El Dorado Irrigation District

FIVE YEAR

Capital Improvement Plan

2019—2023

Approved January 28, 2019

El Dorado Irrigation District

2019-2023 CAPITAL IMPROVEMENT PLAN

Approved January 28, 2019

	2019 PLANNED	2020 PLANNED	2021 PLANNED	2022 PLANNED	2023 PLANNED	FIVE-YEAR PLAN TOTAL
FERC	$3,940,762	$4,298,195	$704,671	$436,191	$352,682	$9,732,501
Water	$9,087,500	$22,817,500	$7,482,500	$6,534,500	$6,252,500	$52,174,500
Wastewater	$7,167,000	$2,940,000	$3,145,000	$5,935,000	$3,710,000	$22,897,000
Recycled Water	$230,000	$185,000	$0	$0	$0	$415,000
Hydroelectric	$27,848,501	$14,551,255	$15,405,000	$3,200,000	$3,050,000	$64,054,756
Recreation	$100,000	$150,000	$150,000	$100,000	$150,000	$650,000
General District	$4,303,500	$3,054,500	$3,007,000	$1,778,000	$2,500,000	$14,643,000
TOTAL	**$52,677,263**	**$47,996,450**	**$29,894,171**	**$17,983,691**	**$16,015,182**	**$164,566,757**

2018-2022 CAPITAL IMPROVEMENT PLAN

Approved November 13, 2017

	2018 PLANNED	2019 PLANNED	2020 PLANNED	2021 PLANNED	2022 PLANNED	FIVE-YEAR PLAN TOTAL
FERC	$2,349,371	$3,766,762	$848,195	$619,671	$491,191	$8,075,190
Water	$8,930,000	$15,462,500	$8,482,500	$11,012,500	$9,302,500	$53,190,000
Wastewater	$4,332,380	$3,675,000	$4,200,000	$1,750,000	$2,350,000	$16,307,380
Recycled Water	$50,000	$10,000	$100,000	$0	$0	$160,000
Hydroelectric	$21,195,500	$15,604,500	$12,327,836	$8,035,000	$2,710,000	$59,872,836
Recreation	$100,000	$100,000	$150,000	$0	$50,000	$400,000
General District	$1,982,600	$1,559,000	$782,000	$681,000	$950,000	$5,954,600
TOTAL	**$38,939,851**	**$40,177,762**	**$26,890,531**	**$22,098,171**	**$15,853,691**	**$143,960,006**

