,600	1,924,200	2,344,100	5,580,900

Appropriations:	
Prior Years	-
2018	$ 2,909,300
2019	$ 2,711,800
2020	$ 3,108,300
2021	$ 1,123,100
2022	$ 1,057,300
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. The Large Valve Master Plan has identified a number of appurtenances that need to be upgraded to ensure system reliability.

A goal is to inspect and operate 10% of distribution valves annually. In FY15-16, 13 appurtenances, 107 small gate valves, and 20 large valves were replaced.

In FY15-16, 1,019 gate valve assemblies were upgraded 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	FY18-22	Future Yrs	Total
Annual Appurtenance Work	10,077,970	6,394,000	5,659,000	22,130,970

Appropriations:	
Prior Years	-
2018	$ 1,367,000
2019	$ 1,201,000
2020	$ 1,238,000
2021	$ 1,275,000
2022	$ 1,313,000
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 pumping plants, reservoirs, regulators and rate control stations. There are 425 of these facilities, of which 135 have improvements scheduled in the Infrastructure Rehabilitation Plan (IRP). This project provides improvements to maintain the reliability and safety of the remaining facilities, as well as accelerated replacement of failed or unreliable components in some of the 135 facilities slated for eventual rehabilitation. Improvements at a facility will be smaller in scale than the typical project under the IRP.

Major projects completed in FY16-17 include the replacement of electrical equipment at Stott (Pinole), Sleepy Hollow (Orinda), Fontaine (Oakland) and Tewksbury (El Cerrito) Pumping Plants; replacement of the emergency generator at Lafayette Water Treatment Plant (WTP); repairs to the emergency generator at Walnut Creek WTP; and repair or replacement of motors at Summit West (Kensington), Road 24 No. 2 (Richmond), Strathmoor (Oakland), Fontaine (Oakland), Holly (Walnut Creek), and several other smaller pumping plants.

Planned projects for FY18-19 include replacement of electrical equipment at six 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	FY18-22	Future Yrs	Total
Small Capital Improvements	7,986,540	13,341,756	25,027,796	46,356,092
Portable Generator & Pump Repl	0	0	11,000,000	11,000,000

Appropriations:	
Prior Years	-
2018	$ 2,019,566
2019	$ 2,619,852
2020	$ 2,706,329
2021	$ 2,941,039
2022	$ 3,054,970
Future Years	-
Total Cost	**-**

Lead Dept: MCD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

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 that involves the acquisition of 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 FY18-19, the District will purchase the necessary equipment to outfit additional staff and decrease the reliance on fully manned and operated contracts. Additionally, new vacuum excavators and equipment to outfit two new large valve crews for leak detection are required to meet regulatory compliance and resource conservation goals.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Trucks and Heavy Eq Additions	13,519,500	7,637,000	0	21,156,500

Appropriations:	
Prior Years	-
2018	$ 4,543,000
2019	$ 3,094,000
2020	$ 0
2021	$ 0
2022	$ 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 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 crew and user productivity.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Fleet & Equip Repl/Purchases	84,748,635	21,245,457	3,135,170	109,129,262

Appropriations:	
Prior Years	-
2018	$ 5,000,000
2019	$ 5,000,000
2020	$ 5,000,000
2021	$ 3,370,734
2022	$ 2,874,723
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 local and state regulatory requirements, work includes upgrades and enhancements to watershed land, facilities and recreation areas.

In FY18-22, recreation projects at the San Pablo and Lafayette Recreation Areas will include picnic area, parking lot and trail staging area improvements; visitor center, cafe and retail upgrades; marina improvements; water and sewer system upgrades; and repaving of primary roadways.

Watershed projects will include trail staging area upgrades and paving; habitat and pond restoration; hazardous tree removal; replacement of old fire pumps; boundary fence upgrades and replacement; infrastructure upgrades at the Orinda Watershed Headquarters; and Division of Safety of Dams required upgrades at Upper San Leandro and San Pablo Reservoirs.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Lafayette Rec Infrastructure	3,460,000	1,275,000	0	4,735,000
San Pablo Rec Infrastructure	1,921,993	1,595,000	0	3,516,993
EB Public Safety/Reg/Wtr Qual	1,289,210	465,000	150,000	1,904,210
EB Range/Fire Mgmt Prog Upgrds	1,227,000	505,000	30,000	1,762,000
EB Facilities/Watershed Imprvs	437,500	636,000	0	1,073,500

Appropriations:	
Prior Years	$ 10,667,202
2018	$ 706,000
2019	$ 1,110,000
2020	$ 770,000
2021	$ 980,000
2022	$ 910,000
Future Years	$ 180,000
Total Cost	**$ 15,323,202**

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 maintain and 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, additional Endangered Species Act listings, and proposed changes to Sacramento - San Joaquin Delta operations. The project also includes species and habitat protection and enhancement measures as required by the East Bay HCP.

FY18-22 planned work will downsize the existing freezer, expand the fish rearing space, and maintain the acoustic receiver array. Infrastructure options will be assessed to improve survival of Mokelumne origin salmon. 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 instream flow study to support water rights, upgrades to MRFH to meet new regulatory requirements, and installation of a passive integrated transponder tag reader to support monitoring requirements.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Mok River & Hatchery Equipment	1,389,198	150,000	150,000	1,689,198
Mok Rvr Riparian Habitat Rest	945,000	575,000	115,000	1,635,000
EB Habitat Conservation Plan	460,332	0	46,000	506,332
Hatchery Reform Measures	220,000	200,000	30,000	450,000
SL Creek Fisheries Mgmt Plan	0	250,000	30,000	280,000

Appropriations:	
Prior Years	$ 3,771,332
2018	$ 200,000
2019	$ 190,000
2020	$ 245,000
2021	$ 195,000
2022	$ 345,000
Future Years	$ 371,000
Total Cost	**$ 5,317,332**

Lead Dept: NRD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-23

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 replaces the Mokelumne headquarters that accommodates 22 staff. A new pre-engineered modular administration building with energy efficient and sustainable features was constructed in FY11. Supplemental cooling improvements and demolition of the old ranger building took place in FY14.

Phase 2 consists of a new fuel station, a back-up generator, construction of a modular warehouse/shop building, and vehicle access and circulation improvements. The back-up generator will be installed in FY18. Planning, design and construction of the warehouse/shop building and fuel station is planned for FY20-22.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Mok Watershed HQ - Phase 2	1,048,500	1,695,000	0	2,743,500

Appropriations:	
Prior Years	$ 4,159,500
2018	$ 0
2019	$ 0
2020	$ 1,695,000
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 5,854,500**

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 local and state regulatory requirements, work includes upgrades and enhancements to watershed land, facilities and recreation areas.

In FY18-22, recreation projects include boat barrier protections at Pardee and Camanche Dams, cafe and retail upgrades, marina improvements and new docks, water system upgrades, and repaving of primary roadways.

Watershed projects include habitat restoration, hazardous tree removal, and boundary fence upgrade and replacement.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Mokelumne Watershed Fencing	1,140,000	400,000	1,500,000	3,040,000
Moke Facilities/Infrastructure	1,155,301	325,000	0	1,480,301
Mok Public Safety/Reg/Wtr Qual	617,200	370,000	50,000	1,037,200

Appropriations:	
Prior Years	-
2018	$ 270,000
2019	$ 200,000
2020	$ 225,000
2021	$ 200,000
2022	$ 200,000
Future Years	-
Total Cost	**-**

Lead Dept: NRD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

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 40 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 FY16-17, work included the replacement of the Camanche North Shore floating marina and a total renovation of the Pardee seasonal RV park (water, wastewater, electrical, roads and landscaping). In addition, replacement of the exposed polystyrene flotation tubs with fully encapsulated tubs was completed for the Pardee floating marina.

In FY18-20, the Camanche South Shore above ground fuel tank will be downsized and replaced to better 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.

