

Proposed Biennial Budget

Fiscal Years 2016 - 2017

Supplemental Material

Capital Project Summaries



***East Bay Municipal Utility District
Oakland, California***

FY2016 and FY2017

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
March 24, 2015

East Bay Municipal Utility District

FY16-20 CAPITAL PROJECTS SUMMARY

This chapter contains a Project Summary for each project that has work planned in FY16-20, and an alphabetical project listing.

- **Project Summary**

The project summaries are presented in order by Department, 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:

ADM – Administration Department
CUS – Customer and Community Services Department
ENG – Engineering 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 Department

- **Recurring Projects**

Projects that perform similar work each year are considered recurring projects, such as Meter Replacements. For recurring projects only the FY16-20 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
GRANT/LOAN – Grant or Loan
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 2010, the District adopted an updated Urban Water Management Plan that incorporates the revised Water Supply Management Program to reduce potable water demand to achieve an additional 39 million gallons per day (MGD) in water savings from conservation programs and natural replacement by the year 2040. This is in addition to the 23 MGD of estimated conservation achieved through 2009.

In FY14, we continued implementation of conservation measures identified in the 2011 Water Conservation Master Plan (WCMP). 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 remained higher than long-term annual averages due to ongoing demand reductions from the drought, and heightened interest in water efficient technologies and practices.

In recognition of the anticipated ongoing water shortage conditions and drought response plan, in addition to the baseline conservation programs, a number of WCMP strategies will be accelerated over the next several years including: expanded indoor and outdoor rebates; water saving device distribution; landscape irrigation water budgets; Home Water Reports for residential customers; water loss control programs; advanced metering infrastructure; and WaterSmart Business Certification. A key priority will be to update and finalize per capita water use calculations and targets.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Conservation Incentives	28,175,016	6,733,375	4,583,000	39,491,391
Water Management Services	9,012,123	5,412,500	6,150,000	20,574,623
Research and Development	7,249,433	1,550,000	1,162,500	9,961,933
Education and Outreach	3,652,242	2,960,000	2,200,000	8,812,242
Supply-Side Conservation	375,000	1,290,000	1,325,000	2,990,000
Regulation and Legislation	434,977	550,000	440,000	1,424,977

Appropriations:		Lead Dept: CUS	
Prior Years	\$ 56,350,991	Recurring: No	
2016	\$ 3,485,000	Funding:	BOND/REV 89%
2017	\$ 3,796,000		GRANTS 1%
2018	\$ 3,654,875		OAG 10%
2019	\$ 3,727,000		
2020	\$ 3,833,000		
Future Years	\$ 15,860,500	In Service Date: 31-Dec-30	
Total Cost	\$ 90,707,366		

Capital Improvement Program - Project Summary

Project: Adm Bldg Modifications

Project Number: 003033

Strategy: Facilities, Servc and Equip

Program: Area Service Center/Bldg Prog

Justification:

The equipment and systems scheduled for replacement have exceeded their design life. Ongoing maintenance and short-term spot replacement costs can be lowered by investing in long-term sustainable replacement of these systems.

Description:

The systematic repair or replacement of equipment at the Oakland Administration Building provides new opportunities for operating efficiencies and sustainable resource savings. In FY14, design to replace the Fire Alarm System was completed and construction began, and a pilot study continued on energy efficiency projects including the use of window films and more efficient light fixtures. FY15-17 work includes construction of the Fire Alarm System; design to replace waterproofing on the terraces and roof; design and construction of upgrades to the boilers for greater energy efficiencies; design of the Data Center power distribution unit and uninterrupted power supply unit; design of air conditioning units in the computer server rooms; design and construction of upgrades to elevator controls; and miscellaneous space planning.

Energy efficiency projects include lighting retrofit and window film installation anticipated to be completed in FY19, and design and construction of replacement cooling tower and chiller systems in FY19-20. Future work includes power feed and distribution improvements; lobby counter security improvements; replacement of audio-visual equipment in the board room; and design and construction of repairs to terraces and roofs.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Admin Bldg System Controls	9,037,000	887,000	2,600,000	12,524,000
Power Feed System Reconfigurat	0	2,100,000	0	2,100,000
Energy Efficiency Projects	128,636	1,600,000	0	1,728,636
Reliable Backup Power Supply	1,720,000	0	0	1,720,000
Elevator Upgrades	1,108,196	470,000	0	1,578,196
Chiller Replacements	150,000	1,023,000	0	1,173,000
Admin Bldg Re-Roofing	1,119,000	0	0	1,119,000
Adm Bldg Carpet Replacement	1,067,300	0	0	1,067,300

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 19,294,132	Recurring: No	
2016	\$ 495,000	Funding: BOND/REV 100%	
2017	\$ 887,000		
2018	\$ 1,774,000		
2019	\$ 1,927,000		
2020	\$ 2,000,000		
Future Years	\$ 2,600,000	In Service Date: 30-Jun-23	
Total Cost	\$ 28,977,132		

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 improve water quality in the Almond/Fire Trail Pressure Zone by minimizing storage.

Description:

Conceptual planning for the Almond/Fire Trail Pressure Zones in Castro Valley was included as part of the Pressure Zone Planning Program (PZPP). The PZPP identified two projects to improve water quality: replacing the 6.6 million gallon (MG) open-cut Almond Reservoir with two smaller tanks; and demolishing the 3.1 MG Cull Creek Reservoir. This project will confirm the PZPP analysis and include detailed, site-specific planning for water storage improvements, and project-specific environmental documentation for the Almond and Fire Trail Pressure Zones. Planning will take place through FY16, with design and construction scheduled for FY17-21.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Almond Reservoir Replacement	10,910,000	582,000	0	11,492,000
Almond/Fire Trail PZ Planning	324,000	44,000	0	368,000

Appropriations:				
Prior Years	\$ 11,234,000	Lead Dept:	ENG	
2016	\$ 44,000	Recurring:	No	
2017	\$ 582,000	Funding:	BOND/REV	100%
2018	\$ 0			
2019	\$ 0			
2020	\$ 0			
Future Years	\$ 0			
Total Cost	\$ 11,860,000	In Service Date:	30-Jun-21	

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 FY14-15, anode beds were replaced at the Brookside Road, Orwood Road, Pine Creek Channel, Highway 99, Harney Lane and Hildreth Lane cathodic protection stations.

In FY16-18, work includes renewal of CPSs at Fairview Avenue, Longview Road, Arnold Industrial Way, Camanche Park West, Camanche Park East, Parkway East, Monument Boulevard, G Street and Astrid Drive.

In FY19-21, work includes renewal of CPSs at Franklin Avenue, West Portal, Old River, Port Chicago and Richard Avenue.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Aqueduct Cathodic Protection	3,022,000	1,475,000	0	4,497,000

Appropriations:			
Prior Years	\$ 3,022,000	Lead Dept:	ENG
2016	\$ 60,000	Recurring:	No
2017	\$ 310,000	Funding:	BOND/REV 100%
2018	\$ 435,000		
2019	\$ 670,000		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 4,497,000	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:

The District's occupied facilities need to be maintained in a serviceable condition to comply with Federal, State and local workplace health and safety regulations and standards. Lowering operating costs can also be achieved through investing in sustainable long-term replacement of equipment and maintenance solutions.

Description:

This project is a comprehensive assessment of District facilities for: (1) compliance with government regulations such as building codes and zoning ordinances; (2) the District's standards for space, ergonomic furniture and finishes (carpeting, wall coverings, etc.); (3) health and safety regulations; and (4) the condition of the building envelope including structural, mechanical and electrical systems and equipment. In addition, the study will evaluate opportunities for sustainability improvements for cost-effective and environmentally responsible operations such as energy reduction and production strategies, and safety improvements.

This project includes preparation of the Tier I Administrative and Corporate Facilities Master Plan to assure that improvements are adequately planned and prioritized. The assessments and master planning of the District's 200 occupied facilities will begin in FY17. Implementation of the critical needs identified in the facilities master plan will begin in FY19. In FY19-24, the highest priority of all the District's 200 occupied facilities will be upgraded. In subsequent years improvements will be made to the remaining facilities identified in the plan. In FY16, planning for the Castenada Service Center; replacement of the Oakport office roof; and planning for the Construction and Maintenance Services building will begin.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
CMS Building Improvmements	120,000	4,100,000	0	4,220,000
Master Plan Implementation	1,350,000	0	1,540,000	2,890,000
Stockton Center ADA Upgrade	0	1,102,000	0	1,102,000
Anderson Building Modification	720,000	0	0	720,000
Oakport Storage Facility Roof	240,000	160,000	0	400,000
Assessments & Master Plan Dev	367,000	0	0	367,000
AMC Bldgs Roof Fall Protection	199,000	146,000	0	345,000
AMC Lighting Replacement	0	340,000	0	340,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 3,746,997	Recurring: No	
2016	\$ 831,000	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 60,000		
2019	\$ 1,402,000		
2020	\$ 3,900,000		
Future Years	\$ 1,540,000	In Service Date: 30-Jun-30	
Total Cost	\$ 11,479,997		

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 and 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 FY14-15, the ArcMap software was upgraded and a third-party software was eliminated. Replacement of equipment with new Windows 7 PCs for the Mapping group was also completed. In FY16-20 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	FY16-20	Future Yrs	Total
Cad Cam Sys Development	29,787,800	7,990,476	34,252,600	72,030,876

Appropriations:			
Prior Years	-	Lead Dept:	ENG
2016	\$ 1,467,800	Recurring:	Yes
2017	\$ 1,557,600	Funding:	BOND/REV 100%
2018	\$ 1,608,100		
2019	\$ 1,656,343		
2020	\$ 1,700,633		
Future Years	-		
Total Cost	-	In Service Date:	Recurring

Capital Improvement Program - Project Summary

Project: Camanche Rec Area Upgrades

Project Number: 000153

Strategy: Resource Management

Program: Recreation Areas

Justification:

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

Description:

This project provides campground and road improvements at the Camanche North and South Shore Recreation Areas. Improvements include new picnic tables, fire rings, BBQs and parking spurs at each camp site; rehabilitation of main and campground roads; and new signage and striping for traffic control. Paving of the road in front of the snack bar at South Shore was completed in FY13. In FY15, design was initiated for the South Shore campground improvements and day use roads, with construction to be completed in FY16.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Cam Rec Area SS Camp & Dayuse	635,000	135,000	0	770,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 6,041,000	Recurring: No	
2016	\$ 135,000	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 31-Dec-16	
Total Cost	\$ 6,176,000		

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 upgrade aging facilities and improve water quality and water operations by reducing storage volume in the Dingee and 39th Avenue Pressure Zones. Upgrading Estates Reservoir provides sufficient storage for both the Dingee and Piedmont Pressure Zones and eliminates the need to build replacement storage at the Piedmont Reservoir site.

Description:

The Central Oakland Hills Cascade Pressure Zone is located south of the Claremont Tunnel, along State Route 13 south to the Oakland border. Pressure Zone Improvements (PZI) are planned in the 39th Avenue, Piedmont, Dingee, Joaquin Miller and Pinehaven Pressure Zones. These improvements will be coordinated with the Tier 1 Distribution System Master Plan and Tier 2 Pressure Zone Improvement Program Master Plan projects.

Estates Reservoir replacement was completed FY14, and associated tree removal and a pedestrian path were completed in FY15 to avoid disturbing raptors nesting adjacent to the construction area. Construction of the 39th Avenue/Redwood Pumping Plant Rehabilitation Project is underway and anticipated to be complete in FY16. Design and start of construction of the 39th Avenue Reservoir Replacement Project has been shifted to FY19-20. The Joaquin Miller Pumping Plant and discharge pipeline project is deferred until such time that demands are projected to exceed the capacity of the existing facility. Planning and design related to the Piedmont roof demolition is planned for FY16-17. The remaining decommission/demolition projects in the Joaquin Miller and Pinehaven Pressure Zones are deferred beyond FY20.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
39th Avenue PZI	2,553,998	8,500,000	14,090,000	25,143,998
Dingee Pressure Zone Improveme	22,657,000	167,000	0	22,824,000
Piedmont PZI	397,000	2,618,000	0	3,015,000
Swainland Res and Regulator	175,000	1,268,000	0	1,443,000
Oak Knoll Res. Decommission	0	691,000	0	691,000
Round Top PP Decommission	0	230,000	0	230,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 25,815,998	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 230,000		
2018	\$ 235,000		
2019	\$ 13,009,000		
2020	\$ 0		
Future Years	\$ 14,090,000	In Service Date: 30-Jun-26	
Total Cost	\$ 53,379,998		

Capital Improvement Program - Project Summary

Project: Colorados Pressure Zone Imprv

Project Number: 1006294

Strategy: Extensions and Improvements

Program: Pressure Zone Improvements

Justification:

The project is needed to address existing and future distribution system deficiencies in the Colorados Pressure Zone.

Description:

The Colorados Pressure Zone Improvements project 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 Water Treatment and Transmission Improvements Program (WTTIP) Environmental Impact Report.

Design and construction of Tice Pumping Plant is included in the Capital Improvement Program as a separate project, and Withers Pumping Plant is included as part of the WTTIP Distribution Improvements Project. Highland Reservoir was completed in FY12.

Design and construction of three additional projects in the Colorados Pressure Zone in Lafayette were identified for FY18 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 FY16 by the Colorados PZI Update Study.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Diablo Vista Reservoir Repl	0	3,470,000	0	3,470,000
Brook Street Pipeline	0	2,594,000	0	2,594,000
Old Tunnel Rd. Pipeline	0	750,000	0	750,000
Colorados PZI Update	0	50,000	0	50,000

Appropriations:			
Prior Years	\$ 155,000	Lead Dept:	ENG
2016	\$ 50,000	Recurring:	No
2017	\$ 750,000	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 2,594,000		
2020	\$ 3,470,000		
Future Years	\$ 0	In Service Date:	30-Jun-22
Total Cost	\$ 7,019,000		

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 FY13-15 include completion of the Upper San Leandro (USL) Dam Spillway Channel Restoration Project and the Lafayette Reservoir Slope Lining Project; installation of emergency drain valves at the USL Filter Plant in Oakland and the San Pablo Filter Plant in Kensington; and repairs of the Watson Reservoir lining to mitigate leaks.

Upcoming work includes: 1) completion of terminal reservoir inundation maps in FY16-17; 2) reservoir tunnel inspection and possible repairs for USL Dam Tunnel, USL WTP Tunnel, and Lafayette Dam Tunnel in FY16-20; 3) tree removal and asphalt concrete lining repairs at Maloney Reservoir in Pinole in FY19; and 4) replacement of the lining in Watson Reservoir in San Ramon in FY19-20.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Watson Res Lining Repairs	1,070,000	1,150,000	0	2,220,000
Reservoir Tunnel Inspection	0	2,220,000	0	2,220,000
Terminal Res Inundation Maps	700,000	0	140,000	840,000
Camanche Reservoir Improvement	328,000	0	0	328,000
Maloney Reservoir Improvments	0	50	0	50

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 6,212,000	Recurring: No	
2016	\$ 220,000	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 2,000,000		
2019	\$ 150,050		
2020	\$ 1,000,000		
Future Years	\$ 140,000	In Service Date: 30-Jun-20	
Total Cost	\$ 9,722,050		

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 are planned for Dunsmuir Reservoir in Oakland, Moraga Reservoir, Leland Reservoir in Lafayette, and Sobrante Clearwell.

Dam freeboard has been increased by making structural modifications to the spillways at North Dam in Richmond, Estates Dam in Oakland, and Danville Dam; and by operational modifications at Maloney Dam in Pinole, Moraga Dam, San Pablo Clearwell in Kensington and Estates Dam in Oakland. Reservoir operating levels have been lowered temporarily at Maloney and Leland Reservoirs in Lafayette to achieve adequate freeboard until these reservoirs can be removed from service to construct spillway modifications.

Planning and design of the seismic upgrade of Chabot Dam in San Leandro began in FY11, and construction is expected to be completed in FY17. Upgrades at Camanche Dam are dependent on DSOD and Federal Energy Regulatory Commission (FERC) review, approval, and subsequent directive, but are currently planned to begin in FY17.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Chabot Dam Seismic Upgrade	19,756,000	0	0	19,756,000
Camanche Dam Seismic Upgrade	0	11,400,000	0	11,400,000
Pardee Dam and Spillway	500,000	0	0	500,000
Sobrante CW/Leland Stab Rev	400,000	0	0	400,000
Dunsmuir Reservoir Stab Review	300,000	0	0	300,000
Moraga Reservoir	0	150,000	0	150,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 28,291,000	Recurring: No	
2016	\$ 150,000	Funding: BOND/REV 100%	
2017	\$ 11,400,000		
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 30-Jun-21	
Total Cost	\$ 39,841,000		

Capital Improvement Program - Project Summary

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

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

Justification:

Instrumentation data and updating the dam safety monitoring software program are critical to effectively evaluate the safety of dams, and to provide early warning of dam safety problems. The maintenance and replacement of defective dam safety instrumentation are requirements of the regulatory agencies.

Description:

The District has approximately 2,200 instruments and a surveillance system to monitor the safety and performance of 28 dams. The instrumentation must be maintained, upgraded and replaced as needed.

In FY14-15, ten United States Geological Survey (USGS) seismographs were installed at Upper San Leandro and Pardee Dams with ground motion data managed by USGS. Real-time online seepage monitoring devices were installed for the 5 terminal reservoirs. Automatic seepage monitoring devices have been designed for 10 open-cut distribution reservoirs. In addition, the drainage and measurement of the relief well flows at Camanche Dike 2 have been upgraded. State-of-the-art GPS survey systems consisting of 35 GPS monitoring stations were installed at Pardee and Camanche Dams and Dikes to improve survey accuracy and efficiency.

In FY16-18, work includes: 1) completing the seepage monitoring automation of 10 open-cut reservoirs; 2) expanding the GPS survey systems to cover Chabot, USL, Lafayette and Briones Dams; 3) evaluating and re-tensioning the 50 anchors of Pardee South Spillway concrete ogee-crest; and 4) replacing malfunctioning instruments to meet requirements of the Federal Energy Regulatory Commission (FERC) and the California Division of Safety of Dams (DSOD).

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Dam Instrumentation Upgrades	1,215,000	275,000	315,000	1,805,000
Pardee Camanche Survey Imprvts	1,500,000	50,000	115,000	1,665,000
Terminal Res Seismographs	900,000	0	175,000	1,075,000
Pardee Camanche Instruments	430,000	335,000	300,000	1,065,000
Terminal Reservoir Survey Impr	0	900,000	0	900,000
Open-Cut Res Underdrain Instru	840,000	0	0	840,000
Cmnche DK2 Well Drnge Impr	597,000	30,000	0	627,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 6,958,322	Recurring: No	
2016	\$ 180,000	Funding: BOND/REV 100%	
2017	\$ 15,000		
2018	\$ 920,000		
2019	\$ 300,000		
2020	\$ 175,000		
Future Years	\$ 905,000	In Service Date: 30-Jun-25	
Total Cost	\$ 9,453,322		

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, level of service deficiencies and operating reliability including solving low pressure and hydraulic transient problems in the Diablo Pressure Zone. The project will restore operating storage to District standards and provide more flexibility for the future Alamo Reservoir outage.