El Dorado Irrigation District

2019 - 2023 Capital Improvement Plan

FERC Projects

PROJECT NO.	PROJECT DESCRIPTION	PROGRAM	PRIORITY	2019 PLANNED	2020 PLANNED	2021 PLANNED	2022 PLANNED	2023 PLANNED	2019-2023 TOTAL
10007	FERC C51.1 and 51.2 RM Caples Auxiliary Dam and Boat Launch	FERC	1	100,000	40,000	40,000	40,000	40,000	260,000
15016	FERC: C50.2 Caples Lake Campground Re-Construction	FERC	1	2,950,000	0	0	0	0	2,950,000
06019H	FERC: C35 Oyster Creek	FERC	1	100,000	0	0	0	0	100,000
06021H	FERC C37.8 Water Temperature	FERC	1	35,000	35,000	25,000	35,000	35,000	165,000
06025H	FERC: C41 Canal Release Points	FERC	1	10,000	0	0	0	0	10,000
06076H	FERC C38.4b Caples Spillway Channel Stabilization	FERC	1	320,000	0	0	0	0	320,000
06081H	FERC: C50.8 Pacific Crest Trail Crossing	FERC	1	120,000	0	0	0	0	120,000
06082H	FERC: C50.1 Silver Lake Campground East Re-Construction	FERC	1	20,000	4,000,000	0	0	0	4,020,000
06086H	FERC C33 Lake Aloha Trout Removal	FERC	1	12,000	0	0	0	0	12,000
06087H	FERC C37.1 Fish Monitoring	FERC	1	0	0	75,000	75,000	0	150,000
06088H	FERC: C37.2 Macroinvertebrate Monitoring	FERC	1	0	0	65,000	65,000	0	130,000
06089H	FERC: C37.3 Amphibian Monitoring	FERC	1	17,000	0	75,000	0	0	92,000
06090H	FERC: C37.4 Riparian Species Composition	FERC	1	0	0	25,000	0	0	25,000
06091H	FERC: C37.5 Riparian Vegetation Recruitment	FERC	1	0	0	25,000	0	0	25,000
06092H	FERC: C37.7 Geomorphology Evaluation	FERC	1	0	20,000	75,000	0	0	95,000
06096H	FERC: C55 Heritage Resources	FERC	1	55,000	0	0	0	0	55,000
06097H	FERC: C59 Facility Management Plan	FERC	1	0	0	0	15,000	0	15,000
06098H	FERC: C46 thru C49 Recreation Resource Management	FERC	1	0	0	0	0	70,000	70,000
07003H	FERC: C37.9 Water Quality	FERC	1	0	0	80,000	0	0	80,000
07005H	FERC: C51.3 RM Echo Trailhead	FERC	1	8,000	8,000	8,000	8,000	8,000	40,000
07006H	FERC: C51.5 and C51.7 RM USFS Payments	FERC	1	51,762	53,195	54,671	56,191	57,682	273,501
07010H	FERC: C15 Pesticide Use	FERC	1	70,000	70,000	70,000	70,000	70,000	350,000
07011H	FERC: C38 Adaptive Management Program	FERC	1	50,000	50,000	50,000	50,000	50,000	250,000
07030H	FERC: C57 Transportation System Management Plan	FERC	1	5,000	5,000	5,000	5,000	5,000	25,000
08025H	FERC C44 Noxious Weed Monitoring	FERC	1	17,000	17,000	32,000	17,000	17,000	100,000
			TOTAL:	**3,940,762**	**4,298,195**	**704,671**	**436,191**	**352,682**	**9,732,501**