The Pardee Recreation Area coffee shop will be evaluated for replacement, and the restroom at Camanche South Shore Oaks Campground will be evaluated for renovation including the addition of shower facilities.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Pardee Recreation Area	6,472,312	475,000	0	6,947,312
Camanche Recreation Area	2,406,000	800,000	0	3,206,000

Appropriations:	
Prior Years	$ 8,929,000
2018	$ 500,000
2019	$ 775,000
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 10,204,000**

Lead Dept: NRD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-20

Capital Improvement Program - Project Summary

Project: Pinole Valley Miti. Bank Plan **Project Number:** 2003501

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

Justification:

The Pinole Valley supports at least six State or Federally protected species. This District property has excellent potential for establishment of a mitigation bank that could generate revenue for other watershed conservation efforts.

Description:

The Pinole Valley Mitigation Bank Planning project will allow the District to develop the documentation needed to support a mitigation bank proposal through the formal approval process. A mitigation bank is a new approach to compensate for the environmental impacts of selected projects. Rather than replacing or providing substitute resources or environments on-site, those mitigations are funded by project sponsors and provided at another site.

The bank planning process will identify physical improvements in the Pinole watershed, located four miles east of Pinole and two miles north of San Pablo Reservoir, as well as monitoring and reporting requirements for the bank. Additional funding may be needed to complete improvements and to perform the required monitoring and reporting.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Mitigation Bank Documentation	1,055,000	2,300,000	0	3,355,000

Appropriations:	
Prior Years	$ 1,055,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 2,300,000
Future Years	$ 0
Total Cost	**$ 3,355,000**

Lead Dept: NRD
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.

In FY16-17, the District replaced 21 vehicles that were equipped with a level 1 diesel emissions control device in 2006 through a grant with the Bay Area Air Quality District. Four portable pumps and six portable generators were also replaced. The remaining two portable pumps have been deferred until FY19 for cost management. Additionally, in FY19 the final Tier 0 generator needs to be replaced when it becomes available from the manufacturer.

The District is in compliance with the Off-Road Diesel engine regulation through 2020 due to double credit for retrofitting off-road equipment before the first compliance date. All large spark ignition equipment has either been equipped with catalytic converters or confirmed as low usage equipment.

An additional eight portable pumps will need to be replaced or retired by 2020 to comply with the California Air Resources Board restrictions on Tier 1 and Tier 2 engines.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
On Road Diesel Engine Retrofit	10,180,000	300,000	0	10,480,000
Portable Pump & Generator Repl	3,353,000	3,300,000	0	6,653,000
OffRoad Diesel Engine Retrofit	350,000	0	0	350,000
Portable Equipment	200,000	0	0	200,000

Appropriations:	
Prior Years	$ 14,228,000
2018	$ 1,700,000
2019	$ 1,900,000
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 17,828,000**

Lead Dept: OSD

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-20

Capital Improvement Program - Project Summary

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

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

Justification:

Upgrading the fuel facilities is required by current and proposed environmental regulations. Replacing the existing fuel dispensers ensures the District's fueling facilities will meet environmental regulations.

Description:

This project includes planning, design and construction to upgrade District fueling facilities. FY16-17 accomplishments include upgrading the automated fuel management system at thirteen sites to improve the District's ability to better track fuel usage and vehicle mileage, and replacing the fuel dispensers at five fueling sites. Improvements scheduled for FY18-19 include installing new fuel dispensers at six sites, and installing the Enhanced Vapor Recovery Phase II equipment for the above ground storage tanks.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Fuel Facility Improvements	3,515,000	0	0	3,515,000
Fuel Facility Major Upgrades	2,855,000	0	0	2,855,000

Appropriations:	
Prior Years	$ 6,370,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 6,370,000**

Lead Dept: OSD

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-19

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 Wastewater for Lab upgrades, improvements and equipment.

In FY18, projects will include removing loose insulation in ducts and fan rooms, conference room high definition displays, replacing all air handling units at shops, replacing the Lime Tower chiller, and replacing window film at the Administration Building (AB). In FY19, projects will include re-coating flooring on AB terraces, exterior painting, sealing garage floors, fire alarm repairs, and waterproofing planters.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Laboratory Upgrds-Waterside	777,500	6,322,900	0	7,100,400
Minor Facilities Work	2,237,149	1,193,540	800,000	4,230,689

Appropriations:	
Prior Years	-
2018	$ 822,370
2019	$ 1,079,370
2020	$ 783,000
2021	$ 4,466,500
2022	$ 365,200
Future Years	-
Total Cost	**-**

Lead Dept: OSD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

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 includes the evaluation and implementation of long-term remedial solutions for two sites: former Penn Mine and Poison Lake.

The goal is to restore the Penn Mine site to pre-mining conditions. Recent accomplishments include bi-monthly leachate pumping and off haul, a downward trend in leachate production within the landfill in response to previous efforts to seal the liner and cap, groundwater monitoring and reporting to the State, and general site management. Planned activities for FY18-22 include continued leachate removal. If the leachate generation rate does not decrease significantly upon the return of normal rainfall patterns to California, additional investigations and landfill repairs may be necessary. A weir in an onsite stream will also be removed during FY18-22.

Recent accomplishments for Poison Lake include ongoing negotiations on a cost sharing agreement with the Bureau of Land Management for site stabilization efforts. RWQCB staff have been provided a tour of the site demonstrating the current favorable condition of the three tailings ponds. Planned activities for FY18-22 include implementation of site stabilization measures, post-remediation inspections, maintenance, and surface water monitoring.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Mine Tailing Ponds ESA	1,645,358	0	0	1,645,358

Appropriations:	
Prior Years	$ 18,221,472
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 18,221,472**

Lead Dept: OSD
Recurring: No

Funding: OAG 100%

In Service Date: 30-Jun-22

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 Pardee Center (PACT), Pardee Recreation Area (PARA), Camanche North Shore (CANS) and Camanche South Shore (CASS) Recreation Areas. An Upcountry Utility Infrastructure Master Plan was completed in 2009 which recommended upgrading the existing collection facilities to meet new regulatory requirements.

FY16-17 accomplishments include construction of the sewer collection system improvements at PARA RV Park, construction of the force main at CANS Lift Station No. 1 to the treatment plant, and the purchase of a new Vactor-Jetter. FY18-22 priorities include design and construction of the sewer collection system improvements at CASS Mobile Home Park (Northern), CANS Mobile Home Park No. 2, CASS Cottages and CASS Monument RV Park.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Collection System Improvements	11,896,061	2,400,000	5,190,000	19,486,061

Appropriations:	
Prior Years	$ 23,953,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 1,140,000
2022	$ 1,260,000
Future Years	$ 5,190,000
Total Cost	**$ 31,543,000**

Lead Dept: OSD

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-28

Capital Improvement Program - Project Summary

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

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

Justification:

The District looks to maintain a level of security to provide a secure work place; a safe and reliable water supply and wastewater services; and to prevent or mitigate potential damage or loss of assets. Improvements are guided by the recent update to the Security Vulnerability Assessment.

Description:

This project includes planning, design, and construction of critical security improvements recommended in the Security Vulnerability Assessment. FY16-17 accomplishments included completion of the Cyber and Physical Security Vulnerability Assessments, the installation of new security improvements at South Yard (San Lorenzo) and miscellaneous security improvements to various facilities.