Description:

The project involves the design and construction of a 3.6 million gallon (MG) storage tank at the Diablo Reservoir site in Danville. The 5.0 MG Diablo Reservoir was removed from service due to foundation issues and demolished in 2004, leaving the 5.5 MG Emmons Reservoir and the 2.5 MG Miranda Reservoir to serve the pressure zone.

Project features include a welded-steel replacement reservoir on a deep pier foundation, improvements to the existing access road, and site restoration. Design and construction is scheduled for FY17-19. This project is listed under the Tier 1 Distribution System Master Plan and Tier 2 Pressure Zone Improvement Program Master Plan.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Diablo PZI	10,381,000	3,174,058	0	13,555,058

Appropriations:				
Prior Years	\$ 10,381,000	Lead Dept:	ENG	
2016	\$ 0	Recurring:	No	
2017	\$ 3,174,058	Funding:	BOND/REV	20%
2018	\$ 0		SCC	80%
2019	\$ 0			
2020	\$ 0			
Future Years	\$ 0			
Total Cost	\$ 13,555,058	In Service Date:	30-Jun-19	

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 pipelines through the ongoing upgrade of cathodic protection systems.

Description:

This is an ongoing project to repair or replace cathodic protection units for water distribution pipelines. The distribution system is protected by 1,300 galvanic anode units, approximately 30 of which need to be replaced each year as they corrode. These galvanic anodes, often referred to as sacrificial anodes, are pieces of metal that protect the pipe as they are more reactive to the corrosive environment than the pipe. Other portions of the distribution system are protected by 110 impressed current units which have become deficient and no longer provide adequate cathodic protection. Impressed current systems protect pipelines by discharging current from anodes placed in the soil in which the piping to be protected is buried.

In FY14-15, 18 galvanic anode units were repaired. In FY15, Staff is piloting impressed current station renovations and 5 impressed current units were replaced.

In FY16-20, work includes repair of 18 galvanic anode units per year, and 10 impressed current stations per year will be renovated and/or replaced. Also in FY16-20, based on the FY15 Cast Iron Cathodic Protection Study findings, retrofits will be designed and installed to increased pipe service life.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Distr System Corrosion Protect	8,593,000	3,298,384	5,530,000	17,421,384

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 8,593,000	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 1,078,155		
2019	\$ 1,098,960		
2020	\$ 1,121,269		
Future Years	\$ 5,530,000	In Service Date: 30-Jun-30	
Total Cost	\$ 17,421,384		

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 FY14-15, the Alameda Crossings Master Plan and two pressure zone rezonings were completed. Planned projects for FY16-20 include additional rezonings; related pipeline system improvements; and valve improvements for storage cycling optimization.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
PZ Rezonings	800,000	600,000	2,200,000	3,600,000
New Pressure Zone Studies	1,596,812	441,000	1,465,000	3,502,812
Dual Tank Isolation Valves	325,000	745,000	625,000	1,695,000
Hill Mutual PZ Rezoning	831,000	25,000	0	856,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 5,724,808	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 202,000		
2018	\$ 530,000		
2019	\$ 536,000		
2020	\$ 543,000		
Future Years	\$ 4,290,000	In Service Date: 30-Jun-30	
Total Cost	\$ 11,825,808		

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	FY16-20	Future Yrs	Total
Main Switchgear and Generator	600,000	0	0	600,000

Appropriations:			
Prior Years	\$ 9,440,248	Lead Dept:	ENG
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 9,440,248	In Service Date:	31-Dec-19

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 4, Water Treatment Plants Phase 1 and 2, Hydroelectric Plants Phase 1, and Admin Building Phase 1 have been completed. These phases include 96 pumping plants, 15 water treatment plants, two hydroelectric plants, and the Oakland and Adeline Administration Buildings.

Remaining work consists of arc flash studies for 59 pumping plants between FY15-19; Adeline Fleet and Adeline Shops in FY15; 22 other office buildings in FY17-18 and three service areas in FY19.

In addition, starting in FY16, each year will include the review of studies completed five years earlier as required by OSHA. In FY16, studies completed prior to FY11 will be reviewed.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
PP Arc Flash Evaluation	1,253,000	356,000	0	1,609,000
Admin Buildings Arc Flash Eval	114,000	485,000	0	599,000
Arc Flash 5 Year Review	0	178,000	0	178,000

Appropriations:			
Prior Years	\$ 1,743,000	Lead Dept:	ENG
2016	\$ 363,000	Recurring:	No
2017	\$ 287,000	Funding:	BOND/REV 100%
2018	\$ 223,000		
2019	\$ 146,000		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 2,762,000	In Service Date:	30-Jun-19

Capital Improvement Program - Project Summary

Project: Enterprise Hyd WQ & Op Modl

Project Number: 2005281

Strategy: Extensions and Improvements

Program: Pressure Zone Improvements

Justification:

The integration of facility controls with a hydraulic model adapted to District enterprise systems enables the potential for automation with operator control. This can result in District-wide energy use optimization balanced with water quality optimization, while meeting established flow and pressure requirements.

Description:

In FY15, the Enterprise Modeling Study commenced to assess the feasibility of applying a hydraulic modeling scheme to determine daily facility operational objectives (minimizing energy, optimizing water quality and determining short and long-term outage service levels) and water system control set points (pumping times, reservoir levels, and rate control station operations). The result will be a District-wide model to allow real-time automation of facility operations.

The use of such a model will also provide important feedback to hydraulic modeling calibration, including water quality optimization for use in facilities planning, emergency planning and water infrastructure master planning.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Enterprise Model Study	500,000	20,000	0	520,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 500,000	Recurring: No	
2016	\$ 20,000	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 30-Jun-17	
Total Cost	\$ 520,000		

Capital Improvement Program - Project Summary

Project: Folsom South Canal Connection

Project Number: 2001489

Strategy: Water Supply

Program: Water Supply Mgmt Program

Justification:

The Freeport Regional Water Project is a cooperative effort that will help meet District goals to secure a supplemental dry-year water supply to provide water for District customers through the year 2040 to help reduce rationing requirements during a drought.

Description:

This project is one piece of the larger Freeport Regional Water Project which consists of all facilities required to bring raw water from the Folsom South Canal to the Mokelumne Aqueducts. Elements include a Folsom South Canal intake facility; a 100 million gallons per day (MGD) Canal Pumping Plant; a 100 MGD Aqueduct Pumping Plant; 18.8 miles of 72-inch diameter pipeline; and a flow control facility to connect the pipeline to the existing Mokelumne Aqueducts. Construction was completed in FY11.

Environmental mitigation related to construction will continue through FY16. Work includes vegetation restoration, monitoring, environmental compliance reporting, and maintenance of monitoring easements as necessary.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
FSCC Construction	222,876,000	0	0	222,876,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 253,710,000	Recurring: No	
2016	\$ 0	Funding: BOND/REV SCC	30%
2017	\$ 0		70%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 30-Jun-16	
Total Cost	\$ 253,710,000		

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 recent years, the number of hydrants installed has decreased from an average of approximately 70 per year.

In FY14-15, due to a reduction in new developments, the District installed an average of approximately 55 new hydrants annually. In FY16-17, work includes installation of 70 new hydrants annually. In FY18-20, the installation rate is planned to increase to 90 hydrants annually as development conditions are expected to improve.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Hydrants Instl'd By Dist	17,187,000	6,500,000	7,690,000	31,377,000

Appropriations:		Lead Dept: ENG	
Prior Years	-	Recurring: Yes	
2016	\$ 1,200,000	Funding:	APPL 38%
2017	\$ 1,200,000		BOND/REV 25%
2018	\$ 1,200,000		OAG 37%
2019	\$ 1,400,000		
2020	\$ 1,500,000	In Service Date: Recurring	
Future Years	-		
Total Cost	-		

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 are needed to maintain infrastructure reliability. These pipelines, by necessity, convey large volumes of water and many distribution pipelines branch off from them. These pipelines are difficult to remove from service and when they fail, there is a potential for collateral damage.

Description:

Large diameter transmission pipelines form the backbone of the distribution system. This project replaces transmissions pipelines that are at risk of failure and conducts condition assessments and master planning.

In FY14-15, work included completion of a master plan that identified the likelihood and consequences of failure to large diameter pipelines and developed risk rankings; construction of Lincoln Avenue (Alameda) was completed and the majority of the construction was completed for Dingee Pipeline and Aqueducts at Claremont Center (Oakland); and design for MacArthur/Davenport, International Boulevard, and Grand Avenue projects (Oakland) was completed.

In FY16-17, work includes design of the Alameda estuary crossing in both Oakland and Alameda, and R/W 778/Mario Way in Lafayette; and construction start of the MacArthur/Davenport, Grand Ave, International Blvd, and Alameda Crossing projects.

In FY18-25, work includes completion of MacArthur/Davenport, Alameda Crossing, International Blvd, and R/W 778/Mario Way projects. Planning, design and construction will take place for Summit PZ Transmission Pipeline in Berkeley, East 15th St. in Oakland, Judy Lane in Lafayette and other projects identified by the Large Diameter Pipeline Master Plan.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Lg Diameter Pipeline Replace	84,047,150	68,585,000	75,000,000	227,632,150
Master Planning	822,000	290,000	430,000	1,542,000
Danville PP PL Property Rights	1,010,411	0	0	1,010,411

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 86,827,561	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 33,000,000		
2019	\$ 19,678,000		
2020	\$ 16,197,000		
Future Years	\$ 75,430,000	In Service Date: 30-Jun-25	
Total Cost	\$ 231,132,561		

Capital Improvement Program - Project Summary

Project: Leland Pressure Zone Impr	Project Number: 2001451
Strategy: Extensions and Improvements	Program: Pressure Zone Improvements

Justification:

The project is needed because the Leland Reservoir requires significant maintenance due to a deteriorating concrete roof and seismic stability issues of the earthen embankment.

Description:

The Leland Pressure Zone Improvement (PZI) project will address critical storage needs as Leland Reservoir is the only storage serving Lafayette and most of Walnut Creek. The Leland PZI project includes a planning study and environmental documentation for the replacement of the existing reservoir with two 8-million gallon concrete reservoirs, and any facilities needed to allow the reservoir outage. The project also includes rerouting an existing 36-inch critical transmission pipeline that currently runs beneath the Leland Reservoir basin.

FY14-15 accomplishments include completion of the facilities plan and outage planning, and the start of the environmental review work. FY16-17 planned work includes completion of the environmental work. FY18-22 planned work includes design and construction of the outage facilities and replacement tanks.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Leland Reservoir Upgrade	6,176,000	25,024,000	0	31,200,000
Leland PZ Planning	674,000	940,000	0	1,614,000

Appropriations:				
Prior Years	\$ 7,181,480	Lead Dept:	ENG	
2016	\$ 940,000	Recurring:	No	
2017	\$ 0	Funding:	BOND/REV	30%
2018	\$ 25,024,000		SCC	70%
2019	\$ 0			
2020	\$ 0			
Future Years	\$ 0			
Total Cost	\$ 33,145,480	In Service Date:	31-Dec-22	

Capital Improvement Program - Project Summary

Project: Maloney PZ Improvements

Project Number: 1002575

Strategy: Extensions and Improvements

Program: Pressure Zone Improvements

Justification:

This project is needed to address operational and aging infrastructure issues including storage capacity, pumping capacity, and distribution system pipeline deficiencies.

Description:

Site-specific planning for the Maloney Pressure Zone improvements in Pinole/El Sobrante/Crockett calls for approximately 3 million gallons (MG) of additional storage, 12.5 MGD in pumping capacity, and 18,500 feet of 36-inch pipeline.

Environmental documentation was completed in FY13 for the Maloney Pumping Plant and Selby Reservoir projects. Maloney Pumping Plant design and construction is scheduled for FY16-19. Selby Reservoir design and construction is scheduled in FY23-27. The Crockett Pumping Plant Discharge Pipeline and Crockett Pumping Plant improvements are scheduled for design and construction in FY21-24.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Crockett PP Discharge Pipeline	0	0	20,800,000	20,800,000
Selby Reservoir Replacement	11,492,000	0	1,700,000	13,192,000
Maloney PP Improvements	6,570,000	2,930,000	0	9,500,000
Crockett PP Improvements	5,780,000	0	0	5,780,000

Appropriations:				
Prior Years	\$ 24,551,000	Lead Dept:	ENG	
2016	\$ 2,930,000	Recurring:	No	
2017	\$ 0	Funding:	BOND/REV	59%
2018	\$ 0		SCC	41%
2019	\$ 0			
2020	\$ 0			
Future Years	\$ 22,500,000	In Service Date:	30-Jun-27	
Total Cost	\$ 49,981,000			

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 help prevent internal corrosion.

Description:

This project replaces the deteriorated cement mortar lining in Mokelumne Aqueduct Nos. 2 and 3 which protects the steel pipeline from internal corrosion. Previous inspections of the elevated Delta reach revealed that the lining in the Aqueduct No. 3 is in need of replacement (10 miles). Inspections of Aqueduct No. 2 indicate that 65 miles of the lining in this pipeline also needs replacement.

FY14-15, work included completion of a study to evaluate lining materials and to assess potential water quality changes that would extend the life of lining systems in the aqueducts and distribution system.

In FY16-17, work includes comprehensive inspection of the Aqueducts 2 and 3 to determine the exact extent of the lining failures. The next step is to initiate the planning and design of projects to replace the lining.

In FY18-24, work includes design and construction of approximately six relining projects projected to occur over a period of six years.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Mok Aqueduct No. 2 Relining	0	79,458,000	100,000,000	179,458,000
Mok Aqueduct No. 3 Relining	0	32,748,000	0	32,748,000
Lining Studies & Improvements	7,200,347	4,780,000	0	11,980,347

Appropriations:			
Prior Years	\$ 7,200,347	Lead Dept:	ENG
2016	\$ 29,199,000	Recurring:	No
2017	\$ 32,748,000	Funding:	BOND/REV 100%
2018	\$ 26,758,000		
2019	\$ 0		
2020	\$ 28,281,000		
Future Years	\$ 100,000,000	In Service Date:	30-Jun-26
Total Cost	\$ 224,186,347		

Capital Improvement Program - Project Summary

Project: Mokelumne Aqueduct Recoating

Project Number: 2001487

Strategy: Water Supply

Program: Aqueduct Program

Justification:

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

Description:

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

In FY14-15, work included completion of construction of Phases 8, 10 and 11. This completed recoating of Aqueducts No. 2 and 3 across the Delta.

In FY16-19, Phase 12 work includes recoating Aqueduct No. 1 across both Woodward Island and Orwood Tract.

In FY17-26, Phase 13 work includes recoating isolated gully crossings of Aqueduct No. 1. Approximately 60 of these sites exist including several high-level steel bridge support structures.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Mokelumne Aqueducts Recoating	18,089,000	5,400,000	1,600,000	25,089,000

Appropriations:				
Prior Years	\$ 37,915,153	Lead Dept:	ENG	
2016	\$ 500,000	Recurring:	No	
2017	\$ 4,900,000	Funding:	BOND/REV	60%
2018	\$ 0		GRANTS	40%
2019	\$ 0			
2020	\$ 0			
Future Years	\$ 1,600,000		In Service Date:	30-Jun-26
Total Cost	\$ 44,915,153			

Capital Improvement Program - Project Summary

Project: New Service Installations

Project Number: 000101

Strategy: Maintaining Infrastructure

Program: Pipelines/Appurtenances

Justification:

New accounts require new service laterals, and replacement of old, non-repairable existing services also require new service installations.

Description:

This is an ongoing project to install new services and replace old services at the end of their useful life. Services include taps on the main, laterals, and meter sets. The work consists of adding services required due to expansion of the system and urban in-fill projects, plus replacement of old services, excluding polybutylene laterals. In the past, District Forces have installed up to 1,020 new and replacement service laterals. The need for replacement of old services is expected to increase as the distribution system ages. However, recent housing trends reduced the need for new services.

In FY14-15, an average of 940 new and replacement services per year were installed. In FY16-17, work is estimated at 400 new services and 550 replacements of existing services per year. In FY18-20, work is estimated at 440 new services and 600 replacements of existing services per year.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
New Svc Installs	152,379,000	45,000,000	52,200,000	249,579,000

Appropriations:				
Prior Years	-	Lead Dept:	ENG	
2016	\$ 8,500,000	Recurring:	Yes	
2017	\$ 8,700,000	Funding:	APPL	75%
2018	\$ 9,000,000		BOND/REV	25%
2019	\$ 9,300,000			
2020	\$ 9,500,000			
Future Years	-		In Service Date:	Recurring
Total Cost	-			

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 and replacement is 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 FY14-15, design was completed and a construction contract was awarded to demolish South Reservoir in Castro Valley, a 50 million gallon (MG) open-cut reservoir that was removed from service in 2008 due to roof leaks. Also in FY14-15, planning and design for the replacement of the San Pablo Clearwell in Kensington continued.

In FY16-20, a contract will be awarded to construct South Reservoir in Castro Valley, a new 9 MG partially buried concrete reservoir; design and construction of San Pablo Clearwell in Kensington will be completed; planning and design for Central Reservoir in Oakland will be completed; and the planning for North Reservoir in Richmond will be completed. Beyond FY20, open-cut reservoir projects are planned for Maloney, Claremont, Fay Hill, Dingee, USL Clearwell, and Moraga reservoirs.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Central Reservoir	2,634,062	2,478,340	113,029,000	118,141,402
North Reservoir Rehabilitation	182,000	1,800,000	97,483,000	99,465,000
San Pablo Clearwell Rehab	9,364,000	9,700,000	0	19,064,000
South Reservoir Replacement	18,949,000	0	0	18,949,000
Seneca Reservoir Demolition	0	2,400,000	0	2,400,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 41,107,062	Recurring: No	
2016	\$ 12,100,000	Funding: BOND/REV 100%	
2017	\$ 153,340		
2018	\$ 4,125,000		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 210,512,000	In Service Date: 30-Jun-30	
Total Cost	\$ 267,997,402		

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 3,840 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 costs associated with future leak repairs versus costs of immediate replacement.

In FY14, the District installed 10.5 miles of infrastructure renewal pipelines. In FY15, the District installed approximately 10 miles of infrastructure renewal pipelines, completed the asbestos-cement (AC) pipe study, and established the "10 to 40" program.