El Dorado Irrigation District

2019 - 2023 Capital Improvement Plan
Water Projects

PROJECT NO.	PROJECT DESCRIPTION	PROGRAM	PRIORITY	2019 PLANNED	2020 PLANNED	2021 PLANNED	2022 PLANNED	2023 PLANNED	2019-2023 TOTAL
13015	Outingdale Lower Tank Replacement	WA	1	500,000	0	0	0	0	500,000
16039	City of Placerville - Western Placerville Interchange Project	WA	1	200,000	0	0	0	0	200,000
17012	Swansboro Tank Rehabilitation Project	WA	1	250,000	0	0	0	0	250,000
17024	Moose Hall Pressure Reducing Station Upgrade	WA	1	350,000	0	0	0	0	350,000
17035	Green Valley Bridge Relocation	WA	1	425,000	0	0	0	0	425,000
17036	Sierra Tank Meter Replacement	WA	1	25,000	0	0	0	0	25,000
18025	DOT Construction Projects - Water	WA	1	25,000	25,000	25,000	25,000	25,000	125,000
PLANNED	Diversion Gauging Measurement and Reporting Requirements	WA	1	90,000	90,000	0	0	0	180,000
11032	Main Ditch - Forebay to Reservoir 1	WA	2	2,850,000	6,250,000	0	0	0	9,100,000
15009	Sly Park Intertie Improvements	WA	2	5,000	5,000	5,000	550,000	550,000	1,115,000
15024	Folsom Lake Raw Water Pump Station Improvements	WA	2	1,650,000	12,700,000	3,050,000	0	0	17,400,000
16003	Permit 21112 Change in Point of Diversion	WA	2	150,000	200,000	0	0	0	350,000
16005	Diamond Springs Parkway / Hwy 49 Improvements	WA	2	90,000	100,000	0	0	0	190,000
16048	Outingdale Water Intake Replacement	WA	2	15,000	190,000	0	0	0	205,000
17011	Crestview Pump Station Replacement Project	WA	2	0	25,000	250,000	0	0	275,000
17014	Green Valley PRS #2	WA	2	80,000	0	0	0	0	80,000
17015	Lakeview PRS #1	WA	2	150,000	0	0	0	0	150,000
17016	El Dorado Main #1 PRS #5	WA	2	0	0	50,000	500,000	0	550,000
17039	Reservoir A Filter Valve Acuator	WA	2	0	0	20,000	200,000	0	220,000
17048	Strawberry Raw Water Pump Station	WA	2	10,000	50,000	350,000	0	0	410,000
18002	Sanders Road Waterline Replacement	WA	2	0	0	70,000	0	0	70,000
18007	Pony Express 8-Inch Waterline Replacement Project	WA	2	100,000	0	0	0	0	100,000
18018	Easy Street Waterline Replacement	WA	2	0	0	50,000	1,200,000	0	1,250,000
06004G	SMUD / El Dorado Agreement Water Rights	WA	2	337,500	337,500	337,500	337,500	337,500	1,687,500
PLANNED	Critical Water Facility Generators	WA	2	100,000	460,000	880,000	250,000	0	1,690,000
PLANNED	El Dorado Hills Raw Water Pump Replacement B-Side	WA	2	130,000	0	0	0	0	130,000
PLANNED	Waterline Replacement Program	WA	2	0	200,000	200,000	200,000	200,000	800,000
PLANNED	AMR and Small Meter Replacement	WA	2	150,000	150,000	150,000	150,000	150,000	750,000
PLANNED	El Dorado Hills Water Treatment Plant Automation Rehabilitation	WA	2	500,000	1,000,000	0	0	0	1,500,000

El Dorado Irrigation District

2019 - 2023 Capital Improvement Plan
Water Projects

PROJECT NO.	PROJECT DESCRIPTION	PROGRAM	PRIORITY	2019 PLANNED	2020 PLANNED	2021 PLANNED	2022 PLANNED	2023 PLANNED	2019-2023 TOTAL
PLANNED	Folsom - EDH Water Treatment Plant Improvements Program	WA	2	0	0	100,000	100,000	100,000	300,000
PLANNED	Pressure Reducing Station Rehabilitation and Replacement Program	WA	2	80,000	100,000	860,000	100,000	840,000	1,980,000
PLANNED	Pump Station Rehabilitation and Replacement Program	WA	2	125,000	220,000	100,000	250,000	850,000	1,545,000
PLANNED	Reservoir 1 Water Treatment Plant Improvements Program	WA	2	0	100,000	45,000	225,000	0	370,000
PLANNED	Sly Park - Reservoir A Water Treatment Plant Improvements Progra	WA	2	0	0	345,000	325,000	100,000	770,000
PLANNED	Storage Replacement & Rehabilitation Program	WA	2	0	0	350,000	2,100,000	2,900,000	5,350,000
PLANNED	Serviceline Replacement Program	WA	2	0	0	0	10,000	200,000	210,000
PLANNED	Integrated Water Resources Master Plan Update	WA	2	150,000	100,000	0	0	0	250,000
STUDY03	WTP Assessments	WA	2	550,000	475,000	0	0	0	1,025,000
PLANNED	Construction Storage Facility	WA	3	0	30,000	200,000	0	0	230,000
PLANNED	Lower Ditch Water Rights SCADA Upgrades	WA	3	0	10,000	45,000	12,000	0	67,000
			TOTAL:	**9,087,500**	**22,817,500**	**7,482,500**	**6,534,500**	**6,252,500**	**52,174,500**