Work in FY18-22 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 facilities.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Distribution Facilities	2,508,500	5,565,000	14,000,000	22,073,500
Admin Yard Facilities	14,694,500	0	3,250,000	17,944,500
Water Treatment Facilities	6,966,200	4,000,000	875,000	11,841,200
Aqueduct Watershed Facilities	230,000	450,000	4,000,000	4,680,000
Upcountry Facilities	1,032,600	0	0	1,032,600

Appropriations:	
Prior Years	$ 25,431,800
2018	$ 0
2019	$ 1,265,000
2020	$ 2,050,000
2021	$ 6,600,000
2022	$ 100,000
Future Years	$ 22,125,000
Total Cost	**$ 57,571,800**

Lead Dept: OSD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-28

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 corroded concrete in the aging, over 60-year-old interceptor system is needed to prevent further deterioration and potential collapse. A collapsed pipeline would create a public health risk and would 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. Cleaning and closed circuit television inspection work will be conducted as part of the rehabilitation effort. The need for rehabilitation of this segment was identified in the 2008 Interceptor Master Plan Update. The work is scheduled to take place in four phases between FY17 and FY26.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
3rd St Sewer Intrcpt Rehab Ph2	20,000,000	5,622,000	0	25,622,000
Embarcadero Sewer Intcptr Rhb	0	477,000	12,373,000	12,850,000
3rd St Sewer Interceptor Rehab	8,265,667	0	0	8,265,667
Special Structures Sewer Rehab	0	6,910,000	0	6,910,000

Appropriations:	
Prior Years	$ 28,265,667
2018	$ 0
2019	$ 6,572,000
2020	$ 0
2021	$ 0
2022	$ 6,437,000
Future Years	$ 12,373,000
Total Cost	**$ 53,647,667**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-26

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 the four centrifuges for dewatering at the Main Wastewater Treatment Plant. The first centrifuge has been replaced. Two additional centrifuges are planned to be replaced in FY24-27.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Centrifuge Replacement - Ph 2	0	0	11,727,000	11,727,000
Centrifuge Replacement - Ph 3	0	0	5,464,000	5,464,000

Appropriations:	
Prior Years	$ 22,402,832
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 17,191,000
Total Cost	**$ 39,593,832**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-27

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. In FY20, an update to the Interceptor Master Plan will be completed.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Interceptor Master Plan Update	0	200,000	0	200,000

Appropriations:	
Prior Years	$ 0
2018	$ 0
2019	$ 0
2020	$ 200,000
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 200,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-20

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, including the primary sedimentation basins and channels, secondary aeration reactor basins, grit channels, and the plant effluent channel. Sulfides and other constituents in the wastewater have accelerated corrosion of the concrete in these aging facilities.

Repair of the Primary Tank Channels is being conducted in six phases, with the third phase completed in FY17. Phases 4 through 6 are scheduled to take place from FY17 through FY21. Repair of the secondary aeration reactor basins will be completed in four phases, including the repair of two tanks per year beginning in FY18. The final phase will be completed in FY25. Inspection of the secondary clarifiers is scheduled for FY21-22.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Repair Prim Tank Channels Ph 5	0	9,225,000	0	9,225,000
Repair Prim Tank Channels Ph 4	5,174,000	0	0	5,174,000
Repair Reactor Basin Conc Ph 4	0	0	3,215,000	3,215,000
Repair Reactor Basin Conc Ph 3	0	160,000	2,925,000	3,085,000
Repair Reactor Basin Conc Ph 2	0	1,495,000	1,580,000	3,075,000
Repair Reactor Basin Conc Ph1	950,000	1,759,000	0	2,709,000
Repair Prim Tank Channels Ph 6	0	1,950,000	0	1,950,000
IPS Infl & Effl Channel Assess	200,000	0	0	200,000

Appropriations:	
Prior Years	$ 24,812,838
2018	$ 9,225,000
2019	$ 1,989,000
2020	$ 1,720,000
2021	$ 595,000
2022	$ 1,210,000
Future Years	$ 7,720,000
Total Cost	**$ 47,271,838**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-25

Capital Improvement Program - Project Summary

Project: Contingency Project Wastewater **Project Number:** 000477

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

Justification:

This project is required to ensure timely response to unanticipated critical work, and specific projects that are contingent upon the receipt of grants or other outside funding. Rapid response is critical for maintaining regulatory compliance, public safety, employee safety or addressing other unanticipated essential needs.

Description:

An ongoing project to provide funding for unanticipated needs that 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, new projects, or the acceleration of planned projects requiring funding before the next budget cycle. Funds are also set aside for projects where grants are being sought in the event that the grant application is successful and funding is received.

In FY20, funds have been set aside for possible costs related to expansion of the food waste receiving station, or construction of a new preprocessing food waste facility at the Main Wastewater Treatment Plant.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Contingency Proj WW	7,367,000	0	0	7,367,000

Appropriations:	
Prior Years	$ 18,719,000
2018	$ 0
2019	$ 0
2020	$ 3,300,000
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 22,019,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-20

Capital Improvement Program - Project Summary

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

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

Justification:

DCS input/output (I/O) racks require periodic replacement in order to maintain reliable operations and reduce long-term maintenance costs.

Description:

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

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
DCS Console Replacement - Ph 3	0	0	3,000,000	3,000,000

Appropriations:	
Prior Years	$ 9,402,263
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 3,000,000
Total Cost	**$ 12,402,263**

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.

Phase 2B work began in FY17 and includes seismic upgrades to the Injector Building and minor 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 FY21-23.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Dechlorination Facility Impr	3,382,500	0	575,000	3,957,500
Navy Pipeline Modifications	0	705,000	0	705,000

Appropriations:	
Prior Years	$ 3,651,500
2018	$ 705,000
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 575,000
Total Cost	**$ 4,931,500**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-23

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 affect the District's ability to provide adequate sludge treatment for compliance with EPA regulations.

Description:

This project includes four phases to rehabilitate eleven digesters with new fixed covers and upgraded mixing. 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. Design is scheduled for FY18-19 and construction is scheduled for FY20-22. Phase 4 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 FY22 and construction is scheduled to begin in FY23.

This project also includes coating inspections and rehabilitation. In FY17, inspections of two digesters were completed and repairs will be completed in FY18. In FY19 and FY21, additional digester coating inspections are scheduled.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Digester Upgrades Ph 3	8,695,000	5,714,000	0	14,409,000
Digester Coating Insp & Rehab	600,000	5,425,000	0	6,025,000
Digester Upgrades Ph 4	0	500,000	3,800,000	4,300,000
Digester Cleaning Facility	2,250,000	0	703,000	2,953,000
Blend Tank Odor Ctrl Upgrade	0	800,000	0	800,000

Appropriations:	
Prior Years	$ 113,067,163
2018	$ 6,025,000
2019	$ 5,714,000
2020	$ 0
2021	$ 200,000
2022	$ 500,000
Future Years	$ 4,503,000
Total Cost	**$ 130,009,163**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-24

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 (CD). Ongoing funding is required for the continued implementation of the regional private sewer lateral ordinance, continued flow modeling, and reporting. Construction of the Urban Runoff Diversion Project to divert dry weather urban runoff flows from the stormwater system to the Main Wastewater Treatment Plant (MWWTP) was substantially completed in FY17.

This project also includes several components to allow the District to more efficiently operate the interceptor system and pump stations to reduce wet weather facility discharges. An engineering study to evaluate the potential application of Real Time Control systems to improve overall integration and operation of the interceptor system, wet weather facilities, and MWWTP influent pump station and wet weather storage basins will take place in FY19.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Infiltration/Inflow Program	11,696,000	414,000	3,325,000	15,435,000
Wet Weather Real Time Control	250,000	8,000	0	258,000

Appropriations:	
Prior Years	$ 26,534,913
2018	$ 0
2019	$ 8,000
2020	$ 44,000
2021	$ 185,000
2022	$ 185,000
Future Years	$ 3,325,000
Total Cost	**$ 30,281,913**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-32

Capital Improvement Program - Project Summary

Project: 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 covers development and upgrades to wastewater-specific information systems. It includes the design and implementation of a replacement for the Laboratory Information Management System in FY18-20. This project also includes server contracts and hardware/software upgrades.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
LIMS Replacement Project	0	2,725,000	0	2,725,000
WW Applications Development	740,641	0	0	740,641
WEB Server Upgrades	145,000	0	17,000	162,000