In FY16-20, the District expects construction of 10 miles of pipeline replacements per year. The rehabilitation of AC pipelines will be transferred to the "10 to 40" program. The "10 to 40" program will begin the short-term replacement by adding an additional 5 miles of replacements per year.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Infrastructure Renewals	185,005,476	142,241,000	140,011,000	467,257,476
10 to 40 Program	0	69,190,000	230,000,000	299,190,000
Pipeline Research-Development	1,548,000	150,000	250,000	1,948,000

Appropriations:			
Prior Years	-	Lead Dept:	ENG
2016	\$ 33,321,000	Recurring:	Yes
2017	\$ 42,662,000	Funding:	BOND/REV 100%
2018	\$ 43,925,000		
2019	\$ 45,177,000		
2020	\$ 46,496,000		
Future Years	-		
Total Cost	-	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, AC Transit, Caltrans and BART.

Description:

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

In FY14-15, 1.5 miles of relocations were completed, including design and construction of pipelines in 10th Street in Oakland, Caltrans El Portal in San Pablo, Marina Bay Parkway in Richmond, 14th Street at the Port of Oakland, Caltrans 23rd and 29th Avenue in Oakland, West Berkeley Library, Alta Bates, South Broadway in Walnut Creek, AC BRT in Oakland, Schnitzer Steel in Oakland, Ashland Housing in Alameda, Davis Street Overlay, San Leandro Street Overlay, Latham Square in Oakland, Richmond Plunge in Richmond, and Nevin Avenue in Richmond.

In FY16-17, work includes approximately 4.6 miles of relocations for pipelines in 10th Street in Oakland, Full Depth Reclamation in Lafayette and Orinda, and other relocations. In FY18-20, 1.5 mile of pipeline relocations per year is planned.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Non Reimbursable	25,654,166	24,750,000	40,000,000	90,404,166
Reimbursable	10,494,127	7,214,900	13,500,000	31,209,027

Appropriations:				
Prior Years	-	Lead Dept:	ENG	
2016	\$ 8,085,000	Recurring:	Yes	
2017	\$ 6,600,000	Funding:	BOND/REV	33%
2018	\$ 6,050,000		OAG	67%
2019	\$ 5,582,500			
2020	\$ 5,647,400			
Future Years	-	In Service Date:	Recurring	
Total Cost	-			

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 historically averaged 12 miles of system extensions per year, with 2 miles installed by District Forces. The demand was reduced to about 3 miles per year due to the economic downturn. However, demand increased in FY14.

In FY14-15, approximately five miles per year of system extensions were installed by applicants and District forces combined.

In FY16-17, work includes approximately six miles per year of system extensions (two miles constructed by District forces and four miles installed by applicants).

FY18-20, work includes approximately eight miles per year of system extensions (with two miles constructed by District forces and six miles installed by applicants).

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
New Pipeline Installations	124,967,600	40,656,000	60,000,000	225,623,600

Appropriations:			
Prior Years	-	Lead Dept:	ENG
2016	\$ 6,308,000	Recurring:	Yes
2017	\$ 6,497,000	Funding:	APPL100%
2018	\$ 8,966,000		
2019	\$ 9,281,000		
2020	\$ 9,604,000		
Future Years	-		
Total Cost	-	In Service Date:	Recurring

Capital Improvement Program - Project Summary

Project: Pipeline System Improvements

Project Number: 000110

Strategy: Maintaining Infrastructure

Program: Pipelines/Regulators

Justification:

This project is needed to maintain the level of service to existing customers by addressing problems with water quality, capacity and reliability.

Description:

This is an ongoing project to enhance the distribution system primarily for the existing customer base. Projects are designed to improve water quality, system performance, capacity, reliability and maintainability of the distribution system.

FY14-15 accomplishments included the design and construction of pipelines in Keith and Euclid Avenues in Berkeley, El Portal Drive in Richmond, and Fontaine Street in Oakland.

In FY16-20, work includes 1.5 miles of pipeline improvements per year, including 0.5 miles per year to replace 4-inch diameter mains throughout the District.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Maintainability Imprv Projects	4,723,290	2,471,000	19,600,000	26,794,290
4-inch Reliability Imprv	2,531,000	3,510,000	8,000,000	14,041,000

Appropriations:			
Prior Years	-	Lead Dept:	ENG
2016	\$ 0	Recurring:	Yes
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 1,136,000		
2019	\$ 1,169,000		
2020	\$ 3,676,000		
Future Years	-		
Total Cost	-	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 a comprehensive District-wide facilities planning project to support ongoing and future capital projects. The PZPP aids in the implementation of capital facility initiatives and facility replacement programs.

Description:

Individual Pressure Zone Planning Program 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).

FY14-15 accomplishments included an update to the DSMP and a mid-cycle review of the 2040 Demand Study. The planned FY17 work includes an update to the DSMP, which is scheduled to occur every two years.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Pressure Zone Planning Studies	1,567,000	22,000	0	1,589,000

Appropriations:				
Prior Years	\$ 2,684,000	Lead Dept:	ENG	
2016	\$ 0	Recurring:	No	
2017	\$ 0	Funding:	BOND/REV	80%
2018	\$ 22,000		SCC	20%
2019	\$ 0			
2020	\$ 0			
Future Years	\$ 0			
In Service Date:		30-Jun-19		
Total Cost	\$ 2,706,000			

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 2014. The IRP identifies the 47 highest priority pumping plants for rehabilitation, replacement or demolition.

In FY13-15, the District awarded construction contracts for the rehabilitation of Pit Piping, Danville #1, Bryant #1, Leland, Colorados, Las Aromas, Berkeley View, Bryant #2, Almond, 39th Ave, Redwood, Shasta, Woods, Diablo Vista, Diablo, Skyline, Moyers and Rd 24 No. 2 Pumping Plants (PP).

In FY16-20, work under the Pumping Plant Rehab Program includes planning, design and construction at the following facilities: Almond, Diablo Vista, Montclair, Gwin, Diablo, Encinal, University, Moyers, Rd 24 #2, Country Club, Schapiro, Rd 24 #1, Peralta, Bayfair, Fire Trail, Jensen #1, Proctor, Madrone, Palo Seco, Hill Mutual, Crest, Stott, Ridgewood, Valory, Summit West, Quarry, Summit North, and Echo Springs. 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 new projects that may be added to the priority list.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
FY22-25 PP Rehabs	0	0	48,000,000	48,000,000
FY20-21 PP Rehabs	0	17,262,397	0	17,262,397
Almond Pp	14,815,000	0	0	14,815,000
FY16-17 PP Rehabs	300,000	9,352,807	0	9,652,807
Diablo Vista PP Rehabilitation	9,257,000	0	0	9,257,000
PP Arc Flash Mitigation	2,378,000	2,700,000	3,000,000	8,078,000
FY18-19 PP Rehabs	0	7,996,683	0	7,996,683
Bayfair PP & Peralta PP Rehab	7,091,000	0	0	7,091,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 83,602,000	Recurring: No	
2016	\$ 3,512,232	Funding: BOND/REV 100%	
2017	\$ 9,952,807		
2018	\$ 8,636,683		
2019	\$ 17,862,397		
2020	\$ 760,000		
Future Years	\$ 51,200,000	In Service Date: 30-Jun-24	
Total Cost	\$ 175,526,119		

Capital Improvement Program - Project Summary

Project: Purdue PZI

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 Ranch Development in San Ramon that includes 740 dwelling units, a school site and community facilities.

Description:

This is a new pressure zone needed to serve a new residential development and includes two 0.5 million gallon (MG) tanks, a 1.6 MGD pumping plant, and related inlet-outlet pipeline. Initial facility planning was completed in FY07, but the development project was delayed and then acquired by a new developer. Final planning review is currently underway. Design and construction is expected in FY16-19.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Purdue Pumping and Reservoirs	5,000,000	1,856,000	0	6,856,000

Appropriations:				
Prior Years	\$ 5,000,000	Lead Dept:	ENG	
2016	\$ 0	Recurring:	No	
2017	\$ 1,856,000	Funding:	APPL	100%
2018	\$ 0		SCC	0%
2019	\$ 0			
2020	\$ 0			
Future Years	\$ 0			
Total Cost	\$ 6,856,000	In Service Date:	31-Dec-20	

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, excessive 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 District plans to rehabilitate or replace an average of two RCSs per year. This project will improve access safety 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 Rehabilitation Master Plan was updated in FY14 and will be updated every four years. In FY13-15, two new RCSs were built and three repaired, five are currently in planning and five are in design. Approximately half of the RCSs will be rehabilitated by FY20.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
FY18/19 RCS Rehabs	0	3,035,000	0	3,035,000
FY20/21 RCS Rehabs	0	0	3,035,000	3,035,000
FY22/23 RCS Rehab	0	0	3,035,000	3,035,000
FY16/17 RCS Rehabs	80,000	2,650,000	0	2,730,000
FY14/15 RCS Rehabs	1,791,000	0	0	1,791,000
FY 17/18 RCS Repairs	0	1,400,000	0	1,400,000
82nd Ave & Hollis RCS Rehab	1,338,000	0	0	1,338,000
FY18/19 RCS Decomission	0	1,100,000	0	1,100,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 6,042,000	Recurring: No	
2016	\$ 100,000	Funding: BOND/REV 100%	
2017	\$ 2,755,000		
2018	\$ 4,435,000		
2019	\$ 1,100,000		
2020	\$ 100,000		
Future Years	\$ 6,170,000	In Service Date: 30-Jun-26	
Total Cost	\$ 20,702,000		

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. FY14-15 accomplishments included completion of the Mokelumne Interconnection Project; completion of the Raw Water Master Plan; continued retrofit work of the settling temperature anchors on Mokelumne Aqueduct No. 1; and completion of the Delta Tunnel conceptual design.

In FY16-17, work includes continuing retrofits of the temperature anchors on the Aqueducts, and inspections of the Lafayette No. 2 Aqueduct and Pardee Tunnel. Also, pre-design work on the Delta Tunnel Project will include extensive geotechnical investigations and reassessment of the seismic vulnerability of the Mokelumne Aqueducts in the Delta which will precede and guide subsequent improvements.

In FY18-20, planned work includes continuing to monitor and retrofit the temperature anchors on Aqueduct No. 1 and the isolation bearings on Aqueduct No. 3. Beyond FY20, planned work includes continuing the temperature anchor and isolation bearing retrofits; additional planning/design for the Delta Tunnel; installing river bypass turnouts on Mokelumne Aqueduct No. 3; and installing a liner in Lafayette Aqueduct No. 1.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Delta Tunnel	0	72,474,000	41,822,000	114,296,000
Raw Wtr Improvements	21,448,000	357,000	60,000,000	81,805,000
Mok Aq No3	16,196,260	27,483,000	24,000,000	67,679,260
Raw Wtr Infrastructure Std	2,618,000	2,297,000	95,000	5,010,000

Appropriations:			
Prior Years	\$ 44,680,610	Lead Dept:	ENG
2016	\$ 4,036,000	Recurring:	No
2017	\$ 6,137,000	Funding:	BOND/REV 100%
2018	\$ 14,143,000		
2019	\$ 7,650,000		
2020	\$ 70,645,000		
Future Years	\$ 125,917,000		
Total Cost	\$ 273,208,610	In Service Date:	30-Jun-25

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 and maintains 73 regulators with many older than 50 years.

In FY13-15, planning was completed on four regulator projects, design began on eight projects and construction began on one project.

In FY16-20, fifteen regulators are planned to be rehabilitated or replaced at an average of three regulators per year. After FY20, 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.

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.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
FY16/17 Reg Rehabs	2,750,000	1,080,000	0	3,830,000
FY20/21 Regulator Rehabs	0	0	3,020,000	3,020,000
FY22/23 Regulator Rehabs	0	0	3,020,000	3,020,000
FY12/13 Regulator Rehabs	2,954,000	0	0	2,954,000
FY18/19 Reg Rehabs	0	2,770,000	0	2,770,000
FY17/18 Regulator Rehabs	0	2,740,000	0	2,740,000
FY14/15 Reg Rehabs	1,930,932	0	0	1,930,932
Castle Regulator Repl	687,000	0	0	687,000

Appropriations:				
Prior Years	\$ 15,794,000	Lead Dept:	ENG	
2016	\$ 3,850,000	Recurring:	No	
2017	\$ 2,770,000	Funding:	BOND/REV	90%
2018	\$ 0		SCC	10%
2019	\$ 0			
2020	\$ 100,000			
Future Years	\$ 6,140,000	In Service Date:	30-Jun-26	
Total Cost	\$ 28,654,000			

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 rehabilitation and replacement projects.

Description:

The Reservoir Rehabilitation/Maintenance project includes the rehabilitation, replacement and demolition of the District's steel and concrete reservoirs. Rehabilitation improves reservoir roof safety, replaces reservoir coatings, improves water quality, and assesses the rehabilitation priorities through updates to the reservoir Infrastructure Rehabilitation Plan.

In FY14-15, the District continued its commitment to rehabilitate, replace, or demolish three steel reservoirs each year. Construction to rehabilitate seven reservoirs was completed in FY14: Bayview No. 2, Fire Trail No. 2, Gwin, Proctor No. 2, Rilea, Shawn, and Woods reservoirs. Construction contracts for five reservoirs were awarded in FY15: Round Hill, Eden, University, Acorn, and Stonewall reservoirs. Rehabilitation of Summit South Reservoir was completed in FY15. In addition, the rehabilitation priorities for the open cut, steel, concrete, redwood and pressure reservoirs were updated. As of FY15, 31 of 49 reservoirs have been made safer through the addition of roof fall protection devices.

In FY16-20, the District will continue the sustainable rehabilitation rate for steel reservoirs of three to four reservoirs each year, and the roof safety program will continue. Three concrete reservoirs, Carisbrook, Montclair and San Ramon will be rehabilitated in FY16-17. Beyond FY18, steel reservoir rehabilitations will continue at a rate of three to four per year.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Res Rehab/Mai Prog (Coatings)	75,589,000	70,150,000	16,502,000	162,241,000
Res Supplemental Imprv Proj	19,307,000	7,458,000	1,274,000	28,039,000
Reservoir Roof Safety Program	1,342,000	0	0	1,342,000
Reservoir Facility Assessments	600,000	352,000	0	952,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 96,886,000	Recurring: No	
2016	\$ 13,493,000	Funding: BOND/REV 100%	
2017	\$ 20,490,000		
2018	\$ 9,364,000		
2019	\$ 20,376,000		
2020	\$ 14,237,000		
Future Years	\$ 17,776,000	In Service Date: 30-Jun-30	
Total Cost	\$ 192,622,000		

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. Design and construction of retrofits to Chabot Tower started in FY15 as part of the Chabot Dam seismic upgrade.

An analysis of the Briones Tower concluded that it will require upgrades to resist earthquake loads. Planning and design of upgrades is planned to start in FY16, with construction planned in FY17-19.

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. Design and construction is planned to start in FY16.

A seismic evaluation of Pardee Reservoir Outlet Tower was conducted in FY13 and included the evaluation of the seepage from Pardee Tunnel in the vicinity of the West Portal (Campo Seco). 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. Design of any needed structural and mechanical upgrades for this critical tower is ongoing, while the construction is planned to take place in FY16.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Briones & Lafayette Tower Mods	4,538,000	20,500,000	0	25,038,000
USL-San Pablo-Chabot Tower Mod	8,909,000	785,000	0	9,694,000
Pardee Outlet Tower & Tunnel	750,000	0	0	750,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 14,197,000	Recurring: No	
2016	\$ 21,285,000	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 30-Jun-21	
Total Cost	\$ 35,482,000		

Capital Improvement Program - Project Summary

Project: Reservoir Upgrades SIP

Project Number: 1000571

Strategy: Emergency Preparedness

Program: Seismic Improvement

Justification:

Seismic upgrade of water distribution reservoirs is required for safety and security on District and adjacent properties, and to improve post earthquake system service levels. This is one of the sub-programs in the District's Seismic Improvement Program (SIP).

Description:

This project includes planning, design and construction of structural upgrades to vulnerable distribution water tanks and clearwell roofs; modifications to reservoir inlet/outlet piping (e.g., remote-controlled isolation valves); mitigation of probable seismic-induced landslides at reservoirs and pumping plants for public safety; and to enhance water availability after a major earthquake.

Work completed in FY14-15 includes the installation of two seismic isolation valves at Bayview #2 in Hayward and Berkeley View #1 in Oakland. Work planned for FY16-17 includes installation of an isolation valve at Argyle No.1 in El Sobrante.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Tank Upgrades Ph 8	7,530,000	0	0	7,530,000

Appropriations:			
Prior Years	\$ 74,062,430	Lead Dept:	ENG
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 74,062,430	In Service Date:	30-Jun-17

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 and to prevent an uncontrolled release of reservoir water.

Description:

This project provides for modifications to the downstream slope of the San Pablo Dam embankment to prevent slope instability and crest settlement during a maximum credible earthquake on the Hayward Fault. The project is in conformance with the California Division of Safety of Dams' (DSOD) seismic criteria. Upgrades to the embankment including foundation improvements, placement of buttress fill at the downstream toe, installation of geotechnical instrumentation, completion of mitigation measure construction, and lifting of the DSOD restrictions on the maximum operating level have been completed.

The replacement of old valves in the tunnel scheduled for FY14-16 were not completed due to the continued use of the Sobrante Water Treatment Plant during the drought. The work is now scheduled for FY16-18. Ongoing work includes maintenance and monitoring for the mitigation structures, meeting reporting requirements to the regulatory agencies and making improvements to the seismic valve within the outlet tunnel. Mitigation maintenance and monitoring will continue through FY21.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
San Pablo Dam Mods	81,613,000	0	0	81,613,000

Appropriations:			
Prior Years	\$ 82,588,000	Lead Dept:	ENG
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
In Service Date:	31-Dec-21		
Total Cost	\$ 82,588,000		

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 address 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.

Description:

The South Oakland Hills Cascades Pressure Zone Improvement study is a detailed master plan of the pressure zones in the South Oakland Hills, including Palo Seco, Madrone, City Line, Country Club and Peralta. Project alternatives and interim operating plans were developed to improve conveyance and fire flows, and size reservoirs and pumping plants commensurate with demands in the area. The master plan updates previous studies and works within the existing infrastructure rehabilitation schedules to coordinate capital improvements.

FY14-15 accomplishments included completion of the South Oakland Hills Cascades Master Plan. Project planning, design and construction of recommended improvements are scheduled for FY16-20 and will be coordinated with existing infrastructure rehabilitation programs.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Country Club-Peralta PZI	0	2,190,000	0	2,190,000

Appropriations:			
Prior Years	\$ 221,000	Lead Dept:	ENG
2016	\$ 134,000	Recurring:	No
2017	\$ 2,056,000	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 2,411,000	In Service Date:	30-Jun-20

Capital Improvement Program - Project Summary

Project: Srvc Latl Repl Polybutylene

Project Number: 000654

Strategy: Maintaining Infrastructure

Program: Polybutylene Lateral Replcmt

Justification:

This project is needed to manage the cost-effective replacement of defective polybutylene service laterals.