El Dorado Irrigation District

2019 - 2023 Capital Improvement Plan
Wastewater Projects

PROJECT NO.	PROJECT DESCRIPTION	PROGRAM	PRIORITY	2019 PLANNED	2020 PLANNED	2021 PLANNED	2022 PLANNED	2023 PLANNED	2019-2023 TOTAL
16017	DOT Construction Projects - Wastewater	WW	1	25,000	25,000	25,000	25,000	25,000	125,000
17023	Rancho Ponderosa LS Relocation/Abandonment	WW	1	480,000	0	0	0	0	480,000
18015	EDHWWTP Odor Control	WW	1	787,000	0	0	0	0	787,000
15036	Silva Valley - El Dorado Hills Sewerline	WW	2	100,000	0	0	0	0	100,000
16008	South Pointe Lift Station Rehabilitation	WW	2	1,270,000	550,000	0	0	0	1,820,000
16025	Town Center Force Main Replacement	WW	2	1,950,000	0	0	1,950,000	0	3,900,000
16030	Solar Assessment Design	WW	2	90,000	30,000	0	0	0	120,000
17020	Wastewater Collection System Pipeline Replacement	WW	2	250,000	200,000	200,000	200,000	200,000	1,050,000
17033	DCWWTP Process Control Design	WW	2	220,000	550,000	325,000	325,000	0	1,420,000
17034	Wastewater Collections Facility Relocation	WW	2	0	0	0	0	0	0
17046	Strolling Hills Pipeline Improvements	WW	2	30,000	150,000	1,000,000	1,000,000	0	2,180,000
18003	Wastewater Communication Upgrade	WW	2	0	420,000	420,000	1,560,000	1,560,000	3,960,000
18027	El Dorado Lift Pipeline Replacement	WW	2	285,000	0	0	0	0	285,000
PLANNED	EDHWWTP Maintenance Storage	WW	2	500,000	500,000	0	0	0	1,000,000
PLANNED	Wastewater Lift Station Upgrade Program	WW	2	0	80,000	600,000	300,000	1,500,000	2,480,000
PLANNED	EDHWWTP WAS DAFT Rehabilitation	WW	2	830,000	0	0	0	0	830,000
PLANNED	2019 Wastewater Generator Program	WW	2	150,000	150,000	150,000	100,000	0	550,000
PLANNED	2019 Wastewater Equipment Replacement Program	WW	2	200,000	200,000	200,000	200,000	200,000	1,000,000
PLANNED	EDHWWTP PLC Replacement Project	WW	2	0	85,000	225,000	275,000	225,000	810,000
			TOTAL:	**7,167,000**	**2,940,000**	**3,145,000**	**5,935,000**	**3,710,000**	**22,897,000**

2019 - 2023 Capital Improvement Plan
Recycled Water Projects

PROJECT NO.	PROJECT DESCRIPTION	PROGRAM	PRIORITY	2019 PLANNED	2020 PLANNED	2021 PLANNED	2022 PLANNED	2023 PLANNED	2019-2023 TOTAL
17030	DC Discharge Management	RW	3	230,000	185,000	0	0	0	415,000
			TOTAL:	**230,000**	**185,000**	**0**	**0**	**0**	**415,000**