Appropriations:	
Prior Years	$ 2,210,000
2018	$ 225,000
2019	$ 0
2020	$ 2,500,000
2021	$ 0
2022	$ 0
Future Years	$ 17,000
Total Cost	**$ 4,952,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-24

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 additional 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. In FY14, staff conducted an evaluation of potential methods for corrosion prevention in the interceptor system and recommended various improvements to repair and rehabilitate the cathodic protection system scheduled for FY19-20. Staff also completed a force main condition assessment, which resulted in recommended improvements for implementation in FY16-19. Additional inspections are scheduled for FY23-25. 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	FY18-22	Future Yrs	Total
Intrcept & Forcemn Cond Assess	4,099,999	0	151,000	4,250,999
Interceptor Pipe and MH Inspec	0	0	2,336,000	2,336,000
Cathodic Protection Project	1,020,000	379,000	0	1,399,000
Intercept Corrosion Prevention	800,000	0	0	800,000
Remote Fac Locate & MH Raising	317,000	145,000	175,000	637,000
PS M FM Access Improvements	0	455,000	0	455,000
Force Main Access Improvements	0	366,000	0	366,000
Force Main Valve and Appur	0	304,000	0	304,000

Appropriations:	
Prior Years	$ 7,786,543
2018	$ 1,150,000
2019	$ 409,000
2020	$ 30,000
2021	$ 30,000
2022	$ 30,000
Future Years	$ 2,662,000
Total Cost	**$ 12,097,543**

Lead Dept: WAS

Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-27

Capital Improvement Program - Project Summary

Project: MWWTP Master Plan **Project Number:** 000601

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

Justification:

Land use planning and management are necessary to ensure efficient use and regulatory compliance for the MWWTP and West End property.

Description:

The Main Wastewater Treatment Plant (MWWTP) Master Plan includes long-term planning and managing the West End Property.

A land use master plan and Environmental Impact Report for the MWWTP and West End property was previously completed. Preparation of a wastewater treatment system master plan and an odor control master plan are scheduled for completion in FY19. The project also includes the ongoing remediation of the West End property, including sampling and reporting required under the Consent Agreement with the California Department of Toxic Substances Control.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
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
WW Energy System Master Plan	600,000	0	0	600,000
Odor Control Master Plan Updat	0	550,000	0	550,000
WW Trmt System Master Plan	500,000	0	0	500,000

Appropriations:	
Prior Years	$ 19,277,263
2018	$ 0
2019	$ 550,000
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 19,827,263**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-27

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 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 Main Wastewater Treatment Plant (MWWTP). Tasks in FY18-22 include arc flash protection, 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	FY18-22	Future Yrs	Total
Seismic Retro Pwr Dist Sys	0	4,050,000	0	4,050,000
Split IPS & EPS Power Dist Sys	0	1,683,000	0	1,683,000
Arc Flash	510,000	252,000	300,000	1,062,000
DCS Connect Gravity Belt Thick	0	400,000	650,000	1,050,000
Electrical Master Plan	300,000	200,000	0	500,000
MWWTP Elctrcl Reliability Impr	0	275,000	0	275,000

Appropriations:	
Prior Years	$ 13,568,737
2018	$ 767,000
2019	$ 1,263,000
2020	$ 4,110,000
2021	$ 260,000
2022	$ 460,000
Future Years	$ 950,000
Total Cost	**$ 21,378,737**

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 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 Motor Control Centers (MCC) that are at the end of their service life. This project provides for replacement of the MCCs at the Grit Dewatering Building, secondary reactor deck (oxygenation tank), and Aerated Grit. The most critical MCCs were replaced in FY16. Additional MCC replacement is scheduled for FY19 and FY23-24.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Main Plant MCC Replace - Ph 2	0	0	2,900,000	2,900,000
Main Plant MCC Replace - Ph 1	2,529,000	0	0	2,529,000

Appropriations:	
Prior Years	$ 2,529,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 2,900,000
Total Cost	**$ 5,429,000**

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 complete upgrades 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 two new level monitoring stations in the South Interceptor, which is scheduled for FY18-19. Upgrades to secondary reactors are scheduled for FY21-25.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Reactors Stage 3 Aerator Conv	0	280,000	5,460,000	5,740,000
So Intercept Level Monitor Sta	730,500	49,000	0	779,500

Appropriations:	
Prior Years	$ 8,594,234
2018	$ 49,000
2019	$ 0
2020	$ 0
2021	$ 280,000
2022	$ 0
Future Years	$ 5,460,000
Total Cost	**$ 14,383,234**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-25

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 corroded concrete in the aging, over 60-year-old interceptor system is needed to prevent further deterioration and potential collapse. A collapsed pipeline would create a public health risk and would 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 in FY24-25.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
North Interceptor Rehab	0	0	1,497,000	1,497,000

Appropriations:	
Prior Years	$ 0
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 1,497,000
Total Cost	**$ 1,497,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-25

Capital Improvement Program - Project Summary

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

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

Justification:

The current nutrient watershed permit will expire in mid-2019. Future permits with more stringent requirements may 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 the current and potential 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. The work includes conducting one or more pilot-scale tests to evaluate promising sidestream nutrient treatment/recovery technologies. It also includes the implementation of sidestream treatment, if necessary in FY21-26, and mainstream treatment, if necessary in FY23-27.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Nutrient Sidestream Treatment	0	15,300,000	55,000,000	70,300,000
Nutrient Mainstream Treatment	0	0	11,600,000	11,600,000

Appropriations:	
Prior Years	$ 0
2018	$ 5,300,000
2019	$ 0
2020	$ 0
2021	$ 10,000,000
2022	$ 0
Future Years	$ 66,600,000
Total Cost	**$ 81,900,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-27

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 which results in reduced offsite odor complaints, improved community relationships, an improved work environment, and continued compliance with Bay Area Air Quality Management District requirements.

Description:

This project provides for the design and construction of odor control facilities in the 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 of the odor control units at the influent pump station will be completed in FY19, and a second phase will be initiated in FY23. Planning and design for the replacement of the system at the solids dewatering building will begin in FY20. Construction of the first phase of the primary sedimentation tank odor control system is scheduled to begin in FY19, with a second phase scheduled to begin in FY25. The scrubber system at the high-strength waste receiving station will be replaced in FY19-20.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Primary Sed Odor Control	3,852,000	5,511,000	10,344,000	19,707,000
IPS Odor Control Sys Impr	10,050,000	0	5,368,000	15,418,000
Odor Control Dewatering Bldg	2,850,000	1,469,000	1,618,000	5,937,000
R2 Facility Odor Ctrl Upgrade	0	2,774,000	0	2,774,000

Appropriations:	
Prior Years	$ 21,844,966
2018	$ 450,000
2019	$ 7,835,000
2020	$ 0
2021	$ 1,469,000
2022	$ 0
Future Years	$ 17,330,000
Total Cost	**$ 48,928,966**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-27

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 MWWTP 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. In addition, an inspection of the entire submerged portions was required by the Main Wastewater Treatment Plant (MWWTP) National Pollutant Discharge Elimination System (NPDES) permit, which was completed in 2015. This inspection generated baseline conditions for future Bay Bridge related projects that are expected in the next few years (e.g., bridge demolition, Gateway Park). Additional inspections are planned for FY20-21, and upgrades are scheduled to begin in FY23.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
MWWTP Outfall Upgrades	0	0	12,000,000	12,000,000
Outfall Investigation	1,089,000	43,000	0	1,132,000

Appropriations:	
Prior Years	$ 1,089,000
2018	$ 0
2019	$ 0
2020	$ 43,000
2021	$ 0
2022	$ 0
Future Years	$ 12,000,000
Total Cost	**$ 13,132,000**

Lead Dept: WAS

Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-25

Capital Improvement Program - Project Summary

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

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

Justification:

If the cogeneration engines are not operating or performing properly, an air permit violation may occur. In addition, an outage to the engines would require the District to both flare biogas and purchase power.