Description:

This is an ongoing project to replace the District's polybutylene service laterals. On average, District crews currently respond to two broken polybutylene laterals (classified as "emergency replacements") each day. At its peak, the District was responding to an average of five emergency replacements per day.

This project also includes pre-emptive ("planned") replacements of polybutylene laterals within areas that have suffered high failure rates, and opportunistic ("incidental") replacements when polybutylene laterals are uncovered during the course of other pipeline repair work.

Approximately 64,300 polybutylene laterals were installed between 1970 and 1988. As of December 2014, roughly 46,500 laterals have been replaced; leaving an estimated 17,800 polybutylene laterals. The current strategy is to continue replacing laterals when failures occur and to pre-emptively replace polybutylene laterals where cost-effective opportunities arise. This project is staffed to effectively respond to polybutylene lateral failures and to perform planned replacements at levels equivalent to one full-time crew for eight months.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Polybutylene Service Lateral R	167,210,500	20,103,000	16,619,000	203,932,500

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 180,877,000	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 5,889,000		
2018	\$ 5,511,000		
2019	\$ 5,384,000		
2020	\$ 3,319,000		
Future Years	\$ 16,619,000	In Service Date: 30-Jun-30	
Total Cost	\$ 217,599,000		

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) issues, excess storage creating water quality problems, and existing facilities requiring major maintenance and mitigation.

Description:

This project includes the replacement of Berryman and Summit Reservoirs in Berkeley, including two related pumping plants and the proposed Lawrence Tank in Strawberry Canyon. Construction of the Berryman Reservoir replacement was completed in FY13.

Summit Reservoir is a 37 million gallon (MG) open cut reservoir built in 1891, and is oversized for the demands it serves and requires mitigation by FY16 to remove polychlorinated biphenyls from the liner materials. The Woods and Shasta Pumping Plants are located at the same site and require replacement of 60-year old equipment to maintain system reliability.

The reservoir and pumping plants will be replaced with a partially buried 3.5 MG concrete tank, a new flow control valve to access excess Woods Reservoir storage, and replacement of Woods and Shasta Pumping Plants. FY14-17 work includes completion of design and construction of the replacement facilities.

The Lawrence Tank project was deferred and is currently scheduled for FY19-21 due to negotiations with the Lawrence Berkeley National Laboratory and the University of California concerning candidate reservoir sites.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Summit Reservoir Replacement	28,025,000	0	0	28,025,000
Lawrence Tank Des & Construct	0	14,300,000	0	14,300,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 40,259,000	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 0		
2019	\$ 14,300,000		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 30-Jun-22	
Total Cost	\$ 54,559,000		

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, particularly with the Tice Reservoir, and to access available treatment plant capacity from Walnut Creek Water Treatment Plant (WTP) and remove its dependence on the Lafayette WTP.

Description:

The Tice Pumping Plant project will allow for rezoning of the Tice area of the Colorados Pressure Zone in Walnut Creek. Property was purchased in FY12, and design and construction is scheduled to take place in FY17-19 for a new 10 million gallon per day Tice Pumping Plant and approximately 2,700 feet of 20-inch inlet pipeline.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Tice PP and I/O Pipeline	1,338,930	11,550,000	0	12,888,930

Appropriations:				
Prior Years	\$ 1,338,930	Lead Dept:	ENG	
2016	\$ 0	Recurring:	No	
2017	\$ 11,550,000	Funding:	BOND/REV	30%
2018	\$ 0		SCC	70%
2019	\$ 0			
2020	\$ 0			
Future Years	\$ 0	In Service Date:	30-Jun-19	
Total Cost	\$ 12,888,930			

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 for these pipelines 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 FY12-15, survey and design of improvements to the Crockett No. 1 and No. 2 Aqueducts and the Maloney Force Main were completed.

In FY16-17, work includes construction of the improvements to the Crockett Aqueducts and the Maloney Force Main. In FY16-25, work includes a 10-year program to replace the Galvanic Anode/Electrolysis Test Stations on plastic-coated steel transmission mains throughout the distribution system.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Transmission Mains Cathodic Pr	1,841,000	2,210,000	3,600,000	7,651,000
Crockett Aq CP	0	710,000	0	710,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 1,841,000	Recurring: No	
2016	\$ 710,000	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 745,000		
2019	\$ 720,000		
2020	\$ 745,000		
Future Years	\$ 3,600,000	In Service Date: 30-Jun-30	
Total Cost	\$ 8,361,000		

Capital Improvement Program - Project Summary

Project: Transmission System SIP

Project Number: 1000576

Strategy: Emergency Preparedness

Program: Seismic Improvement

Justification:

Transmission system upgrades provide a means to bypass damaged sections of the aqueducts that may occur as a result of an earthquake.

Description:

This project includes installation of emergency pumping connections and procurement of portable pumps to support post-earthquake emergency operations and to serve as backup pumping plants in the event of major failures at distribution pumping plants. These new pumps will move water within the Central Pressure Zone (PZ) located between Albany and Hayward, and from the Central PZ to the Aqueduct and Upper San Leandro PZs.

During FY15-17, four 1-million gallon per day diesel-powered portable pumps will be procured, in addition to piping and appurtenances needed to support both planned and emergency distribution operations.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Trans Sys Upgrade Pln Des Cons	6,896,569	0	0	6,896,569

Appropriations:			
Prior Years	\$ 7,667,000	Lead Dept:	ENG
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 7,667,000	In Service Date:	31-Dec-17

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:

In FY16-20, work is planned at six water treatment plants (WTP). Work at Lafayette includes the replacement of various equipment such as the ammonia tank, backwash transfer pumps, and filter valves, and the rehabilitation of the equalization basin and service water mains. Work at Orinda includes the replacement of all 20 filter underdrains and control systems, sodium hypochlorite room upgrades, chemical building ventilation, and plant emergency power. Work at San Pablo includes plant startup work and installation of a plug for the raw water tower. Work at Sobrante includes repair of sludge piping, reclaim roofs and filter underdrains, a new oxygenation system in San Pablo Reservoir, and control system and permanganate feed system upgrades. Work at Upper San Leandro (USL) includes sludge thickening, raw water line valve replacement, west portal site improvements, controls system upgrade, and clearwell roof replacement. Work at Walnut Creek includes sludge thickening and sedimentation basin chemical feed improvements.

Work in FY21-25 includes control system and reclaim improvements at Lafayette WTP; filter underdrain repairs and stop logs at Sobrante WTP; stop log installation and a new flocculator stage at USL WTP; and a new pretreatment process construction at the inline WTPs.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
WTP Work - Multiple Locations	3,477,102	2,427,000	330,000,000	335,904,102
Orinda WTP	12,497,000	18,602,000	0	31,099,000
Sobrante WTP	5,003,000	8,977,000	0	13,980,000
USL WTP	1,661,100	11,359,000	0	13,020,100
Lafayette WTP	3,503,000	4,400,000	0	7,903,000
San Pablo WTP	2,500,000	0	0	2,500,000
Walnut Creek WTP	1,400,000	788,000	0	2,188,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 59,025,957	Recurring: No	
2016	\$ 12,385,000	Funding: BOND/REV 100%	
2017	\$ 3,022,000		
2018	\$ 20,377,000		
2019	\$ 4,900,000		
2020	\$ 5,869,000		
Future Years	\$ 330,000,000	In Service Date: 30-Jun-25	
Total Cost	\$ 435,578,957		

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 daily operations continue to comply with regulatory requirements. Closing the sites would force District crews to haul trench spoils from construction jobs directly to local landfills which would result in operational inefficiencies.

Description:

The District continually generates trench spoils material from ongoing pipeline installation and maintenance repairs throughout the service area. 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 from the sites, site management and maintenance in accordance with regulatory requirements, and evaluation of potential spoils reduction and disposal alternatives. Work in FY14-15 included management of the trench spoils sites in compliance with stormwater control regulations.

In FY16-20, work includes preparation of a Master Plan to estimate remaining capacities; management of the trench spoils sites; and off-haul of trench spoils at the Miller Road site in FY16, and the Briones site in FY19-20. Spoils disposal is anticipated to increase by 50% by FY17 as the District embarks on a pilot program to increase the amount of pipeline installed.

Spoils at the Briones site will also increase more rapidly as more pipeline is installed by District forces. Design of Briones spoils offhaul will occur in FY18 with offhaul anticipated in FY19. Once complete, the Briones and Miller Road sites will be on a 5 -7 year cycle for offhauling of stored spoils.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Trench Spoils Management Prog	13,477,000	16,377,500	14,000,000	43,854,500

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 16,648,000	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 846,786		
2018	\$ 13,815,000		
2019	\$ 842,842		
2020	\$ 872,872		
Future Years	\$ 14,000,000	In Service Date: 30-Jun-30	
Total Cost	\$ 47,025,500		

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 control 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 in FY16.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Distribution System Monitors	429,000	0	0	429,000

Appropriations:			
Prior Years	\$ 672,000	Lead Dept:	ENG
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 672,000	In Service Date:	30-Jun-16

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 distribution system capacity 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:

This project includes the following distribution system improvements in the Lafayette, Orinda, Moraga and western Walnut Creek area: (1) 3,900 feet of 16-inch suction/discharge pipeline and a 3.2 million gallon per day (MGD) Happy Valley Pumping Plant (PP) in Orinda in FY15-19; (2) a 1.5 MGD Sunnyside PP in Lafayette in FY15-19; and (3) a 2.0 MG Ardith Reservoir and a 1.3 MGD Donald PP in Orinda in FY16-18.

The project also includes: (1) a 3.0 MGD Withers PP in Lafayette in FY18-21; (2) upgrades to the Fay Hill PP in Moraga, replacing 500 feet of 12-inch pipeline in Rheem Boulevard, and replacing the 2.5 MG Fay Hill Reservoir in FY17-19; (3) constructing 1,525 feet of 12-inch pipeline in Glen Road and Nordstrom Lane in Lafayette in FY17-18, which allows for the decommissioning of Glen Reservoir in FY21; and (4) replacing the 11.5 MG Moraga Reservoir in FY21-24.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
St. Mary's/Rohrer Dr. Pipeline	0	850,000	15,500,000	16,350,000
Moraga Reservoir	6,850,000	0	8,500,000	15,350,000
Happy Valley PP and Pipeline	11,633,647	0	0	11,633,647
Ardith Reservoir/Donald PP	8,981,525	200,000	0	9,181,525
Sunnyside Pumping Plant	6,646,000	86,000	0	6,732,000
Withers Pumping Plant	455,000	5,825,000	0	6,280,000
Fay Hill Reservoir	40,000	4,395,000	0	4,435,000
Fay Hill Pumping Plant Upgrade	2,536,712	0	0	2,536,712

Appropriations:				
Prior Years	\$ 40,246,290	Lead Dept:	ENG	
2016	\$ 997,000	Recurring:	No	
2017	\$ 5,309,000	Funding:	BOND/REV	30%
2018	\$ 5,825,000		SCC	70%
2019	\$ 750,000			
2020	\$ 0			
Future Years	\$ 24,000,000	In Service Date:	31-Dec-24	
Total Cost	\$ 77,127,290			

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, to comply with environmental permit conditions, and to replace and upgrade aging infrastructure.

Description:

This project provides new facilities and upgrades to existing facilities at the District's Water Treatment Plants (WTPs), excluding the standby San Pablo WTP. Work includes: (1) ozone upgrades at Sbrante WTP and Upper San Leandro (USL) WTP that started in FY14; (2) rebuilding the filters at the Walnut Creek WTP starting in FY18; (3) backwash system improvements and a chlorine contact basin at the Sbrante WTP starting in FY19; (4) a new filter-to-waste equalization basin at the USL WTP starting in FY17; (5) a membrane filtration pilot plant at the Lafayette WTP in FY21, followed by design of upgrades to the entire Lafayette WTP starting in FY22; and (6) new backwash water recycle facilities at the Orinda WTP starting in FY25.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Lafayette WTP	3,361,000	0	311,500,000	314,861,000
Orinda WTP	198,000	0	64,800,000	64,998,000
Sbrante WTP	14,440,075	34,575,000	0	49,015,075
Walnut Creek WTP	20,147,409	7,791,000	0	27,938,409
USL WTP	285,000	6,745,000	0	7,030,000

Appropriations:				
Prior Years	\$ 38,431,484	Lead Dept:	ENG	
2016	\$ 200,000	Recurring:	No	
2017	\$ 6,745,000	Funding:	BOND/REV	30%
2018	\$ 26,571,000		SCC	70%
2019	\$ 15,595,000			
2020	\$ 0			
Future Years	\$ 376,300,000	In Service Date:	30-Jun-28	
Total Cost	\$ 463,842,484			

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, system infrastructure facility sizing, water supply assessments for large developments, updating the Urban Water Management Plans, and other planning needs.

Description:

This project updates District-wide water demand projections. The project includes updates to the Geographic Information System (GIS) land use database and the Demand Model Tool (GIS program for calculating demand projections and viewing results). The 2040 demand update was completed in FY09. The next update is scheduled for FY19 and will project demands to 2050.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Demand Study Update	300,000	250,000	0	550,000

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 300,000	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 250,000		
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 30-Jun-19	
Total Cost	\$ 550,000		

Capital Improvement Program - Project Summary

Project: West of Hills Transmission

Project Number: 2001475

Strategy: Extensions and Improvements

Program: Pressure Zone Improvements

Justification:

A detailed understanding of the west of hills transmission system hydraulics is critical to making decisions on storage volumes and locations, treatment plant capacities, and the extent of transmission system improvements.

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 five Environmental Impact Reports (EIRs) and one Negative Declaration. The project groups are the Northern Pipelines EIR that was completed in FY14, the Water Treatment Plant EIR in FY14-17, the Southern Pipelines EIR in FY15-17, the WOH Central Pipelines EIR in FY17-18, the Fontaine Pumping Plant Negative Declaration in FY16, and the Master Plan Phase 2 EIR in FY23-24.

In addition to the EIRs, projects in FY16-17 include design and start of construction of the North and South Wildcat Aqueduct pipe improvements and design of the new Fontaine Pumping Plant. The South 30 Pipeline improvements are scheduled for FY18-21.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Orinda WTP Phase 2 Impr.	0	0	51,700,000	51,700,000
Sequoia Aq Pipeline Impr.	0	38,181,800	0	38,181,800
Central North Pipeline Impr.	0	0	37,300,000	37,300,000
No. & So. Wildcat Aq Pipe Impr	30,274,824	3,895,000	0	34,169,824
Wildcat Pumping Plant	0	0	20,700,000	20,700,000
South 30 Pipeline Impr.	0	13,664,000	0	13,664,000
Relocate Fontaine PP	700,000	12,566,000	0	13,266,000
West of Hills EIRs	4,972,430	2,616,000	2,400,000	9,988,430

Appropriations:		Lead Dept: ENG	
Prior Years	\$ 36,932,254	Recurring: No	
2016	\$ 816,000	Funding: BOND/REV 100%	
2017	\$ 14,366,000		
2018	\$ 17,559,000		
2019	\$ 38,181,800		
2020	\$ 0		
Future Years	\$ 337,100,000	In Service Date: 31-Dec-30	
Total Cost	\$ 444,955,054		

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:

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; fencing and trails at the Mokelumne Watershed; the Bay Area Regional Desalination Project; water conservation projects; raw water improvements; computer systems; and East Bayshore recycled water.

In FY16-17, funds have been set aside for possible California Department of Water Resources grant funding for advanced metering infrastructure (AMI) fixed network collectors to provide customers with feedback on their water use which is likely to influence demand and promote water conservation.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Contingency Proj Water	14,949,111	12,000,000	0	26,949,111
Wtr Cons Rebates, Drought Cont	0	1,200,000	0	1,200,000
Wtr Cons - AMI Fixed Network	0	1,000,000	0	1,000,000

Appropriations:			
Prior Years	-	Lead Dept:	FIN
2016	\$ 1,100,000	Recurring:	Yes
2017	\$ 4,100,000	Funding:	BOND/REV 100%
2018	\$ 3,000,000		
2019	\$ 3,000,000		
2020	\$ 3,000,000		
Future Years	-		
Total Cost	-	In Service Date:	Recurring

Capital Improvement Program - Project Summary

Project: Data & Telecom Infrastructure

Project Number: 000363

Strategy: Facilities, Servc and Equip

Program: Communications

Justification:

The District is currently supporting a myriad of disparate, older phone systems for which replacement parts and vendor support are no longer available. This project provides reliable, manageable telecommunications service to District staff.

Description:

This project upgrades the networking cables and equipment at locations outside of the Administration Building in preparation for implementation of Voice over IP (VoIP) phone system. Currently, the Administration Building and Adeline Maintenance Center are utilizing VoIP phone technology. This phone implementation requires that the existing network cabling be brought up to specification. The project is expected to be completed in FY16 and include most of the District's locations including Pardee, Stockton, Lodi, Mokelumne, and Upcountry locations.

In FY15, replacement of the Contact Center call management system, and development of an updated Interactive Voice Response system commenced with completion expected in FY16.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Contact Cntr Phone Sys Replace	800,000	50,000	0	850,000
Phone Infrastructure Upgrade	50,000	250,000	0	300,000

Appropriations:			
Prior Years	\$ 3,172,756	Lead Dept:	ISD
2016	\$ 300,000	Recurring:	No
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 3,472,756	In Service Date:	30-Jun-16

Capital Improvement Program - Project Summary

Project: FIS Replacement

Project Number: 2003539

Strategy: Facilities, Servc and Equip

Program: Communications

Justification:

The existing Financial Information System is a PeopleSoft product that is no longer supported. A replacement is required to ensure 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 existing Financial Information System (FIS) to reduce risks associated with vendor dependence. Evaluating and selecting a replacement alternative is scheduled for FY16, followed by developing an implementation plan, selecting a vendor and implementing the new financial system. Accounts Payable functionality is currently handled by the Materials Management Information System (MMIS) so the replacement alternative will be evaluated along with the MMIS Replacement project to ensure such functionality is addressed.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Implementation	0	2,300,000	0	2,300,000
Evaluation Option Selection	0	200,000	0	200,000

Appropriations:			
Prior Years	\$ 0	Lead Dept:	ISD
2016	\$ 200,000	Recurring:	No
2017	\$ 2,300,000	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 2,500,000	In Service Date:	30-Jun-18

Capital Improvement Program - Project Summary

Project: HRIS Replacement

Project Number: 2003543

Strategy: Facilities, Servc and Equip

Program: Communications

Justification:

The existing Human Resources Information System is a PeopleSoft product that is reaching the end of its useful life, and support for the product is winding down. This lack of support could result in an increased risk of failure of the human resources functions of the District, and make it difficult to implement tax and regulatory updates that could leave the District out of compliance with tax law.

Description:

This project is a joint effort of the Information Systems, Human Resources and user departments to replace the existing 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 FY13-14. High level requirements for all modules began in FY15 and will facilitate sequencing of remaining system module replacement beginning in FY16.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Implementation	0	2,000,000	0	2,000,000
Evaluation Option Selection	500,000	700,000	0	1,200,000

Appropriations:			
Prior Years	\$ 500,000	Lead Dept:	ISD
2016	\$ 2,700,000	Recurring:	No
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 3,200,000	In Service Date:	30-Jun-19

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 are no in-house staff skilled in the language and finding new staff with that knowledge is increasingly difficult. Accounts Payable functionality is currently handled in MMIS so the replacement alternative will be evaluated along with the Financial Information System (FIS) Replacement project to ensure such functionality is addressed. This evaluation and selection of a replacement alternative is scheduled for FY16, with implementation of the new system expected in FY17-18.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Implementation	3,500,000	0	0	3,500,000
Evaluation Option Selection	500,000	0	0	500,000

Appropriations:			
Prior Years	\$ 4,000,000	Lead Dept:	ISD
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 4,000,000	In Service Date:	30-Jun-17

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 language and provide overlapping functionality. This project will consolidate the functionality into a single application that will minimize maintenance overhead 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). At a minimum the systems 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 are becoming difficult to maintain. Evaluating and selecting a replacement alternative is scheduled for FY17 followed by an implementation plan in FY18-19 which includes selecting a vendor and implementing a new WMS.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Implementation	0	1,200,000	0	1,200,000
Evaluation Option Selection	0	200,000	0	200,000

Appropriations:		Lead Dept: ISD	
Prior Years	\$ 0	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 200,000		
2018	\$ 1,200,000		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 30-Jun-20	
Total Cost	\$ 1,400,000		

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 boxes at the end of their useful life, and to replace meters that are believed to be reading low. In FY14, approximately 21,350 residential meters, 1,400 small commercial meters and 181 large commercial meters were replaced. An estimated total of 20,000 meters are expected to be replaced in FY15. 20 large commercial meters remain to be replaced through FY17 to improve meter and billing accuracy.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Planned Meter Replacements	13,374,357	9,934,500	22,813,600	46,122,457

Appropriations:			
Prior Years	-	Lead Dept:	MCD
2016	\$ 1,852,600	Recurring:	Yes
2017	\$ 1,917,400	Funding:	BOND/REV 100%
2018	\$ 1,984,500		
2019	\$ 2,054,100		
2020	\$ 2,125,900		
Future Years	-		
Total Cost	-	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:

District procedures dictate that accelerated-wear testing capabilities 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 significant water and labor savings. Construction of these facilities is scheduled for FY16-18.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Meter Test Facility	0	750,000	0	750,000

Appropriations:			
Prior Years	\$ 0	Lead Dept:	MCD
2016	\$ 750,000	Recurring:	No
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 750,000	In Service Date:	30-Jun-18

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 and preventative 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. In FY13-14 three additional valve crews were added. A new goal in the Strategic Plan is to inspect and operate 10% of distribution valves annually. Increased valve replacements will occur as a result of these maintenance activities. In FY13-14 110 small gate valves were replaced, 70 appurtenances, and 12 large valves.

In FY13-14, 783 gate valve cover 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 federal funding within cities and counties for paving restoration and street reconstruction.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Annual Appurtenance Work	7,594,970	5,839,000	9,462,000	22,895,970

Appropriations:			
Prior Years	-	Lead Dept:	MCD
2016	\$ 1,100,000	Recurring:	Yes
2017	\$ 1,133,000	Funding:	BOND/REV 100%
2018	\$ 1,167,000		
2019	\$ 1,201,000		
2020	\$ 1,238,000		
Future Years	-		
Total Cost	-	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, and instrument 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 365 of these facilities, of which 150 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 150 facilities slated for eventual rehabilitation. Improvements at a facility will be smaller in scale than the typical project under the IRP that can exceed \$1 million.

Major projects completed in FY14-15 include the replacement of electrical equipment at Muir, Valley View and Madison pumping plants; replacement of three large valves at Sobrante Water Treatment Plant; rehabilitation of Rheem Reservoir roof system; and repair or replacement of motors at Los Altos No. 2, Bryant No. 1, Hawthorne, Larkey and several other smaller pumping plants.

Planned projects for FY16-17 include replacement of electrical equipment at six pumping plants. Other capital improvement 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	FY16-20	Future Yrs	Total
Small Capital Improvements	5,794,568	10,287,719	31,023,815	47,106,102

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Appropriations:		Lead Dept: MCD	
Prior Years	\$ 8,087,961	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 2,441,972		
2018	\$ 2,519,566		
2019	\$ 2,619,852		
2020	\$ 2,706,329		
Future Years	\$ 31,023,815	In Service Date: 30-Jun-30	
Total Cost	\$ 49,399,495		

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 will enhance 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 and involves the acquisition of additions to the fleet that result from new positions requiring a vehicle to perform necessary job responsibilities, or changing demands on the existing work force and redirection of priorities.

In FY16, the District will purchase the necessary equipment to outfit two new pipeline crews and a new paving crew to support an increase in pipeline replacement under the 10 to 40 program in the Pipeline Infrastructure Renewals project. Additionally, four new vacuum excavators and equipment to outfit two new large valve crews for leak detection will be required to meet regulatory compliance and resource conservation goals. Upgrades to existing backhoes to add hydraulic plumbing and hoe ram attachments are planned to enhance worker safety and efficiency. Also, an existing transfer vehicle will be upgraded to a Super 10 Dump for project sites that cannot accommodate transfer trucks.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Trucks and Heavy Eq Additions	12,057,200	1,462,300	0	13,519,500

Appropriations:			
Prior Years	-	Lead Dept:	MCD
2016	\$ 915,000	Recurring:	Yes
2017	\$ 547,300	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	-	In Service Date:	Recurring
Total Cost	-		

Capital Improvement Program - Project Summary

Project: Vehicle Replacements

Project Number: 000526

Strategy: Facilities, Servc and Equip

Program: Vehicle/Equipment

Justification:

The District's Vehicle Study indicates that the replacement 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	FY16-20	Future Yrs	Total
Fleet & Equip Repl/Purchases	74,748,635	25,000,000	9,380,627	109,129,262

Appropriations:			
Prior Years	-	Lead Dept:	MCD
2016	\$ 5,000,000	Recurring:	Yes
2017	\$ 5,000,000	Funding:	VRF100%
2018	\$ 5,000,000		
2019	\$ 5,000,000		
2020	\$ 5,000,000		
Future Years	-		
Total Cost	-	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 performed 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 FY16-20, recreation projects at the San Pablo and Lafayette Recreation Areas include parking lot and trail staging area improvements; visitor center, cafe and retail upgrades; marina improvements and new docks; water and sewer system upgrades; and repaving of primary roadways.

Watershed projects include habitat restoration and hazardous tree removal; annual replacement of old fire pumps used for fire prevention and suppression; boundary fence upgrade 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	FY16-20	Future Yrs	Total
Lafayette Rec Infrastructure	3,110,000	350,000	0	3,460,000
San Pablo Rec Infrastructure	1,311,993	840,000	0	2,151,993
EB Range/Fire Mgmt Prog Upgrds	1,127,000	250,000	425,000	1,802,000
EB Public Safety/Reg/Wtr Qual	1,089,210	375,000	0	1,464,210
EB Facilities/Watershed Imprvs	262,500	175,000	0	437,500

Appropriations:			
Prior Years	\$ 9,232,202	Lead Dept:	NRD
2016	\$ 820,000	Recurring:	No
2017	\$ 375,000	Funding:	BOND/REV 100%
2018	\$ 310,000		
2019	\$ 285,000		
2020	\$ 200,000		
Future Years	\$ 425,000		
Total Cost	\$ 11,647,202	In Service Date:	30-Jun-30

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 between the District and 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/installation of equipment needed to maintain and operate the Mokelumne River Fish Hatchery (MRFH) infrastructure, which ensures compliance with the operation agreement with the California Department of Fish and Wildlife (CDFW). It also includes the purchase of equipment 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 sensitive species and habitat protection and enhancement measures as required by the East Bay HCP.

FY16-17 planned work will: replace a residence at the MRFH, recoat the egg building, purchase a fish hauling trailer, expand the fish rearing space, and maintain the existing 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 instream flow study to support water rights, upgrades to MRFH to meet new regulatory requirements, and a passive integrated transponder tag reader installation to support monitoring requirements.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Mok River & Hatchery Equipment	1,560,613	0	175,000	1,735,613
Mok Rvr Riparian Habitat Rest	615,000	575,000	0	1,190,000
Lodi Office Complex Assessment	35,000	0	1,000,000	1,035,000
EB Habitat Conservation Plan	382,332	288,000	0	670,332
Hatchery Reform Measures	170,000	250,000	0	420,000

Appropriations:			
Prior Years	\$ 3,113,332	Lead Dept:	NRD
2016	\$ 115,000	Recurring:	No
2017	\$ 443,000	Funding:	BOND/REV 100%
2018	\$ 178,000		
2019	\$ 197,000		
2020	\$ 180,000		
Future Years	\$ 1,175,000		
Total Cost	\$ 5,401,332	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 office facilities are needed due to the condition, size, and lack of critical office and appropriate 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. Phase 2 work began in FY13 and included improvements to the HVAC and controls system, and site planning and permitting for a combined warehouse/shop building (which was demolished for the new headquarters building), fuel station, emergency generator, and vehicle access and circulation improvements. In FY14-15, planning and design of the warehouse/shop building, fuel station, and back-up generator was completed. In FY16, construction of the fuel station and back-up generator will take place. In FY17, construction of the warehouse/shop building is planned.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Mok Watershed HQ - Phase 2	1,148,500	400,000	0	1,548,500

Appropriations:		Lead Dept: NRD	
Prior Years	\$ 4,259,500	Recurring: No	
2016	\$ 400,000	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 31-Dec-16	
Total Cost	\$ 4,659,500		

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 FY16-20, recreation projects include Federal Energy Regulatory Commission required projects: 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. Other FY16-20 recreation projects include parking lot and trail staging area improvements.

Watershed projects include habitat restoration and hazardous tree removal; boundary fence upgrade and replacement; and infrastructure upgrades at the Mokelumne Watershed Headquarters.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Mokelumne Watershed Fencing	1,065,000	500,000	0	1,565,000
Moke Facilities/Infrastructure	772,301	75,000	0	847,301
Mok Public Safety/Reg/Wtr Qual	292,200	100,000	0	392,200
Mokelumne Safe Harbor Projects	80,000	0	0	80,000

Appropriations:			
Prior Years	\$ 4,588,284	Lead Dept:	NRD
2016	\$ 100,000	Recurring:	No
2017	\$ 125,000	Funding:	BOND/REV100%
2018	\$ 175,000		
2019	\$ 100,000		
2020	\$ 175,000		
Future Years	\$ 0		
Total Cost	\$ 5,263,284	In Service Date:	30-Jun-20

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. The Federal Energy Regulatory Commission requires adequate maintenance of these recreation facilities.

Description:

The Pardee and Camanche Recreation Areas require periodic upgrades and long-term replacement of the facilities. This project includes improvements to the roads, parking lots, fuel docks, launch ramps and docks, covered boat berths, stores, recreation halls, maintenance facilities, RV and tent campgrounds, entrance and concession structures, and bathroom and shower buildings.

In FY14-15, work included upgrades to the water, electrical and wastewater utilities, and the roads and parking spurs at the Pardee RV campground to meet current regulatory requirements. This project was coordinated with sewer improvements under the Upcountry Wastewater Improvements project to achieve cost efficiencies. In FY15, dilapidated portions of the Pardee marina and rental docks were replaced.

In FY16, the above ground fuel tank at Camanche South Shore will be upgraded or replaced. In FY17, road repairs at Camanche will be addressed, and the piping and delivery equipment will be replaced between the fuel tanks and floating fuel dock at Camanche North Shore.

In FY18-19, the general store building at Camanche South Shore will be replaced with a new metal structure and retaining structure to retain the adjacent slope at the reservoir edge. The Pardee Recreation Area coffee shop will be replaced in FY19-20.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Pardee Recreation Area	5,304,312	0	0	5,304,312
Camanche Recreation Area	1,714,000	500,000	0	2,214,000

Appropriations:			
Prior Years	\$ 7,069,000	Lead Dept:	NRD
2016	\$ 0	Recurring:	No
2017	\$ 100,000	Funding:	BOND/REV 100%
2018	\$ 400,000		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 7,569,000	In Service Date:	30-Jun-20

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:

Install Best Available Control Technology (BACT) on on-road, off-road, portable and stationary diesel engines to comply with air quality regulations for public fleets, off-road equipment, generators and pumps.

Two portable generators and two portable pumps were replaced in FY15. In FY16-17, the District must either replace or again retrofit 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. In FY17, five portable pumps and five portable generators will be replaced. All Tier 1 engines must be retired or replaced by January 1, 2017.

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 converter or confirmed as low usage equipment.

An additional nine 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	FY16-20	Future Yrs	Total
On Road Diesel Engine Retrofit	8,680,000	1,500,000	0	10,180,000
Portable Pump & Generator Repl	1,260,000	2,838,000	0	4,098,000
OffRoad Diesel Engine Retrofit	350,000	0	0	350,000
Portable Equipment	200,000	0	0	200,000

Appropriations:		Lead Dept: OSD	
Prior Years	\$ 10,635,000	Recurring: No	
2016	\$ 1,695,000	Funding: BOND/REV 100%	
2017	\$ 1,898,000		
2018	\$ 0		
2019	\$ 0		
2020	\$ 745,000		
Future Years	\$ 0	In Service Date: 30-Jun-20	
Total Cost	\$ 14,973,000		

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 be a reliable source for fuel and meet environmental regulations.

Description:

This project includes planning, design and construction to upgrade District fueling facilities. FY14-15 accomplishments include upgrading the automated fuel management system at 13 District fueling sites to improve the District's ability to better track fuel usage and vehicle mileage.

Improvements scheduled for FY16-17 include installing new fuel dispensers at five District sites and installing the Enhanced Vapor Recovery Phase II equipment for the above ground storage tanks.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Fuel Facility Improvements	2,245,000	1,360,000	150,000	3,755,000
Fuel Facility Major Upgrades	2,855,000	0	0	2,855,000

Appropriations:			
Prior Years	\$ 5,100,000	Lead Dept:	OSD
2016	\$ 1,240,000	Recurring:	No
2017	\$ 30,000	Funding:	BOND/REV 100%
2018	\$ 30,000		
2019	\$ 30,000		
2020	\$ 30,000		
Future Years	\$ 150,000		
Total Cost	\$ 6,610,000	In Service Date:	30-Jun-25

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, design or justify a stand alone project. In FY16-17, this project will fund the Water System's share of costs (50%) to provide needed upgrades to the District laboratory located at the Main Wastewater Treatment Plant.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Minor Facilities Work	1,781,149	676,000	1,200,000	3,657,149
Laboratory Upgrds-Waterside	82,500	695,000	0	777,500

Appropriations:			
Prior Years	-	Lead Dept:	OSD
2016	\$ 376,500	Recurring:	Yes
2017	\$ 474,500	Funding:	BOND/REV 100%
2018	\$ 164,000		
2019	\$ 173,000		
2020	\$ 183,000		
Future Years	-	In Service Date:	Recurring
Total Cost	-		

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 between the District and regulatory agencies such as the State Water Resources Control Board. The Regional Water Quality Control Board has requested an environmental assessment and remediation of the three mine tailing ponds.

Description:

This project includes the evaluation and implementation of a long-term remedial solution for the former Penn Mine to restore the site to pre-mining conditions. Recent accomplishments include major landfill modifications in FY14 to prevent further intrusion of surface water into the landfill and the completion of a biannual landfill groundwater report. Leachate removal from the landfill will continue into the foreseeable future. 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 FY16-20.

Another element involves an environmental assessment and remediation of three former mine tailings ponds north of Camanche Reservoir that were likely impacted by operations at the former Penn Mine. FY14-15 accomplishments include the completion of an Engineering Evaluation/Cost Analysis and a value engineering study. Planned activities for FY16-20 include site remediation and post-remediation site operation and maintenance.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Penn Mine Restoration - 5A	13,576,348	511,026	678,308	14,765,682
Mine Tailing Ponds ESA	1,077,358	568,000	0	1,645,358

Appropriations:			
Prior Years	\$ 17,388,358	Lead Dept:	OSD
2016	\$ 252,415	Recurring:	No
2017	\$ 580,699	Funding:	OAG100%
2018	\$ 85,834		
2019	\$ 87,641		
2020	\$ 72,437		
Future Years	\$ 678,308		
Total Cost	\$ 19,145,692	In Service Date:	30-Jun-30

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 priorities include construction of the sewer collection system improvements at PARA RV Park; design and construction of the sewer collection system improvements at CANS cottages and CASS Mobile Home Park (Northern); design of sewer collection system improvements at CANS Mobile Home Park No. 2; and rehabilitation of the CASS and CANS sewer lift stations and force mains.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Collection System Improvements	8,471,061	7,205,000	6,949,000	22,625,061
O & M Equipment	1,000,000	250,000	0	1,250,000

Appropriations:			
Prior Years	\$ 20,278,000	Lead Dept:	OSD
2016	\$ 675,000	Recurring:	No
2017	\$ 3,000,000	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 2,130,000		
2020	\$ 1,650,000		
Future Years	\$ 6,949,000	In Service Date:	30-Jun-25
Total Cost	\$ 34,682,000		

Capital Improvement Program - Project Summary

Project: VA Security System Imprmts

Project Number: 1005899

Strategy: Facilities, Servc and Equip

Program: Security

Justification:

The Bioterrorism Preparedness and Response Act requires all drinking water utilities serving more than 3,300 people to submit a vulnerability assessment (VA) to the U.S. Environmental Protection Agency (EPA). The District submitted its VA to the EPA in 2003 which identified security improvements for the water system.

Description:

This project includes planning, design, and construction of critical security improvements recommended in the Security Vulnerability Assessment. Accomplishments in FY14-15 included the installation of new security access control gates at the Oakport Storage and Castenada Yard Facilities; and completion of the security improvements for North Yard, South Yard, and Adeline Maintenance Center Facilities.