Description:

This project covers the recurring major rebuilds of the three cogeneration engines at the Power Generation Station (PGS). These engines utilize biogas to produce power and process heat for use at the Main Wastewater Treatment Plant. The current overhaul was started in FY17 and will be completed in FY18, and the next overhaul is scheduled for FY22-23.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
PGS Engine Overhaul	8,512,000	296,000	2,444,000	11,252,000

Appropriations:	
Prior Years	$ 8,512,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 296,000
Future Years	$ 2,444,000
Total Cost	**$ 11,252,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-28

Capital Improvement Program - Project Summary

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

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

Justification:

The PGS expansion results in additional power production and revenue for the District; reduces flaring; provides additional process heat; increases electrical reliability at the MWWTP; and is consistent with the District's Energy and Sustainability Policies. The gas flare expansion provides sufficient flaring capacity and redundancy to prevent uncontrolled biogas releases.

Description:

This renewable energy project expanded the Power Generation Station (PGS) at the Main Wastewater Treatment Plant (MWWTP) from 6.5 to 11 megawatts when a new biogas-powered turbine was installed in FY12.

This project also includes work to improve reliability and replace aging gas piping and to add new flares in two phases. The first phase of the flare project was substantially completed in FY17, and the second phase is scheduled for FY25-27. In addition, the original four flares will be upgraded in FY18-20.

Reliability improvements to the PGS facility will be made in FY18-21 and include the installation of a radiator/cooling tower, replacement of the PGS gas piping, and miscellaneous programming and controls improvements.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Gas Flare Expansion	0	0	5,640,000	5,640,000
PGS Reliability Improv Ph 3	5,100,000	0	0	5,100,000
Upgrades to Original Flares	0	1,200,000	0	1,200,000

Appropriations:	
Prior Years	$ 49,340,723
2018	$ 230,000
2019	$ 970,000
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 5,640,000
Total Cost	**$ 56,180,723**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-27

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 forcemain (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 forcemain as a gravity sewer with relatively minor modifications. Construction began in FY17 and is expected to be completed in FY19.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
PS Q FM Dual-Mode Operation	8,504,000	0	0	8,504,000

Appropriations:	
Prior Years	$ 8,504,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 8,504,000**

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, complete in FY17, includes repair or replacement of sodium hypochlorite distribution piping. The second phase will include replacement of sodium hypochlorite piping within the storage area and is scheduled for FY18-20.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
MWWTP Hypo Pipe Replace Ph 2	0	2,087,000	0	2,087,000

Appropriations:	
Prior Years	$ 5,091,000
2018	$ 316,000
2019	$ 1,771,000
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 7,178,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-20

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 maintenance of critical operations following an emergency or disaster, such as a major earthquake. Emergency response equipment is required to maintain NPDES permit compliance during an emergency.

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	FY18-22	Future Yrs	Total
Emergency Response Equipment	1,875,000	0	2,000	1,877,000

Appropriations:	
Prior Years	$ 1,875,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 2,000
Total Cost	**$ 1,877,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-27

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 FY22-24.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Pump Station A Improvements	1,929,000	0	1,060,000	2,989,000

Appropriations:	
Prior Years	$ 1,929,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 1,060,000
Total Cost	**$ 2,989,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-24

Capital Improvement Program - Project Summary

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

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

Justification:

Existing 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 Update. 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 FY21-23.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Pump Station C Upgrades	1,864,000	0	1,531,000	3,395,000

Appropriations:	
Prior Years	$ 1,864,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 1,531,000
Total Cost	**$ 3,395,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-23

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 in order to meet current standards and have available spare parts.

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 has been completed and replaced all of the mechanical, electrical, and instrumentation equipment that was no longer cost-effective to maintain or did not meet operational standards. Under Phase 2 the main pumps and discharge piping will be replaced. Design and construction of Phase 2 is scheduled for FY26-27.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Pump Station H Imprvmts Ph 2	0	0	2,474,000	2,474,000

Appropriations:	
Prior Years	$ 6,134,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 2,474,000
Total Cost	**$ 8,608,000**

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 Update. 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	FY18-22	Future Yrs	Total
Pump Station J Improvements	0	0	4,237,000	4,237,000

Appropriations:	
Prior Years	$ 0
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 4,237,000
Total Cost	**$ 4,237,000**

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 Update. Improvements include replacement of all mechanical and electrical equipment. Implementation is scheduled for FY19-21.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Pump Station L Imprv	1,490,000	1,137,000	0	2,627,000

Appropriations:	
Prior Years	$ 1,490,000
2018	$ 0
2019	$ 0
2020	$ 1,137,000
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 2,627,000**

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 Update. Improvements include replacement of electrical equipment, sump pumps and flow meter; the addition of a programmable logic controller and software; modification of below grade access; and the addition of a restroom. Construction of these improvements is scheduled to take place in FY18-20.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Pump Station M Improvements	0	4,773,000	0	4,773,000

Appropriations:	
Prior Years	$ 0
2018	$ 674,000
2019	$ 4,099,000
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 4,773,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-20

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 electricity sales from excess biogas.

Description:

The Resource Recovery (R2) program was developed to accept a wide 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 FY18-20 include improvements to the existing Solid/Liquid Waste Receiving station and the new Blend Tank Receiving Station. These improvements will result in the ability to accept additional high-strength waste.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Blend Tank Rcv Station Upgrade	0	2,677,000	0	2,677,000
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

Appropriations:	
Prior Years	$ 32,886,587
2018	$ 435,000
2019	$ 2,242,000
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 35,563,587**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-20

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 apparatus and systems, instrumentation components, and communications equipment. This includes repairs that extend the life of equipment.

Projects identified for FY18-22 include rebuilding numerous pumps, motors, and other equipment. In FY18-19, it also includes identification and prioritization of coating repairs for equipment at the Main Wastewater Treatment Plant, pump stations, and wet weather facilities; and the replacement of equipment at the laboratory.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Capital Equipment Replacement	25,642,249	9,927,000	11,500,000	47,069,249
Lab Equipment	2,562,023	60,000	0	2,622,023
Coating Rehab Project	0	1,500,000	0	1,500,000

Appropriations:	
Prior Years	-
2018	$ 2,287,000
2019	$ 2,300,000
2020	$ 2,300,000
2021	$ 2,300,000
2022	$ 2,300,000
Future Years	-
Total Cost	**-**

Lead Dept: WAS
Recurring: Yes

Funding: ERF 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Scum System Improvements **Project Number:** 2001375

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

Justification:

Ensure that scum and nocardia foam are removed from the wastewater, thereby reducing operating costs and enhancing the District's ability to meet its National Pollutant Discharge Elimination System permit requirements.

Description:

This project addresses scum system deficiencies at the Main Wastewater Treatment Plant. Planning, design and construction of modifications to the primary and secondary scum systems will begin in FY23. Specific components include improving the primary scum removal weir in the primary effluent channel; improving secondary scum and nocardia foam removal efficiency in the mixed liquor channel; separating the primary and secondary scum handling systems; and a system for disposal of nocardia foam once it is removed from the secondary system.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Primary Scum Improvements	1,000,000	0	236,000	1,236,000
Secondary Scum Improvements	400,000	0	550,000	950,000

Appropriations:	
Prior Years	$ 1,400,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 786,000
Total Cost	**$ 2,186,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-24

Capital Improvement Program - Project Summary

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

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

Justification:

Replacement or rehabilitation of equipment, structures, and support systems that are reaching the end of their design life or do not provide the required level of service is necessary to maintain continued compliance with the 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 Main Wastewater Treatment Plant (MWWTP).

Improvements planned in FY18-22 include a seismic evaluation; improvement of plant gallery drains; upgrades to the security system; improvements to the East Gate Undercrossing; upgrades to the internal plant drain; grit handling equipment replacement; and improvements to the Administration and Operations Buildings.