Work in FY16-20 includes Cyber and Physical Security Vulnerability Assessments; security improvements for Oakport Storage and South Yard Facilities; planning and design of security improvements for Pardee and Camanche Powerhouse Warehouses; 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 and at the five water treatment plants.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Admin Yard Facilities	12,695,500	2,274,000	3,528,000	18,497,500
Water Treatment Facilities	6,966,200	4,918,000	5,473,000	17,357,200
Distribution Facilities	2,158,500	1,653,000	13,490,000	17,301,500
Aqueduct Watershed Facilities	230,000	0	4,063,000	4,293,000
Upcountry Facilities	460,600	722,000	0	1,182,600

Appropriations:			
Prior Years	\$ 22,510,800	Lead Dept:	OSD
2016	\$ 1,041,000	Recurring:	No
2017	\$ 1,880,000	Funding:	BOND/REV100%
2018	\$ 375,000		
2019	\$ 2,625,000		
2020	\$ 3,646,000		
Future Years	\$ 26,554,000		
Total Cost	\$ 58,631,800	In Service Date:	30-Jun-25

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, nearly 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 interceptor sewer segment along 3rd Street on the South Interceptor, as well as the structural rehabilitation of six manholes and five 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 FY17-21.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
3rd St Sewer Interceptor Rehab	17,878,000	16,898,000	0	34,776,000

Appropriations:		Lead Dept: WAS	
Prior Years	\$ 17,878,000	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 16,898,000		
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 31-Dec-21	
Total Cost	\$ 34,776,000		

Capital Improvement Program - Project Summary

Project: Alameda Sewer Intercept Rehab

Project Number: 001361

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, nearly 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 structural rehabilitation of 17 manholes and approximately 4,500 feet of sewer pipeline sections of the Buena Vista, Clement and Webster Street segments of the Alameda Interceptor. Cleaning and closed circuit television inspection work will be conducted as part of the rehabilitation effort. The need for rehabilitation along these segments was identified in the 2008 Interceptor Master Plan Update. The work is scheduled for FY14-16.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Alameda Interceptor Rehab	6,901,000	0	0	6,901,000

Appropriations:			
Prior Years	\$ 6,901,000	Lead Dept:	WAS
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 6,901,000	In Service Date:	31-Dec-16

Capital Improvement Program - Project Summary

Project: Biosolids Improvements Project

Project Number: 000947

Strategy: Maintaining Infrastructure

Program: WW Infrastructure Program

Justification:

This project is required to ensure reliable, cost-effective and diversified biosolids reuse options.

Description:

This project includes updating the 2004 Biosolids Master Plan and will evaluate short and long-term biosolids management alternatives including technology evaluations, strategy development, regulatory compliance issues, permitting, and associated capital and operational improvements. The District's biosolids handling contracts expire at the end of 2016. The work is scheduled to take place in FY16.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Biosolids Master Plan Update	0	0	0	0

Appropriations:		Lead Dept:	WAS
Prior Years	\$ 300,000	Recurring:	No
2016	\$ 0	Funding:	BOND/REV 100%
2017	\$ 0		
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0	In Service Date:	30-Jun-16
Total Cost	\$ 300,000		

Capital Improvement Program - Project Summary

Project: Centrifuge Replacement

Project Number: 000989

Strategy: Maintaining Infrastructure

Program: WW Infrastructure Program

Justification:

Replacement of the centrifuges with state-of-the-art equipment is necessary to maintain a reliable, cost-effective solids handling process. The existing centrifuges are over 20 years old and maintenance costs are beginning to rise significantly indicating that the equipment may be nearing the end of its useful service life.

Description:

This project provides for the planning, design, construction, and cyclic replacement of centrifuges for dewatering at the Main Wastewater Treatment Plant. The remaining two centrifuges will be replaced outside the five-year window.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Centrifuge Replacement - Ph 2	0	0	11,384,000	11,384,000

Appropriations:			
Prior Years	\$ 22,402,832	Lead Dept:	WAS
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 11,384,000		
Total Cost	\$ 33,786,832		

Capital Improvement Program - Project Summary

Project: Concrete Rehab at SD1

Project Number: 000969

Strategy: Maintaining Infrastructure

Program: WW Infrastructure Program

Justification:

Rehabilitation must be completed to prevent degradation of structures to the point where reinforcement is exposed, replacement costs increase significantly, and 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 first two phases completed in FY13. Phases 3 through 6 are scheduled to take place from FY15 through FY22. A condition assessment of the secondary aeration reactor basins was completed in FY11. Repair of the basins will be completed in four phases, including the repair of two tanks per year beginning in FY21. Rehabilitation of the concrete walls of the secondary clarifiers is scheduled for FY19-20.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Repair Prim Tank Channels Ph 6	0	7,659,000	0	7,659,000
Repair Prim Tank Channels Ph 3	7,300,100	0	0	7,300,100
Repair Prim Tank Channels Ph 4	0	5,174,000	0	5,174,000
Repair Prim Tank Channels Ph 5	0	4,553,000	0	4,553,000
Repair Reactor Basin Conc Ph 4	0	0	3,085,000	3,085,000
Repair Reactor Basin Conc Ph 3	0	0	3,055,000	3,055,000
Repair Reactor Basin Conc Ph 1	950,000	0	1,759,000	2,709,000
Repair Reactor Basin Conc Ph 2	0	0	2,470,000	2,470,000

Appropriations:		Lead Dept: WAS	
Prior Years	\$ 19,568,577	Recurring: No	
2016	\$ 5,174,000	Funding: BOND/REV 100%	
2017	\$ 200,000		
2018	\$ 4,553,000		
2019	\$ 150,000		
2020	\$ 7,659,000		
Future Years	\$ 10,369,000	In Service Date: 31-Dec-25	
Total Cost	\$ 47,673,577		

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 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, 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 FY16-17, funds will be placed in contingency for making improvements to Engineers Road and constructing a new intersection with the realigned Wake Avenue per the Memorandum of Agreement with the City of Oakland.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Contingency Proj WW	7,367,000	0	0	7,367,000
Engineer's Road Improv Conting	0	2,800,000	2,500,000	5,300,000

Appropriations:			
Prior Years	-	Lead Dept:	WAS
2016	\$ 1,800,000	Recurring:	Yes
2017	\$ 1,000,000	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	-		
Total Cost	-	In Service Date:	Recurring

Capital Improvement Program - Project Summary

Project: DCS Upgrades

Project Number: 1005995

Strategy: Maintaining Infrastructure

Program: WW Infrastructure Program

Justification:

The existing Distributed Control System (DCS) input/output (I/O) racks are 18 years old and require replacement. Delaying I/O rack replacement will result in higher 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 District's Distributed Control System (DCS) up to current standards. The Wastewater Department participated in a District-wide vulnerability assessment of the DCS in FY15. Regular replacement will take place every four to five years beginning in FY16-17.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
DCS Console Replacement - Ph 3	0	0	2,100,000	2,100,000
DCS Console Replacement - Ph 2	0	2,100,000	0	2,100,000

Appropriations:			
Prior Years	-	Lead Dept:	WAS
2016	\$ 2,100,000	Recurring:	Yes
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	-		
Total Cost	-	In Service Date:	Recurring

Capital Improvement Program - Project Summary

Project: Dechlorination Facility Impmts

Project Number: 1000800

Strategy: Regulatory Compliance

Program: WW Regulatory Compliance

Justification:

The current system for dechlorination uses a large amount of chemicals and lacks proper chemical mixing, which results in higher costs.

Description:

This project includes a variety of improvements to the dechlorination facilities including automating the dechlorination process; relocating sampling and Sodium Bisulfite System (SBS) feed out of the Pump Building above grade; 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 1, completed in FY06, included upgrades to the Distributed Control System (DCS), as well as sampling and architectural improvements of the Transition Structure. Installation of an effluent flow meter and repair of the SBS storage tanks was completed in FY12 as part of Phase 2A.

Phase 2B work will take place in FY16-17 and includes seismic upgrades to the Injector Building and minor modification of the DCS 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 FY21-22.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Dechlorination Facility Impr	2,724,500	658,000	900,000	4,282,500

Appropriations:		Lead Dept: WAS	
Prior Years	\$ 2,993,500	Recurring: No	
2016	\$ 658,000	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 900,000	In Service Date: 31-Dec-22	
Total Cost	\$ 4,551,500		

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 five phases to rehabilitate eleven digesters with new fixed covers and mechanical draft tube mixing equipment, and to add two new digesters. The first phase of improvements was completed in FY09 and included the rehabilitation of four primary digesters with new covers and mixers and improvements to the heating system, gas management system, and ancillary systems.

The second phase includes rehabilitating four additional digesters; converting digesters 5 and 7 from secondary to primary; installing new sludge feed blending tanks and a new sludge feed system; and constructing a new high-strength trucked in waste receiving station. Construction was completed in FY15.

The third phase will include seismic upgrades for digesters 2, 3, and 4, and replacing the floating covers with new dual membrane covers. Design is scheduled for FY18-19, with construction in FY20-22. Phase 4 includes rehabilitation work on digesters 2, 3 and 4, and the addition of external mixing. Design for phase 4 will begin in FY20, and construction will begin in FY21. Phase 5 includes construction of two new digesters and is scheduled beyond FY20.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Digester 9-12 Upgrades	37,150,000	5,136,000	0	42,286,000
Digester Upgrades Ph 5	0	0	30,750,000	30,750,000
Digester Upgrades Ph 3	9,090,000	5,445,000	0	14,535,000
Digester Upgrades Ph 4	0	50,000	4,200,000	4,250,000
Digester Cleaning Facility	0	2,250,000	0	2,250,000

Appropriations:			
Prior Years	\$ 104,325,163	Lead Dept:	WAS
2016	\$ 7,386,000	Recurring:	No
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 5,445,000		
2020	\$ 50,000		
Future Years	\$ 34,950,000	In Service Date:	31-Dec-25
Total Cost	\$ 152,156,163		

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 permit conditions for the District's wet weather facilities.

Description:

This project includes work required by the National Pollutant Discharge Elimination System (NPDES) permit, and the Consent Decree (effective September 2014) for the District's three wet weather facilities. The work required includes the private sewer lateral incentive program and construction of the Urban Runoff Diversion Project to divert dry weather flows to the Main Wastewater Treatment Plant.

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 Main Wastewater Treatment Plant influent pump station and wet weather storage basins will take place in FY18. Implementation of the regional private sewer lateral ordinance and the interceptor system asset management work plan is ongoing and will continue past this five-year budget cycle.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Urban Runoff Diversion Project	1,500,000	0	0	1,500,000
Wet Weather Real Time Control	250,000	0	0	250,000

Appropriations:			
Prior Years	\$ 26,534,913	Lead Dept:	WAS
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 26,534,913	In Service Date:	31-Dec-18

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 maintenance of wastewater-specific information systems. These include a replacement for the current Library Information Systems program, a new Wastewater Data Portal, and an interface for Reliability Centered Maintenance.

This project also includes routine maintenance, server contracts, and hardware/software upgrades.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
WW Applications Development	740,641	0	0	740,641
WEB Server Upgrades	145,000	0	0	145,000
WW Information Systems BCP	65,000	0	0	65,000

Appropriations:			
Prior Years	\$ 2,210,000	Lead Dept:	WAS
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 2,210,000	In Service Date:	30-Jun-24

Capital Improvement Program - Project Summary

Project: Interceptor Corrosion Prevent

Project Number: 2005283

Strategy: Maintaining Infrastructure

Program: WW Infrastructure Program

Justification:

Recent re-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 District's interceptor system.

Description:

This project provides for cathodic protection and corrosion prevention in the District's interceptor system.

Rehabilitation of force mains adjacent to Pump Stations A and R has already been completed. 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 FY18-19.

Staff also completed a force main condition assessment, which resulted in recommendation for improvements, which are scheduled in FY16-19, and additional inspections are scheduled for FY24-25. 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	FY16-20	Future Yrs	Total
Intrcept & Forcemn Cond Assess	4,099,999	0	147,000	4,246,999
Cathodic Protection Project	1,020,000	400,000	0	1,420,000
Interceptor Pipe and MH Inspec	0	0	431,000	431,000
Remote Fac Locate & MH Raising	317,000	0	0	317,000
Force Main Valve and Appur	0	304,000	0	304,000
PS M FM Access Improvements	0	0	0	0
Force Main Access Improvements	0	0	0	0
Force Main CCTV Inspections	0	0	0	0

Appropriations:		Lead Dept: WAS	
Prior Years	\$ 7,997,999	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 704,000		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 578,000	In Service Date: 31-Dec-25	
Total Cost	\$ 9,279,999		

Capital Improvement Program - Project Summary

Project: MWWTP Master Plan

Project Number: 000601

Strategy: Maintaining Infrastructure

Program: WW Infrastructure Program

Justification:

A land use master plan and Environmental Impact Report (EIR) is necessary to provide for effective management and development of the newly acquired, 15.9 acre West End property (former U.S. Army Reserve Center). Additional studies are necessary to guide development of sewer lines and to identify treatment requirements and infrastructure needs.

Description:

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

Preparation of a land use master plan and Environmental Impact Report for the MWWTP and West End property was completed in FY12. Preparation of a wastewater treatment system master plan is scheduled for completion in FY20. 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.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
OAB Purch Environ Remediation	1,046,000	979,000	170,000	2,195,000
Master Land Use/Facility Plan	1,555,000	0	0	1,555,000
WW Trmt System Master Plan	500,000	0	0	500,000

Appropriations:		Lead Dept: WAS	
Prior Years	\$ 18,268,263	Recurring: No	
2016	\$ 979,000	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 170,000	In Service Date: 31-Dec-25	
Total Cost	\$ 19,417,263		

Capital Improvement Program - Project Summary

Project: MWWTP Pwr Dist Sys Upgrade

Project Number: 000140

Strategy: Maintaining Infrastructure

Program: WW Infrastructure Program

Justification:

Arc flash studies are required to determine adequate levels of personal protective equipment for workers. Electrical reliability improvements are required to avoid prolonged power outages that risk permit violations.

Description:

This project includes a number of tasks that were identified in the Wastewater Department's summit on Electrical Reliability.

Arc flash studies for the Main Wastewater Treatment Plant and wet weather facilities were completed in FY15. An electrical system master plan is scheduled for FY18, and electrical reliability improvements are scheduled for FY18-20.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Split IPS & EPS Power Dist Sys	0	1,553,000	0	1,553,000
Transient Stability Analysis	0	403,000	0	403,000
Electrical Master Plan	300,000	0	0	300,000
Reconfig Power Dist Sys	0	118,000	0	118,000

Appropriations:		Lead Dept: WAS	
Prior Years	\$ 13,568,737	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 118,000		
2019	\$ 1,553,000		
2020	\$ 403,000		
Future Years	\$ 0	In Service Date: 31-Dec-20	
Total Cost	\$ 15,642,737		

Capital Improvement Program - Project Summary

Project: Motor Control Center Repl

Project Number: 001004

Strategy: Maintaining Infrastructure

Program: WW Infrastructure Program

Justification:

Motor Control Centers are nearing the end of their service life and require replacement to ensure continued reliable operation of the Main Wastewater Treatment Plant. MCCs show signs of corrosion and increasing maintenance costs. Failure of any of the MCCs could cause disruption of plant operations.

Description:

The Motor Control Center (MCC) replacement project provides for the cyclical replacement of all MCCs that are at or beyond the end of their service life.

This project provides for replacement of the MCCs at the secondary reactor deck (oxygenation tank), Operations Center, and Digester Control Building. The most critical MCC will be replaced in FY16. Additional MCC replacement is scheduled for FY17-19.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Main Plant MCC Replace - Ph 2	0	0	2,900,000	2,900,000
Main Plant MCC Replace - Ph 1	2,694,000	0	0	2,694,000

Appropriations:			
Prior Years	\$ 2,694,000	Lead Dept:	WAS
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 2,900,000		
Total Cost	\$ 5,594,000		

Capital Improvement Program - Project Summary

Project: NPDES Compliance

Project Number: 000599

Strategy: Regulatory Compliance

Program: WW Regulatory Compliance

Justification:

The project is necessary to control nocardia blooms in the secondary treatment process. Failure to control nocardia may result in permit violations. The project is also necessary to ensure timely activation of the wet weather facilities to comply with the District's National Pollutant Discharge Elimination System (NPDES) permit.

Description:

This project consists of improvements necessary to meet the District's National Pollutant Discharge Elimination System (NPDES) permit requirements. Work remaining under this project includes the installation of two new level monitoring systems to better monitor flows in the south interceptor. This work is scheduled for FY18-19. Upgrades to secondary reactors are scheduled beyond FY20.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Reactors Stage 3 Aerator Conv	0	0	5,740,000	5,740,000
So Intercept Level Monitor Sta	730,500	50,000	0	780,500

Appropriations:		Lead Dept: WAS	
Prior Years	\$ 8,594,234	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 50,000		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 5,740,000	In Service Date: 31-Dec-25	
Total Cost	\$ 14,384,234		

Capital Improvement Program - Project Summary

Project: Odor Control Improvements

Project Number: 000963

Strategy: Maintaining Infrastructure

Program: WW Infrastructure Program

Justification:

The District is required to minimize odor complaints to meet Bay Area Air Quality Management District permit requirements, to maintain a good neighbor relationship with the community, and to provide a healthy work environment.

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 Update that was completed in FY09.

Planned work includes evaluating and installing a continuous odor monitoring system to improve real-time control and reduce off-site odor potential; replacing the odor control units at the influent pump station in FY16-18; replacing the wet scrubber system at the solids dewatering building with a chemical scrubber in FY18-19; conducting a study of the primary sedimentation basins in FY16 to evaluate potential treatment alternatives, with construction starting in FY17 to cover the primary sedimentation tanks and provide new chemical scrubbers; and replacing the scrubber system at the resource recovery receiving station in FY19-20.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Primary Sed Odor Control	0	8,862,000	11,950,000	20,812,000
IPS Odor Control Sys Impr	4,400,000	163,000	5,455,000	10,018,000
Odor Control Dewatering Bldg	2,850,000	285,000	0	3,135,000
R2 Facility Odor Ctrl Upgrade	0	2,445,000	0	2,445,000
Odor Monitoring System	400,000	744,000	0	1,144,000
Odor Cntrl Fill/Drain Div Struc	0	150,000	0	150,000

Appropriations:			
Prior Years	\$ 11,598,966	Lead Dept:	WAS
2016	\$ 9,919,000	Recurring:	No
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 285,000		
2019	\$ 2,445,000		
2020	\$ 0		
Future Years	\$ 17,405,000	In Service Date:	31-Dec-24
Total Cost	\$ 41,652,966		

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 District's National Pollutant Discharge Elimination System permit.

Description:

The effluent outfall, which is over 60 years old, must be inspected periodically to identify corrosion and/or deterioration damage. An inspection is scheduled for FY15 and will generate baseline conditions for future Bay Bridge related projects that are expected in the next few years (e.g., bridge demolition, Gateway Park). The inspection will include the entire submerged portions. A sonar survey will be completed for the diffuser section to record debris/sediment accumulation. Upgrades are scheduled beyond FY20.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
MWWTP Outfall Upgrades	0	0	12,000,000	12,000,000
Outfall Investigation	940,000	75,000	0	1,015,000

Appropriations:			
Prior Years	\$ 940,000	Lead Dept:	WAS
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 75,000		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 12,000,000		
Total Cost	\$ 13,015,000	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 maintenance 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, in support of the District's Renewable Energy Policy. The most recent overhaul was completed in FY13-14. The next scheduled overhauls are in FY15-16 and FY20.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
PGS Engine Overhaul	6,712,000	1,750,000	1,600,000	10,062,000

Appropriations:			
Prior Years	-	Lead Dept:	WAS
2016	\$ 250,000	Recurring:	Yes
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 1,500,000		
Future Years	-	In Service Date:	Recurring
Total Cost	-		

Capital Improvement Program - Project Summary

Project: PGS Expansion

Project Number: 2003556

Strategy: Maintaining Infrastructure

Program: WW Infrastructure Program

Justification:

This project will result in additional power production and revenue for the District. In addition, the expansion will reduce the amount of flaring, provide additional process heat for the digestion process, increase the electrical reliability at the wastewater plant, and is consistent with the District's Renewable Energy and Sustainability Policies.

Description:

This renewable energy project expanded the Power Generation Station (PGS) at the Main Wastewater Treatment Plant from 6.5 to 11 megawatts.

In Phase 1, a new biogas-powered turbine was installed in FY12. Phase 2, scheduled to commence in FY20, would add a second turbine. 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 will be completed in FY16, the second phase is scheduled beyond FY20.

Reliability improvements to the PGS facility will be made in FY16-19 and include the installation of redundant gas conditioning equipment, radiator/cooling tower, replacement of the PGS gas piping, and miscellaneous programming and controls improvements.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
PGS Expansion Ph 2	0	2,450,000	19,000,000	21,450,000
PGS Reliability Improvements	4,887,000	1,875,000	5,600,000	12,362,000
PGS Reliability Improv Ph 3	0	5,100,000	0	5,100,000

Appropriations:			
Prior Years	\$ 43,259,599	Lead Dept:	WAS
2016	\$ 2,775,000	Recurring:	No
2017	\$ 4,200,000	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 2,450,000		
Future Years	\$ 24,600,000	In Service Date:	31-Dec-23
Total Cost	\$ 77,284,599		

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 Consent Decree for the District's wet weather facilities.

Description:

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

The design is scheduled to be completed in FY16 and construction to begin in FY17.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
PS Q FM Dual-Mode Operation	1,504,000	6,400,000	0	7,904,000

Appropriations:		Lead Dept:	WAS
Prior Years	\$ 1,504,000	Recurring:	No
2016	\$ 6,400,000	Funding:	BOND/REV 100%
2017	\$ 0		
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0	In Service Date:	31-Dec-19
Total Cost	\$ 7,904,000		

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 the National Pollutant Discharge Elimination System (NPDES) permit requirements.

Description:

This project provides cyclical replacement of piping systems that are critical to the operation of the Main Wastewater Treatment Plant (MWWTP). The first phase, to be complete by 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	FY16-20	Future Yrs	Total
MWWTP Hypo Pipe Replace Ph 1	2,036,000	0	0	2,036,000
MWWTP Hypo Pipe Replace Ph 2	0	376,000	0	376,000

Appropriations:		Lead Dept: WAS	
Prior Years	\$ 4,250,000	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 76,000		
2019	\$ 300,000		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 31-Dec-20	
Total Cost	\$ 4,626,000		

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 protection of employee safety, public health, and maintenance of critical operations following an emergency or disaster, such as a major earthquake.

Description:

This project procures 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	FY16-20	Future Yrs	Total
Emergency Response Equipment	1,875,000	0	0	1,875,000

Appropriations:			
Prior Years	-	Lead Dept:	WAS
2016	\$ 0	Recurring:	Yes
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	-		
Total Cost	-	In Service Date:	Recurring

Capital Improvement Program - Project Summary

Project: Pump Station A Improvements

Project Number: 2009792

Strategy: Maintaining Infrastructure

Program: WW Infrastructure Program

Justification:

Upgraded systems will improve facility reliability and operation and maintenance efficiencies.

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 for better security and access; and upgrading stairs to access below grade infrastructure.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Pump Station A Improvements	0	1,929,000	0	1,929,000

Appropriations:			
Prior Years	\$ 0	Lead Dept:	WAS
2016	\$ 1,929,000	Recurring:	No
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 1,929,000	In Service Date:	31-Dec-18

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 existing 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 FY18-19.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Pump Station C Upgrades	0	1,864,000	0	1,864,000

Appropriations:			
Prior Years	\$ 0	Lead Dept:	WAS
2016	\$ 1,864,000	Recurring:	No
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 1,864,000	In Service Date:	31-Dec-19

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 since it was originally built in the 1950s, and no significant upgrades have been made since then. 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 FY18-20.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Pump Station L Imprv	1,490,000	45,000	0	1,535,000

Appropriations:		Lead Dept: WAS	
Prior Years	\$ 1,490,000	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 0		
2019	\$ 45,000		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 31-Dec-20	
Total Cost	\$ 1,535,000		

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 catastrophic 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; 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 FY18-19.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Pump Station M Improvements	0	3,042,000	0	3,042,000

Appropriations:				
Prior Years	\$ 0	Lead Dept:	WAS	
2016	\$ 0	Recurring:	No	
2017	\$ 0	Funding:	BOND/REV	100%
2018	\$ 3,042,000			
2019	\$ 0			
2020	\$ 0			
Future Years	\$ 0			
Total Cost	\$ 3,042,000	In Service Date:	31-Dec-19	

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 generate revenues through tipping fees for wastes delivered to the Main Wastewater Treatment Plant, and increased biogas, thereby increasing renewable energy production.

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.

In FY16-17 piping modifications will be made to the feed system for two existing digesters so they may be dedicated for digestion of food waste and other high-strength liquid waste. A dedicated dewatering facility will also be constructed to serve these two digesters. In FY16-18, new facilities to support food waste processing at the MWWTP will be constructed including utilities and site improvements for an organics pre-processing facility.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Food Waste Digest & Dewater	2,567,000	5,753,000	0	8,320,000
Organics Preprocessing Pilot	540,000	6,672,000	0	7,212,000
Nutrient Removal Study	1,119,000	11,000	0	1,130,000
Grit Removal System for FOG	0	0	980,000	980,000

Appropriations:		Lead Dept: WAS	
Prior Years	\$ 22,288,000	Recurring: No	
2016	\$ 12,436,000	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 980,000	In Service Date: 31-Dec-23	
Total Cost	\$ 35,704,000		

Capital Improvement Program - Project Summary

Project: Routine Cap Equip Replacement

Project Number: 000943

Strategy: Maintaining Infrastructure

Program: WW Infrastructure Program

Justification:

It is cost-effective to replace, as needed, low cost capital equipment that is requiring excessive maintenance.

Description:

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

Projects identified for FY16-20 include rebuilding numerous pumps, motors and other equipment.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Capital Equipment Replacement	19,342,249	11,000,000	11,000,000	41,342,249
Lab Equipment	2,162,023	1,000,000	1,000,000	4,162,023

Appropriations:			
Prior Years	-	Lead Dept:	WAS
2016	\$ 2,400,000	Recurring:	Yes
2017	\$ 2,400,000	Funding:	ERF100%
2018	\$ 2,400,000		
2019	\$ 2,400,000		
2020	\$ 2,400,000		
Future Years	-		
Total Cost	-	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 costs and enhancing the District's ability to meet its National Pollutant Discharge Elimination System permit requirements.

Description:

This project addresses major scum system deficiencies at the Main Wastewater Treatment Plant. The development of an overall facility plan for both the primary and secondary scum systems is scheduled for completion in FY18.

Design and construction of needed modifications will be based on the facility plan. 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 primary and secondary scum handling systems; and a system for disposal of nocardia foam once it is removed from the secondary system. This work is scheduled to take place in FY18-19.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Primary Scum Improvements	1,000,000	60,000	0	1,060,000
Secondary Scum Improvements	400,000	450,000	0	850,000

Appropriations:		Lead Dept: WAS	
Prior Years	\$ 1,400,000	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 510,000		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 31-Dec-19	
Total Cost	\$ 1,910,000		

Capital Improvement Program - Project Summary

Project: Treatment Plant Infra Ph 2

Project Number: 2009787

Strategy: Maintaining Infrastructure

Program: WW Infrastructure Program

Justification:

Various equipment, structures, and support systems that comprise the wastewater treatment processes are reaching the end of their design life or do not provide the required level of service. Replacement or rehabilitation of these elements is necessary to maintain a reliable, cost-effective treatment plant.

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 FY16-20 include a seismic evaluation, improvement of plant gallery drains and upgrades to the security system.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Plant Gallery Drains	0	3,782,000	0	3,782,000
MWWTP Security Video Mon Ph 1	0	930,000	0	930,000
Seismic Evaluation of MWWTP	0	300,000	0	300,000

Appropriations:			
Prior Years	-	Lead Dept:	WAS
2016	\$ 677,000	Recurring:	Yes
2017	\$ 3,615,000	Funding:	BOND/REV 100%
2018	\$ 720,000		
2019	\$ 0		
2020	\$ 0		
Future Years	-		
Total Cost	-	In Service Date:	Recurring

Capital Improvement Program - Project Summary

Project: Treatment Plant Infrastructure	Project Number: 000932
Strategy: Maintaining Infrastructure	Program: WW Infrastructure Program
Justification: Various equipment, structures, and support systems that comprise the wastewater treatment processes are reaching the end of their design life or do not provide the required level of service. Replacement or rehabilitation of these elements is necessary to maintain a reliable, cost-effective treatment plant.	
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 FY16-20 include replacement of large variable frequency drives; replacement of influent screens; repair or replacement of flow meters; rehabilitation of the ventilation system in the dewatering building; laboratory upgrades; operation center ceiling repairs; pavings; 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.	

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
WW Fac Records Documentation	4,755,000	2,391,000	2,773,000	9,919,000
Urgent Capital Projects	3,513,000	2,325,000	2,773,000	8,611,000
Large VFD Replacement	2,880,000	88,000	2,500,000	5,468,000
MWWTP Influent Screen Repl	4,838,000	0	0	4,838,000
Reactor Piping Condition Asses	157,000	1,318,000	2,460,000	3,935,000
MWWTP Flow Meter Improvements	2,500,000	0	1,300,000	3,800,000
Process Eng Capital Projects	1,330,000	1,000,000	1,250,000	3,580,000
MWWTP Intercom Paging Sys Upgr	1,340,000	316,000	300,000	1,956,000

Appropriations:		Lead Dept: WAS	
Prior Years	-	Recurring: Yes	
2016	\$ 2,659,000	Funding: BOND/REV 100%	
2017	\$ 1,258,000		
2018	\$ 1,655,000		
2019	\$ 2,531,000		
2020	\$ 1,587,000		
Future Years	-	In Service Date: Recurring	
Total Cost	-		

Capital Improvement Program - Project Summary

Project: Vehicle & Equip Additions, WW

Project Number: 2003558

Strategy: Maintaining Infrastructure

Program: WW Infrastructure Program

Justification:

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

Description:

This project covers the cost of new or upgraded vehicles. In FY16 three vehicles will be purchased to perform field inspections and four trucks will be upgraded to support routine operations and emergency response. In FY17 one truck will be upgraded.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Vehicle & Equip Additions	230,000	105,000	0	335,000

Appropriations:			
Prior Years	\$ 230,000	Lead Dept:	WAS
2016	\$ 105,000	Recurring:	No
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 335,000	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 Main Wastewater Treatment Plant. 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 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 FY17-18, a comprehensive lighting survey at the MWWTP will be conducted to prioritize and replace lights to maximize energy savings, and submeters will be installed at several MWWTP substations to help identify ways to increase operating efficiency and reduce energy costs.

An Anaerobic Membrane Bioreactor (MBR) Study in FY18-20 will evaluate the potential for recovering biogas from raw wastewater, an emerging technology that could increase energy production and reduce energy use for treatment.

In FY18, a study will be conducted of anaerobic digestion pre-treatment processes that could lead to cost savings via increased production of biogas and decreased production of sludge.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Anaerobic MBR Study	566,917	0	0	566,917
MWWTP Lighting Improvements	155,000	80,000	0	235,000
Anaerobic Pretreatment	0	150,000	0	150,000
Electrical Sub-Metering Data	130,000	12,000	0	142,000

Appropriations:		Lead Dept: WAS	
Prior Years	\$ 2,187,748	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 12,000		
2018	\$ 230,000		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 31-Dec-20	
Total Cost	\$ 2,429,748		

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 both near and long-term uses of the West End property.

Description:

This project extends utilities to the West End property acquired from the U.S. Army. This property is located adjacent to the Main Wastewater Treatment Plant in Oakland. Provision of utilities (potable water, recycled water, sewer and storm water) to the West End property will be completed in FY18-19. The extension of a backbone sewer to convey wastewater and storm water from the West End property to the plant headworks will be constructed beyond 2020.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
WEP Utility Upgrades	610,000	0	0	610,000

Appropriations:			
Prior Years	\$ 1,391,000	Lead Dept:	WAS
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 1,391,000	In Service Date:	30-Jun-25

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, to reduce chemical piping failures, and to study chemical storage capacity.

Description:

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

Improvements to the chemical feed systems at Point Isabel were completed in FY09. Similar chemical feed system improvements at the Oakport and San Antonio Creek WWFs were substantially completed in FY15. Instrumentation upgrades at Point Isabel are scheduled to be completed in FY18.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
PT Isabel Remote I/O Ctrl Add	0	1,450,000	0	1,450,000

Appropriations:		Lead Dept: WAS	
Prior Years	\$ 8,022,000	Recurring: No	
2016	\$ 0	Funding: BOND/REV 100%	
2017	\$ 0		
2018	\$ 1,450,000		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0	In Service Date: 31-Dec-18	
Total Cost	\$ 9,472,000		

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, nearly 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 2008 Interceptor Master Plan Update. One section of the Wood Street segment was rehabilitated in 2000. The rehabilitation of the remainder of this two-mile, 105-inch diameter reinforced concrete interceptor will include structural retrofit and protective lining as necessary to extend the life of the interceptor. This project is in construction and scheduled for completion in FY17.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Wood St. Sewer Interceptor Reh	20,669,762	5,000,000	0	25,669,762
Soil Stabiliz to Protect S Int	0	2,400,000	0	2,400,000
Abandon QMS at MH S66	0	625,000	0	625,000

Appropriations:			
Prior Years	\$ 21,014,022	Lead Dept:	WAS
2016	\$ 8,025,000	Recurring:	No
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 29,039,022	In Service Date:	31-Dec-17

Capital Improvement Program - Project Summary

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

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

Justification:

The Interim Enhanced Surface Water Treatment Rule requires a higher level of water treatment than currently provided by the Camanche South and North Shore Water Treatment Plants.

Description:

This project will replace the Camanche South Shore Recreation Area water treatment plant with a 0.5 million gallon per day (MGD) water treatment plant that meets Department of Public Health regulations. The plant can be expanded to 2.2 MGD as a regional plant with Amador and Calaveras County partners. The environmental documents are complete but must be updated. Replacement of the water treatment plant began in FY15 and is planned to be completed in FY16.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Cam So Shore WTP Repl	4,434,000	0	0	4,434,000

Appropriations:			
Prior Years	\$ 4,434,000	Lead Dept:	WOD
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 0		
Total Cost	\$ 4,434,000	In Service Date:	30-Jun-16

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. Efforts to purchase and install four systems at various reservoir will be funded under the Distribution System Water Quality Improvement Program.

There are four remaining redwood tanks in the distribution system that need to be replaced as they are a source of water quality problems and are at risk of failing during a seismic event. Encinal Reservoir in Orinda and Glen Reservoir in Lafayette will be decommissioned as part of other projects. Crest Reservoir in Walnut Creek will be decommissioned in conjunction with future developer projects with an unknown timeline. San Pablo Recreation Area Reservoir in Richmond will be decommissioned in FY16.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Distrib Sys Imps - Water Qual	5,483,787	40,000	0	5,523,787
Redwood Tank Replacement	4,468,545	0	0	4,468,545

Appropriations:			
Prior Years	-	Lead Dept:	WOD
2016	\$ 20,000	Recurring:	Yes
2017	\$ 20,000	Funding:	BOND/REV100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	-		
Total Cost	-		

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 Energy Policy 7.07 to reduce direct emissions to zero by 2040 by developing renewable generation projects or purchase renewable energy. The project also supports efforts to fund efficiency projects that directly reduce energy consumption.

In FY14-15, an investigation found multiple projects totaling 750 kW of photovoltaic (PV) or a 40 kW in-conduit hydro with a smaller PV project are both economically feasible. In FY16-17 the development of the identified projects will be pursued.

This project also includes the installation of electric meters and communication equipment to enable real-time access to electric meter data at the water treatment plants and the distribution pumping plants to improve the efficient operation of those facilities and reduce gross energy consumption.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Advanced Metering Project	10,000	0	0	10,000

Appropriations:				
Prior Years	-	Lead Dept:	WOD	
2016	\$ 0	Recurring:	Yes	
2017	\$ 0	Funding:	BOND/REV	99%
2018	\$ 0		GRANTS	1%
2019	\$ 0			
2020	\$ 0			
Future Years	-	In Service Date:	Recurring	
Total Cost	-			

Capital Improvement Program - Project Summary

Project: Minor WTP Capital Work

Project Number: 2003502

Strategy: Water Quality

Program: Water Treatment Upgrade

Justification:

To respond to emergencies or make capital repairs or replacements that are needed quickly at the water treatment plants. Consists of small projects relating to the operation and maintenance of existing facilities that require immediate attention and minimal planning or design to complete.

Description:

This project addresses small and medium infrastructure improvements that are unanticipated and are critical for Water Treatment Plant (WTP) operations. These projects are often due to emergencies and require time-sensitive repairs to ensure equipment and systems are repaired as soon as possible.