Improvements planned in FY23-27 include additional improvement of 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 seismic improvements to various structures.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
IPS Main Pump Improvements	0	63,000	21,200,000	21,263,000
EPS Main Pump Improvements	0	63,000	11,234,000	11,297,000
Grit Handling Eqpmt Rplcmt	0	7,916,000	2,875,000	10,791,000
Plant Gallery Drains	3,782,000	2,880,000	3,590,000	10,252,000
MWWTP Admin Bldg Improvements	0	4,176,000	1,620,000	5,796,000
Ops Center Improvements	0	3,884,000	0	3,884,000
Plant Drain Sys Improvements	0	2,220,000	1,000,000	3,220,000
MWWTP Fire Protection Improv	0	1,599,000	521,000	2,120,000

Appropriations:	
Prior Years	$ 4,292,000
2018	$ 2,264,000
2019	$ 10,360,000
2020	$ 3,796,000
2021	$ 5,073,000
2022	$ 4,923,000
Future Years	$ 44,845,000
Total Cost	**$ 75,553,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-27

Capital Improvement Program - Project Summary

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

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

Justification:

Replacement or rehabilitation of equipment, structures, and support systems that are reaching the end of their design life or do not provide the required level of service is necessary to maintain continued compliance with the 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 Main Wastewater Treatment Plant (MWWTP).

Improvements planned in FY18-22 include replacement of large variable frequency drives; repair or replacement of flow meters; laboratory upgrades; paving; rehabilitation of the secondary clarifiers; reactor piping condition assessment and the installation of a plant-wide intercom system. This project also includes engineering support for urgent capital projects and preparation and maintenance of record drawings.

Improvements planned in FY23-27 include improvements to Engineers Road along the southern edge of the MWWTP property and a new intersection with the realigned Wake Avenue; rehabilitation of the remaining 10 of 12 clarifiers along with the installation of online total suspended solids monitors; replacement of the influent screens; and improvements to the dewatering sludge well.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
WW Fac Records Documentation	5,669,000	2,382,000	2,964,000	11,015,000
Sec Clarifier Mech Rehab Ph 2	0	3,143,000	7,238,000	10,381,000
MWWTP Influent Screen Repl	4,838,000	0	4,637,000	9,475,000
Urgent Capital Projects	5,108,000	1,250,000	2,850,000	9,208,000
Engineer's Road Improvements	6,448,000	0	2,095,000	8,543,000
Large VFD Replacement	2,968,000	0	2,103,000	5,071,000
MWWTP Flow Meter Improvements	1,783,000	0	717,000	2,500,000
MWWTP Intercom Paging Sys Upgr	1,340,000	797,000	0	2,137,000

Appropriations:	
Prior Years	$ 57,909,300
2018	$ 351,000
2019	$ 764,000
2020	$ 1,655,000
2021	$ 4,741,000
2022	$ 1,749,000
Future Years	$ 24,389,000
Total Cost	**$ 91,558,300**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-27

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 MWWTP and remote facilities. This project includes two new pickup trucks and a yard goat in FY18, and a flatbed truck in FY19.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Vehicle & Equip Additions	335,000	202,000	0	537,000

Appropriations:	
Prior Years	$ 335,000
2018	$ 139,000
2019	$ 63,000
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 537,000**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-20

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 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 Main Wastewater Treatment Plant (MWWTP) and to maximize the production of biogas used to generate renewable energy. The 2013 Wastewater Energy System Master Plan provides the basis for prioritizing energy efficiency alternatives and energy management projects.

In FY18-22, submeters will be installed at several MWWTP substations to help identify ways to increase operating efficiency and reduce energy costs. In FY20-21, a comprehensive lighting survey at the MWWTP will be conducted to prioritize and replace lights to maximize energy savings.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Electrical Sub-Metering Data	142,000	790,000	0	932,000
MWWTP Lighting Improvements	155,000	76,000	0	231,000

Appropriations:	
Prior Years	$ 2,199,748
2018	$ 790,000
2019	$ 0
2020	$ 76,000
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 3,065,748**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-22

Capital Improvement Program - Project Summary

Project: West End Property Development **Project Number:** 2006694

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

Justification:

Provision of utilities and other site improvements are required to support long-term uses of the West End property that was acquired from the Oakland Army Base.

Description:

This project extends utilities to the West End property, which is located adjacent to the Main Wastewater Treatment Plant (MWWTP). Work will include provision of utilities (potable water, recycled water, sewer and storm water) to the property. These utilities will be required when there is a need to expand MWWTP operations onto the West End property. Work is scheduled to be take place in FY24-27.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
West End Bldg Demo	1,766,000	0	0	1,766,000
WEP Utility Upgrades	827,000	0	0	827,000

Appropriations:	
Prior Years	$ 2,593,000
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 2,593,000**

Lead Dept: WAS

Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-27

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 (NPDES) Wet Weather Permit by reducing the risk of chemical piping failures.

Description:

This project addresses upgrades at the Wet Weather Treatment Facilities (WWF) to maintain reliable operations. It includes chemical system improvements at the Point Isabel, Oakport and San Antonio Creek WWFs.

Improvements to the chemical feed systems at the Oakport and San Antonio Creek WWFs were completed in FY16. Instrumentation upgrades at Point Isabel are scheduled for FY19-20, and concrete rehabilitation is scheduled for FY23-25.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
PT Isabel Remote I/O Ctrl Add	0	1,200,000	0	1,200,000
Pt Isabel WWF Concrete Rehab	0	0	758,000	758,000

Appropriations:	
Prior Years	$ 8,067,000
2018	$ 0
2019	$ 1,200,000
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 758,000
Total Cost	**$ 10,025,000**

Lead Dept: WAS

Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-25

Capital Improvement Program - Project Summary

Project: Wood St Sewer Intercept Rehab **Project Number:** 001363

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

Justification:

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

Description:

The Wood Street segment of the South Interceptor in Oakland was identified as requiring rehabilitation in the Interceptor Master Plan Update. Rehabilitation of this two-mile long, 105-inch diameter, reinforced concrete pipeline was completed in FY17 and included the structural retrofit and application of a protective lining to extend the life of the interceptor. Demolition of an abandoned Quality Monitoring Station is scheduled for FY27.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Abandon QMS at MH S66	625,000	0	0	625,000

Appropriations:	
Prior Years	$ 27,653,022
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 27,653,022**

Lead Dept: WAS
Recurring: No

Funding: BOND/REV 100%

In Service Date: 31-Dec-27

Capital Improvement Program - Project Summary

Project: Cam So Shore WTP Replacement **Project Number:** 1000797

Strategy: Water Supply **Program:** Supply Reservoirs

Justification:

The Camanche Water Treatment Plants require a higher level of water treatment than is currently provided. The Disinfection Byproduct Rule, the Total Coliform Rule, and the Lead and Copper Rule require additional secondary treatment processes to ensure the water meets regulatory standards.

Description:

This project will replace the Camanche South Shore Recreation Area water treatment plant with a 0.5 million gallon per day (MGD) plant that meets Department of Public Health regulations. The plant can be expanded to 2.2 MGD as a regional plant with Amador and Calaveras County partners.

Replacement of the water treatment plant began in FY15 and will be completed in FY18. Additional secondary treatment processes are required which include a system for source water total organic carbon reductions, a chlorine contact tank to achieve disinfection requirements, and post-filtration pH adjustment for corrosion prevention in the distribution system.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Cam So Shore WTP Repl	6,234,000	735,000	0	6,969,000

Appropriations:	
Prior Years	$ 6,234,000
2018	$ 735,000
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 0
Total Cost	**$ 6,969,000**

Lead Dept: WOD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-18

Capital Improvement Program - Project Summary

Project: Camanche Area WWTP **Project Number:** 2011079

Strategy: Water Supply **Program:** Supply Reservoirs

Justification:

Regional Board action may require mitigation measures for existing treatment ponds.

Description:

Wastewater Treatment Plant improvements are needed to comply with new Regional Board requirements to mitigate influence to groundwater. The work is anticipated to take place in FY21-22.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Camanche Area WWTP Improvement	0	6,000,000	0	6,000,000

Appropriations:	
Prior Years	$ 0
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 6,000,000
2022	$ 0
Future Years	$ 0
Total Cost	**$ 6,000,000**

Lead Dept: WOD

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-23

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 FY15, a chloramine boosting station was successfully tested at Tice Reservoir in Walnut Creek and has been retained to maintain chlorine residual.

Plans to install additional chloramine boosting stations, chlorine analyzers, and reservoir mixers at various reservoir are planned for FY18-22.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Chloramine Boosting Stations	316,000	7,500,000	0	7,816,000

Appropriations:	
Prior Years	-
2018	$ 1,500,000
2019	$ 1,500,000
2020	$ 1,500,000
2021	$ 1,500,000
2022	$ 1,500,000
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.

In FY16-17, two photovoltaic (PV) projects totaling 705 kW were determine to be economically feasible and contracts were executed to construct a 380kW PV project at Camanche Dam and a 325 kW PV project at the North Richmond Water Reclamation Plant.

In FY17-FY18, the two PV projects will be constructed and operational. In FY18-19, the feasibility of building two large PV projects totaling up to 8 MW on the District's watershed land will be investigated. Work will include environmental and endangered species permitting, securing clean energy bonds, electronic grid interconnection, project design and construction.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Briones Hydro Project	1,452,610	1,500,000	0	2,952,610
Large Scale PV	0	1,750,000	0	1,750,000
Advanced Metering Project	10,000	60,000	0	70,000

Appropriations:	
Prior Years	-
2018	$ 1,420,000
2019	$ 370,000
2020	$ 20,000
2021	$ 1,500,000
2022	$ 0
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. These improvements may also address small infrastructure improvements that were unanticipated but are critical for Water Treatment Plant (WTP) operations.

Projects in FY18-22 include purchase of new chemical metering pumps at various WTPs; purchase of sump pumps and replacement of sluice gates for the Orinda diversion works building; a new total organic carbon analyzer to improve enhanced coagulation compliance at Sobrante WTP; improvements to the ammonia feed system at Orinda WTP; replacement of a filter wash valve at Sobrante; purchase and replenish filter media at Upper San Leandro (USL); complete paving work at USL, Sobrante, and Lafayette WTP; and replacement of laboratory and online equipment at all WTPs as needed.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
WTP Capital Improvements	3,709,931	2,261,000	4,377,000	10,347,931

Appropriations:	
Prior Years	-
2018	$ 405,000
2019	$ 427,000
2020	$ 451,000
2021	$ 476,000
2022	$ 502,000
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 improvements to the Pardee Center Water Treatment Plant, Wastewater Treatment Plant, potable water system, collection system piping, buildings and grounds, roads, buildings, chemical plant and aqueduct control infrastructure to ensure a safe and reliable system.

FY18-22 projects include replacement of power poles on the 7kv system; replacement of siding, flooring, and porch tile on building 119 and the gazebo; garage renovation; purchase of a storage building for the Vactor; exterior painting of the warehouse and shops; scheduled replacement of HVAC systems; rehabilitation of the elevated fire water tank; replacement of failing pavement; Pardee Ridge emergency generator replacement; irrigation system replacement; 800MHz radio system replacement; and siding replacement on the Water Quality office and lab.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Water, WasteWtr Infrastructure	668,552	560,000	1,041,000	2,269,552

Appropriations:	
Prior Years	-
2018	$ 106,000
2019	$ 109,000
2020	$ 112,000
2021	$ 145,000
2022	$ 88,000
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 comply with 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 Independent System Operator (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.

FY18-22 work consists of purchasing a timing test set and analyzer, a generator protection upgrade, Programmable Logic Controller upgrades, piping and valve replacement, piping recoating, concrete restoration, complete turbine overhaul, lube oil system upgrade, Bank C transformer upgrade, relay replacement, installation of digital fault recorders, rebuild of the Kaplan head and instrumentation upgrades.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Pardee Powerhouse	5,435,400	633,000	360,000	6,428,400
Camanche Powerhouse	2,929,463	400,000	1,065,000	4,394,463
PPH Unit 1 Turbine Overhaul	711,000	65,000	349,000	1,125,000
PPH Unit 3 Turbine Overhaul	0	0	840,400	840,400
CPH Unit 1 Overhaul	0	500,000	0	500,000
CPH Unit 2 Overhaul	0	0	0	0
CPH Unit 3 Overhaul	0	0	0	0

Appropriations:	
Prior Years	-
2018	$ 290,000
2019	$ 300,000
2020	$ 300,000
2021	$ 603,000
2022	$ 105,000
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 FY18-22, 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 Woodward Island Bridge - a multi-agency joint project.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Moke Aqued Security - Levees	23,170,668	3,000,000	1,500,000	27,670,668
Rehab Aqueduct Facilities	6,559,930	3,578,634	1,729,550	11,868,114
Freeport Region Wtr Authority	0	1,600,000	0	1,600,000
FSCC Chemical System Imprv	1,100,000	0	0	1,100,000

Appropriations:	
Prior Years	-
2018	$ 2,545,000
2019	$ 697,800
2020	$ 1,605,834
2021	$ 1,660,000
2022	$ 1,670,000
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 facilities that are part of the Water and Wastewater Treatment Plants, potable water systems, waste collection systems, dams, dikes and watershed lands at the Pardee and Camanche recreation areas.

FY18-22 projects include replacement of the Pardee Recreation Area Water Treatment Plant (WTP); connection of the cross lake pipeline to Camanche North Shore (CANS) at China Gulch; Motor Control Center upgrade at the Camanche South Shore (CASS) WTP; replacement of failing potable water isolation valves at CASS; piping replacement at CANS, sludge removal, failed paving replacement, and CANS water tank replacement.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Pardee/ Camanche Projects	1,728,049	1,243,000	939,000	3,910,049

Appropriations:	
Prior Years	-
2018	$ 155,000
2019	$ 260,000
2020	$ 268,000
2021	$ 276,000
2022	$ 284,000
Future Years	-
Total Cost	**-**

Lead Dept: WOD
Recurring: Yes

Funding: BOND/REV 100%

In Service Date: Recurring

Capital Improvement Program - Project Summary

Project: Reservoir Access Roads **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. In FY16-17, portions of the access road for Valory Reservoir in Lafayette were paved. Planned work in FY18-22 includes paving repairs and replacements for reservoir access roads as needed.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Res Access Rds	1,409,000	355,447	77,614	1,842,061

Appropriations:	
Prior Years	$ 2,389,000
2018	$ 66,950
2019	$ 68,959
2020	$ 71,027
2021	$ 73,158
2022	$ 75,353
Future Years	$ 77,614
Total Cost	**$ 2,822,061**

Lead Dept: WOD

Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-27

Capital Improvement Program - Project Summary

Project: Wtr Supply Monitoring System **Project Number:** 000065

Strategy: Water Supply **Program:** Supply Reservoirs

Justification:

Timely hydrologic, meteorologic, flow and water quality data is required to meet the operational needs of the District. Improvements to water supply forecasting are needed for expanded hydrologic monitoring in the Mokelumne watershed.

Description:

This project provides for the development of a system for monitoring Mokelumne and East Bay Watersheds for precipitation, water flow and storage level to provide information in real-time for operations and water supply forecasting. Work includes monitoring on the Lower Mokelumne, Upper Mokelumne, Pardee, Camanche and East Bay watersheds and reservoirs. FY18-22 plans include ongoing upgrades of weather and gauging station instruments such as water level sensors, cableways and satellite telemetry.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Res/River Inst & Monitoring	543,649	238,000	625,000	1,406,649

Appropriations:	
Prior Years	$ 1,757,000
2018	$ 70,000
2019	$ 30,000
2020	$ 38,000
2021	$ 50,000
2022	$ 50,000
Future Years	$ 625,000
Total Cost	**$ 2,620,000**

Lead Dept: WOD
Recurring: No

Funding: BOND/REV 100%

In Service Date: 30-Jun-27

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. Current and future efforts identified in the WSMP 2040 preferred portfolio include Mokelumne Regional Projects, Regional Desalination and Water Transfers.