Projects in FY16-17 included purchasing a water softener for the ammonia system at the Orinda WTP; paving at the Sobrante WTP after a construction project to install a new caustic soda pipeline; a new total organic carbon analyzer to improve coagulation at all the plants; replacement of submersible pumps and surface wash valves at Orinda WTP; replacement of chemical metering pumps at the Lafayette WTP; replacement of the ozone analyzer at the Upper San Leandro WTP; improvements to the emergency service water system at the Walnut Creek WTP; repairs to maintain the soil as the result of a small landslide at the Sobrante WTP; and replacement of laboratory equipment at all WTP's.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
WTP Capital Improvements	2,858,931	2,034,000	5,355,000	10,247,931

Appropriations:			
Prior Years	-	Lead Dept:	WOD
2016	\$ 367,000	Recurring:	Yes
2017	\$ 384,000	Funding:	BOND/REV 100%
2018	\$ 405,000		
2019	\$ 427,000		
2020	\$ 451,000		
Future Years	-		
Total Cost	-	In Service Date:	Recurring

Capital Improvement Program - Project Summary

Project: OP/NET System

Project Number: 000628

Strategy: Extensions and Improvements

Program: OP/NET

Justification:

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

Description:

This project consists of ongoing component upgrades and replacements for the OP/NET System to ensure 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 FY14-15, the SCADA servers and workstations were upgraded; T-1 lines and industrial network routers were added; and the wireless broadband communications network was expanded. 28 RTUs have been replaced. The DCS controllers at Sobrante and Walnut Creek Water Treatment Plants were upgraded. In addition, the Centralized Security System hardware and software was upgraded. An Industrial Control System (ICS) vulnerability assessment is in progress.

In FY16-20, 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. In addition, implementation of recommendations from the ICS vulnerability assessment will begin.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Op/Net Sys Improvements	8,272,000	6,160,000	2,230,000	16,662,000
Recurring Op/Net Improvements	2,911,600	3,420,600	7,042,000	13,374,200
Control System Improvements	676,700	1,784,700	3,119,500	5,580,900

Appropriations:			
Prior Years	-	Lead Dept:	WOD
2016	\$ 1,335,900	Recurring:	Yes
2017	\$ 1,300,000	Funding:	BOND/REV 100%
2018	\$ 2,909,300		
2019	\$ 2,711,800		
2020	\$ 3,108,300		
Future Years	-		
Total Cost	-	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 the safety of employees and guests.

Description:

This project provides for replacement and improvements to the Pardee Center Water Treatment Plant, Wastewater Treatment Plant, potable water system, collection system piping, buildings and grounds, roads, conference center, chemical plant and aqueduct control infrastructure to ensure safe and reliable systems that comply with regulatory requirements.

FY16-20 projects include replacement of failing siding and porch at the Lodge; failing flooring, windows and repaint at Camanche House; failing roofing on the chemical building; replacement of paving and failed culverts; Campo Seco and Pardee Ridge emergency generators; raw water supply line from the outlet tower pumps to the raw water tank; and power pole replacement for the 7kv system. New construction includes installation of sample pumps and an auto profiler at Pardee Tower to allow water quality testing from the tower rather than from a boat.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Water, WasteWtr Infrastructure	389,552	530,000	735,000	1,654,552

Appropriations:			
Prior Years	-	Lead Dept:	WOD
2016	\$ 100,000	Recurring:	Yes
2017	\$ 103,000	Funding:	BOND/REV 100%
2018	\$ 106,000		
2019	\$ 109,000		
2020	\$ 112,000		
Future Years	-		
Total Cost	-	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.

FY16-20 work at Pardee Powerhouse includes generator and turbine overhauls; Unit No. 3 governor and voltage regulator replacement; generator cooling system improvements; synchronizer replacement; and cooling water piping replacement. At Camanche Powerhouse, work consists of programmable logic controllers upgrades; governor replacements for all three units; and Unit No. 1 overhaul and instrument upgrades.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Pardee Powerhouse	5,478,400	0	663,000	6,141,400
Camanche Powerhouse	2,286,463	0	645,000	2,931,463
PPH Unit 1 Turbine Overhaul	0	906,000	0	906,000
PPH Unit 3 Turbine Overhaul	0	776,000	0	776,000
CPH Unit 1 Overhaul	0	500,000	0	500,000
CPH Unit 2 Overhaul	0	0	500,000	500,000
CPH Unit 3 Overhaul	0	0	500,000	500,000
CPH Governor Replacement	0	450,000	0	450,000

Appropriations:			
Prior Years	-	Lead Dept:	WOD
2016	\$ 1,682,000	Recurring:	Yes
2017	\$ 0	Funding:	BOND/REV 100%
2018	\$ 450,000		
2019	\$ 500,000		
2020	\$ 0		
Future Years	-		
Total Cost	-	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. Contributions to the Reclamation Districts for levee improvements support Aqueduct security and are eligible for State matching funds.

Description:

This project provides infrastructure improvements to facilitate the safe and reliable operation of the raw water aqueducts. In FY16-20, plans include improvements to raw water pipeline appurtenances, support cradles, culvert replacement, fencing and structure rehabilitation; and support improvements by Reclamation Districts and other Delta area projects, such the Woodward Island Bridge, a multi-agency joint project.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Moke Aqued Security - Levees	23,170,668	500,000	0	23,670,668
Rehab Aqueduct Facilities	5,058,458	3,587,005	3,835,132	12,480,595
Aqued Facils and Yd Imps	6,087,761	288,850	0	6,376,611
FSCC Chemical System Imprv	1,100,000	0	0	1,100,000

Appropriations:			
Prior Years	-	Lead Dept:	WOD
2016	\$ 787,332	Recurring:	Yes
2017	\$ 649,553	Funding:	BOND/REV 100%
2018	\$ 970,648		
2019	\$ 1,085,868		
2020	\$ 882,454		
Future Years	-	In Service Date:	Recurring
Total Cost	-		

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 facilities at recreation areas 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. Much of the work is required to be in compliance with regulatory agencies.

FY16-20 projects include a bathymetric survey of Lake Pardee; replacement of Camanche North Shore (CNS) Pond 6 force main; replacement of failing potable water isolation valves at CNS and Camanche South Shore (CSS); recoating of two CSS water storage tanks; replacement of aging wastewater equipment and ultrafiltration membrane modules; replacement of Pardee Recreation Area (PARA) Water Treatment Plant and installation of an emergency generator; and replacement of CNS spray field force main and spray header, and spray field runoff drain reconstruction.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Pardee/ Camanche Projects	1,583,049	933,000	1,784,000	4,300,049

Appropriations:			
Prior Years	-	Lead Dept:	WOD
2016	\$ 0	Recurring:	Yes
2017	\$ 250,000	Funding:	BOND/REV 100%
2018	\$ 155,000		
2019	\$ 260,000		
2020	\$ 268,000		
Future Years	-		
Total Cost	-	In Service Date:	Recurring

Capital Improvement Program - Project Summary

Project: Reservoir Access Roads

Project Number: 000089

Strategy: Maintaining Infrastructure

Program: Reservoir Rehab Program

Justification:

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

Description:

This project maintains and replaces distribution reservoir access roads. In FY14-15, the design and construction phases of the Argyle reservoirs access road in El Sobrante was completed.

Planned work in FY16-20 includes paving repairs and replacements for reservoir access roads as needed. Candidates include access roads to Maloney and Happy Valley reservoirs.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Res Access Rds	1,909,000	0	195,000	2,104,000

Appropriations:			
Prior Years	\$ 2,889,000	Lead Dept:	WOD
2016	\$ 0	Recurring:	No
2017	\$ 0	Funding:	BOND/REV100%
2018	\$ 0		
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 195,000		
Total Cost	\$ 3,084,000		

Capital Improvement Program - Project Summary

Project: Wtr Supply Monitoring System

Project Number: 000065

Strategy: Water Supply

Program: Supply Reservoirs

Justification:

Reliable and timely hydrologic, meteorologic, flow and water quality data is required to meet the operational needs of the District. 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 operating and forecasting plans. Work includes monitoring on the Lower Mokelumne, Upper Mokelumne, Pardee, Camanche and East Bay watersheds and reservoirs. FY16-20 plans include installation of real-time satellite telemetry at poor communication sites at Upper San Leandro Reservoir and at Forest Creek, and ongoing weather and gauging station instrument upgrades.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Res/River Inst & Monitoring	396,649	266,000	300,000	962,649

Appropriations:			
Prior Years	\$ 1,610,000	Lead Dept:	WOD
2016	\$ 57,000	Recurring:	No
2017	\$ 90,000	Funding:	BOND/REV100%
2018	\$ 51,000		
2019	\$ 30,000		
2020	\$ 38,000		
Future Years	\$ 300,000		
Total Cost	\$ 2,176,000	In Service Date:	30-Jun-25

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.

FY14-15 accomplishments include finalization of feasibility studies for a potential Regional Desalination Project; development of a framework to support Bay Area Regional Reliability efforts; agreements with San Joaquin County (SJC) to develop a groundwater banking demonstration project; discussions with Contra Costa Water District for potential storage in an expanded Los Vaqueros Reservoir; adding Freeport as a point of redirection for potential future water transfers with Yuba County Water Agency; execution of an agreement with Placer County Water Agency (PCWA) to develop a long-term water transfer project; and completion of a one-year water transfer with PCWA in FY14.

Moving forward in FY16-20, EBMUD will continue to work with PCWA to complete environmental reviews needed to implement a long-term water transfer project 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 and preliminary planning will continue for other supplemental supply elements of the WSMP 2040, including EBMUD and Zone 7 Water Agency efforts to develop a large diameter system intertie for emergency use.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
WSMP Special Projects	20,522,540	0	12,500,000	33,022,540
Mokelumne Regional Projects	19,382,583	0	0	19,382,583
Water Transfers	12,821,000	0	0	12,821,000

Appropriations:		Lead Dept: WRD	
Prior Years	\$ 103,156,777	Recurring: No	
2016	\$ 0	Funding:	BOND/REV 18%
2017	\$ 0		GRANTS 0%
2018	\$ 0		OAG 12%
2019	\$ 0		SCC 70%
2020	\$ 0		
Future Years	\$ 12,500,000	In Service Date: 31-Dec-30	
Total Cost	\$ 115,656,777		

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. Phase 2 planning efforts are not expected to commence until FY21.

In FY15, a Groundwater Monitoring Plan (GMP) was completed to serve as a tool to provide the California Department of Water Resources (DWR) 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 FY22 at the earliest.

Moving forward into FY16-20, additional CASGEM compliance efforts combined with groundwater basin sustainability planning are anticipated within the southern subbasin and potentially the northern subbasin such as well surveys and well installation.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Bayside Phase II 10 MGD	23,022,000	0	39,000,000	62,022,000
Local Groundwater/CASGEM	0	0	0	0

Appropriations:		Lead Dept: WRD	
Prior Years	\$ 58,164,111	Recurring: No	
2016	\$ 0	Funding:	BOND/REV 30%
2017	\$ 0		GRANTS 0%
2018	\$ 0		SCC 70%
2019	\$ 0		
2020	\$ 0		
Future Years	\$ 39,000,000	In Service Date: 31-Dec-25	
Total Cost	\$ 97,164,111		

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. Also included are funds for capital equipment replacement.

The Phase 1B project, estimated at 1.2 MGD, will be implemented from FY18-27. Recycled water will be provided to Alameda. The crossing of the estuary (slip lining of existing pipe) will be completed in FY18-19. The remainder of the facilities to be completed by FY27 include pipelines, possible booster pump station, and customer retrofits. The East Bayshore Phase 2 Project will expand recycled water service in the East Bayshore area by an additional 0.6 MGD. This is an estimated demand and may change due to redevelopment in the area. The timeframe for implementation will be determined later depending on redevelopment timing.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
East Bayshore Phase I	55,408,198	4,187,000	37,000,000	96,595,198

Appropriations:		Lead Dept:	WRD	
Prior Years	\$ 55,408,198	Recurring:	No	
2016	\$ 0	Funding:	BOND/REV	19%
2017	\$ 0		GRANTS	11%
2018	\$ 2,419,000		SCC	70%
2019	\$ 1,147,000			
2020	\$ 621,000			
Future Years	\$ 37,000,000	In Service Date:	30-Jun-27	
Total Cost	\$ 96,595,198			

Capital Improvement Program - Project Summary

Project: Freeport Regional Wtr Project

Project Number: 1004853

Strategy: Water Supply

Program: Water Supply Mgmt Program

Justification:

The Freeport Regional Water Project is a cooperative effort to help meet District goals to secure a supplemental dry-year water supply to provide water for District customers and help reduce rationing requirements during a drought.

Description:

In 2002, the Board authorized the formation of a Joint Powers Authority with the Sacramento County Water Agency (SCWA) to form the Freeport Regional Water Authority (FRWA) to develop the joint Freeport facilities needed to provide up to 85 million gallons per day (MGD) to Sacramento County, and up to 100 MGD to EBMUD. This project provides for the design and construction of the EBMUD portion of the joint facilities, and the EBMUD-owned extension to the Folsom South Canal.

By FY11, all FRWA pipeline construction, intake construction, and system testing of all FRWA facilities was completed. SCWA will assume the role as the FRWA operator. In FY14-15, minor work was completed on the portion of the Freeport pipeline that is owned and operated by the District from the County treatment plant turnout to the Folsom South Canal. EBMUD and Santa Clara Valley Water District (SCVWD) initiated discussions with the Bureau of Reclamation on a long-term agreement to implement the water supply terms of the FRWA Settlement Agreement.

Moving forward in FY16-20, EBMUD will work with SCVWD to complete work needed to implement the FRWA Settlement Agreement. There will also be minor work needed to archive construction-related documents.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
FRWA Joint Project Elements	211,140,000	0	0	211,140,000
EB Pipeline (Cnty Turnout-FSC)	40,000,000	0	0	40,000,000

Appropriations:				
Prior Years	\$ 251,140,000	Lead Dept:	WRD	
2016	\$ 0	Recurring:	No	
2017	\$ 0	Funding:	BOND/REV	30%
2018	\$ 0		SCC	70%
2019	\$ 0			
2020	\$ 0			
Future Years	\$ 0		In Service Date:	30-Jun-16
Total Cost	\$ 251,140,000			

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 FY16-20 and beyond, equipment will be replaced at the high-purity recycled water treatment plant including periodic replacement of membranes, cartridge filters, pneumatic valve actuators, and installation of a hypochlorite feed system. 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 FY17 and FY20-22 depending on water supply availability.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
RARE Treatment Plant	54,573,406	1,137,000	0	55,710,406
RARE Wtr Proj Ph2 Future Exp	550,000	26,301,000	0	26,851,000

Appropriations:			
Prior Years	\$ 58,991,000	Lead Dept:	WRD
2016	\$ 5,645,000	Recurring:	No
2017	\$ 166,000	Funding:	OAG100%
2018	\$ 872,000		
2019	\$ 20,575,000		
2020	\$ 180,000		
Future Years	\$ 0		
Total Cost	\$ 86,429,000	In Service Date:	30-Jun-26

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:

Planning and coordination for expansion of the tertiary treatment facilities from 9.7 MGD to 16.5 MGD will take place by FY20 to provide supply as the distribution system is expanded and customers are connected.

EBMUD's portion of the San Ramon Valley Recycled (SRV) Water Program includes customer retrofits/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 MGD of recycled water to EBMUD customers in San Ramon.

Phase 2A distribution pipelines will be completed by FY17 and it is anticipated that a state grant will reimburse the construction. Phase 2 customer retrofits will be completed by FY20.

The Phase 3 pump station on the border between San Ramon and Danville will be completed in FY19 with distribution pipelines to be implemented in FY19-22. Phase 3 site retrofits will be completed after FY20.

The Phase 4 pump station in Blackhawk will be completed in FY24 with distribution pipelines and site retrofits to be implemented in FY24-25. Phase 5 (Blackhawk West) and Phase 6 (Danville West) are anticipated to be completed beyond FY25.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
EBMUD/DERWA Distrib. Pipelines	30,211,000	0	44,000,000	74,211,000
DERWA/EBMUD Share of Fut Fac	3,020,000	5,000,000	0	8,020,000

Appropriations:				
Prior Years	\$ 69,171,000	Lead Dept:	WRD	
2016	\$ 0	Recurring:	No	
2017	\$ 0	Funding:	GRANTS	39%
2018	\$ 5,000,000		SCC	61%
2019	\$ 0			
2020	\$ 0			
Future Years	\$ 44,000,000		In Service Date:	30-Jun-25
Total Cost	\$ 118,171,000			

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) coordination to implement satellite treatment plants at customer sites including the Diablo Country Club by FY17 and Moraga Country Club by FY18 pending customer financing; (2) further evaluation and implementation of the Phillips 66 recycled water project in Rodeo in FY25; (3) rehabilitation of the San Leandro project by FY18; (4) development and implementation of potential recycled water opportunities with the Central Contra Costa Sanitary District by FY25; and (5) expansion of the recycled water truck program.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
Phillips 66 Recycled Wtr Proj	420,000	350,000	67,000,000	67,770,000
Satellite Trtmt Plant Pilot	1,556,000	0	51,000,000	52,556,000
San Leandro Rehabilitation	431,000	2,719,000	33,000,000	36,150,000
Reliez Valley Recycled Wtr Prj	4,121,380	0	5,345,000	9,466,380
Recycled Water Truck Program	366,000	92,000	0	458,000
Master Plan Update	75,000	95,000	0	170,000

Appropriations:				
Prior Years	\$ 13,351,105	Lead Dept:	WRD	
2016	\$ 2,722,000	Recurring:	No	
2017	\$ 25,000	Funding:	BOND/REV	30%
2018	\$ 67,000		SCC	70%
2019	\$ 25,000			
2020	\$ 417,000			
Future Years	\$ 156,345,000	In Service Date:	30-Jun-30	
Total Cost	\$ 172,952,105			

Capital Improvement Program - Project Summary

Project: No Richmond Recy Wtr Fac Impr **Project Number:** 000876

Strategy: Water Supply **Program:** Water Recycling

Justification:

The capital improvements included in this project are necessary for the District to meet its 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 capital 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 its customer, the Chevron Richmond refinery. In FY16, this project will include safety improvements and replacement of the sand filter gates.

Expansion of the NRWRP by an additional 1 MGD is expected by FY20 pending supply availability. The expansion study was completed in FY15. Preliminary engineering will occur in FY16, design is to begin in FY17, and construction is to begin in FY18.

Key Segments & Appropriations	Prior Yrs	FY16-20	Future Yrs	Total
No. Richmond Improvements/Exp	0	68,735,100	0	68,735,100
NRWRP Routine Capital Maint	3,274,500	1,293,000	1,532,000	6,099,500

Appropriations:				
Prior Years	\$ 9,053,852	Lead Dept:	WRP	
2016	\$ 3,591,100	Recurring:	No	
2017	\$ 213,000	Funding:	BOND/REV	4%
2018	\$ 65,727,000		OAG	96%
2019	\$ 241,000			
2020	\$ 256,000			
Future Years	\$ 1,532,000	In Service Date:	30-Jun-25	
Total Cost	\$ 80,613,952			

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