FY16-17 accomplishments include securing grant funding from the U.S. Bureau of Reclamation to prepare the Bay Area Regional Reliability Drought Contingency Plan; completion of environmental documentation in coordination with San Joaquin County (SJC) for a potential groundwater banking demonstration project; development of partnership principles with Contra Costa Water District (CCWD) for potential storage options for an expanded Los Vaqueros (LV) Reservoir; and development of a long-term water transfer project with Placer County Water Agency (PCWA).

In FY18-19, EBMUD will continue to work with PCWA to complete environmental reviews needed to implement a long-term water transfer and, if needed, obtain supplemental dry year water through temporary water transfers. Engineering is expected to be completed on the SJC groundwater banking demonstration project. Preliminary planning will continue for other supplemental supply elements including EBMUD and Zone 7 Water Agency efforts to develop a system intertie for emergency use. Also, EBMUD will continue to work with CCWD on the potential to take part in their expansion of the LV Reservoir.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
WSMP Special Projects	20,522,540	0	118,500,000	139,022,540
Mokelumne Regional Projects	19,382,583	0	0	19,382,583
Water Transfers	12,821,000	0	0	12,821,000
Sacramento Basin GW Banking	880,000	0	0	880,000

Appropriations:	
Prior Years	$ 103,156,777
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 118,500,000
Total Cost	**$ 221,656,777**

Lead Dept: WRD
Recurring: No

Funding:

BOND/REV	30%
SCC	70%

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:

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.

In FY15, a Groundwater Monitoring Plan was completed to serve 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 2 facility planning efforts are not expected to begin until FY23 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. For FY18-22, additional work related to CASGEM and the Sustainable Groundwater Management Act is anticipated, including the preparation of a Groundwater Sustainability Plan for the SEBP.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Bayside Phase II 10 MGD	23,022,000	0	10,000,000	33,022,000
Local Groundwater/SGMA	0	0	0	0

Appropriations:	
Prior Years	$ 58,164,111
2018	$ 0
2019	$ 0
2020	$ 0
2021	$ 0
2022	$ 0
Future Years	$ 10,000,000
Total Cost	**$ 68,164,111**

Lead Dept: WRD
Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 31-Dec-27

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 the goal.

Description:

The East Bayshore Phase 1A Project will provide 0.5 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 about 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 will be conducted in FY18 to evaluate treatment improvements. Also included are capital equipment replacements.

The Phase 1B project, estimated at 1.2 MGD, is planned to be implemented from FY21-29. Recycled water will be provided to Alameda. The crossing of the estuary (slip lining of existing pipe) will be completed in FY21-22. The remainder of the facilities to be completed by FY29 include pipelines, a possible booster pump station, and customer retrofits.

The East Bayshore Phase 2 Project will expand recycled water service in the East Bay area by an additional 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 FY30-34.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
East Bayshore Phase I	55,408,198	23,066,842	45,000,000	123,475,040

Appropriations:	
Prior Years	$ 55,408,198
2018	$ 2,572,842
2019	$ 2,094,000
2020	$ 5,170,000
2021	$ 7,500,000
2022	$ 5,730,000
Future Years	$ 72,260,000
Total Cost	**$ 150,735,040**

Lead Dept: WRD
Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 30-Jun-35

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 FY18-22 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 will be in FY24 and beyond depending on water supply availability.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
RARE Treatment Plant	55,184,406	384,412	4,000,000	59,568,818
RARE Wtr Proj Ph2 Future Exp	5,750,000	0	30,000,000	35,750,000
RARE Prog Management	479,659	0	7,500,000	7,979,659

Appropriations:	
Prior Years	$ 64,802,000
2018	$ 0
2019	$ 0
2020	$ 104,412
2021	$ 280,000
2022	$ 0
Future Years	$ 41,500,000
Total Cost	**$ 106,686,412**

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 the goal.

Description:

Expansion of the Dublin San Ramon-EBMUD Recycled Water Authority (DERWA) tertiary treatment facilities from 9.7 MGD to 16.2 MGD will be completed by 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.

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 0.7 MGD of recycled water to EBMUD customers in San Ramon.

Phase 2A distribution pipelines have been completed. Phase 2 customer retrofits will be completed in FY18. The Phase 3 pump station on the border between San Ramon and Danville will be completed in FY20 with distribution pipelines to be implemented in FY20-22. Phase 3 site retrofits will be completed from FY21-23.

The Phase 4 pump station in Blackhawk will be completed in FY24 with distribution pipelines and site retrofits to be implemented by FY25. Phase 5 (Blackhawk West) and Phase 6 (Danville West) are anticipated to be completed beyond FY25.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
EBMUD/DERWA Distrib. Pipelines	30,211,000	35,376,956	47,000,000	112,587,956
DERWA/EBMUD Share of Fut Fac	3,020,000	13,977,622	3,000,000	19,997,622

Appropriations:	
Prior Years	$ 69,171,000
2018	$ 12,724,000
2019	$ 6,497,102
2020	$ 17,633,824
2021	$ 10,551,769
2022	$ 1,947,883
Future Years	$ 50,000,000
Total Cost	**$ 168,525,578**

Lead Dept: WRD
Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 30-Jun-33

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:

This project consists of: (1) updating the master plan in FY18; (2) coordinating the implementation of customer satellite treatment plants including the Diablo Country Club in FY18 and Moraga Country Club by FY20 pending customer financing; (3) further evaluation and implementation of the Phillips 66 recycled water project in Rodeo in FY23-27; (4) rehabilitation of the San Leandro project by FY21; (5) development and implementation of potential recycled water opportunities with the Central Contra Costa Sanitary District by FY25; and (6) expansion of the recycled water truck program.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
Phillips 66 Recycled Wtr Proj	420,000	3,328,398	77,000,000	80,748,398
Satellite Trtmt Plant Pilot	1,556,000	0	39,500,000	41,056,000
San Leandro Rehabilitation	3,075,000	502,168	34,000,000	37,577,168
Reliez Valley Recycled Wtr Prj	4,121,380	0	3,300,000	7,421,380
Master Plan Update	170,000	500,000	1,250,000	1,920,000
Recycled Water Truck Program	374,000	198,000	110,000	682,000

Appropriations:	
Prior Years	$ 16,098,105
2018	$ 500,000
2019	$ 0
2020	$ 600,566
2021	$ 1,113,000
2022	$ 2,315,000
Future Years	$ 155,160,000
Total Cost	**$ 175,786,671**

Lead Dept: WRD

Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 30-Jun-36

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 FY18-19, this project will include equalization tank corrosion improvements, clarifier and thickener drive replacements, and polymer improvements.

Expansion of the NRWRP by an additional 1 MGD is expected by FY27 pending supply availability. The expansion study was completed in FY17.

Key Segments & Appropriations	Prior Yrs	FY18-22	Future Yrs	Total
No. Richmond Improvements/Exp	3,235,100	937,577	24,000,000	28,172,677
NRWRP Routine Capital Maint	3,843,500	2,649,835	7,000,000	13,493,335

Appropriations:	
Prior Years	$ 12,857,952
2018	$ 926,835
2019	$ 1,274,577
2020	$ 449,000
2021	$ 462,000
2022	$ 475,000
Future Years	$ 31,000,000
Total Cost	**$ 47,445,364**

Lead Dept: WRP

Recurring: No

Funding:

BOND/REV	30%
SCC	70%

In Service Date: 30-Jun-27

FY18-22 CAPITAL IMPROVEMENT PROJECTS

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