El Dorado Irrigation District

2019 - 2023 Capital Improvement Plan
Hydroelectric Projects

PROJECT NO.	PROJECT DESCRIPTION	PROGRAM	PRIORITY	2019 PLANNED	2020 PLANNED	2021 PLANNED	2022 PLANNED	2023 PLANNED	2019-2023 TOTAL
11004	Lake Aloha Dam Repairs	HY	1	100,000	0	0	0	0	100,000
11005	Silver Lake Dam Replacement	HY	1	150,000	300,000	300,000	300,000	300,000	1,350,000
14024	Flume 44 Canal Conversion	HY	1	7,255,587	1,075,000	0	0	0	8,330,587
17013	Forebay Dam Upgrades	HY	1	14,000,000	1,253,755	0	0	0	15,253,755
17051	Weber Dam Access	HY	1	50,000	0	0	0	0	50,000
PLANNED	Powerhouse Electrical Safety Improvements	HY	1	35,000	85,000	0	0	0	120,000
PLANNED	Annual Dam Program	HY	1	65,000	0	0	0	0	65,000
16022	Flume 38-40 Canal Conversion	HY	2	188,000	10,000	13,700,000	200,000	0	14,098,000
16044	Pacific Tunnel Portal Rehab	HY	2	175,000	1,752,500	50,000	0	0	1,977,500
16046	Powerhouse Roof	HY	2	350,000	0	0	0	0	350,000
17025	Flume 45 Abutment Replacement	HY	2	100,000	100,000	0	1,560,000	0	1,760,000
17026	Flume 47C Replacement	HY	2	2,177,500	75,000	0	0	0	2,252,500
17027	Spill 3 Crib Wall	HY	2	25,000	0	0	0	0	25,000
17028	Flume 48 Replacement/Tunnel option	HY	2	220,000	200,000	200,000	0	0	620,000
17041	Flume 30 Replacement	HY	2	825,000	8,350,000	0	0	0	9,175,000
18010	Penstock Stabilization and Repair	HY	2	560,000	450,000	310,000	150,000	150,000	1,620,000
18013	Project 184 SCADA System Hardware Replacement	HY	2	695,000	300,000	85,000	350,000	0	1,430,000
PLANNED	Annual Canal and Flume Program	HY	2	500,000	500,000	500,000	500,000	500,000	2,500,000
PLANNED	Hydro Facility Replacement Program	HY	2	100,000	100,000	100,000	100,000	100,000	500,000
PLANNED	Flume 46A Canal Conversion	HY	2	0	0	160,000	40,000	2,000,000	2,200,000
PLANNED	Spare Powerhouse Turbine Runner	HY	2	75,000	0	0	0	0	75,000
PLANNED	Echo Conduit Rehabilitation	HY	2	100,000	0	0	0	0	100,000
STUDY01	Canal Assessment	HY	2	30,000	0	0	0	0	30,000
STUDY02	Tunnel Assessment	HY	2	28,778	0	0	0	0	28,778
STUDY04	Flume Assessment	HY	2	43,636	0	0	0	0	43,636
			TOTAL:	**27,848,501**	**14,551,255**	**15,405,000**	**3,200,000**	**3,050,000**	**64,054,756**

2019 - 2023 Capital Improvement Plan
Recreation Projects

PROJECT NO.	PROJECT DESCRIPTION	PROGRAM	PRIORITY	2019 PLANNED	2020 PLANNED	2021 PLANNED	2022 PLANNED	2023 PLANNED	2019-2023 TOTAL
PLANNED	Recreation Facility Replacement Program	RE	2	50,000	50,000	50,000	50,000	50,000	250,000
PLANNED	Sly Park Recreation Area Facility Improvments	RE	2	50,000	100,000	100,000	50,000	100,000	400,000
			TOTAL:	**100,000**	**150,000**	**150,000**	**100,000**	**150,000**	**650,000**

2019-2023 Capital Improvement Plan
General District

PROJECT NO.	PROJECT DESCRIPTION	PROGRAM	PRIORITY	2019 PLANNED	2020 PLANNED	2021 PLANNED	2022 PLANNED	2023 PLANNED	2019-2023 TOTAL
16037	SCADA Configuration and Alarm Response	GD	2	45,000	45,000	45,000	0	0	135,000
18019	2019 Vehicle Replacement	GD	2	524,000	320,000	336,000	372,000	415,000	1,967,000
18032	EUC - Phase 1 Desktop Environment Replacement	GD	2	167,000	0	0	0	0	167,000
18033	Radio Telemetry and Network Replacement Program	GD	2	35,000	10,000	10,000	10,000	10,000	75,000
PLANNED	IT Network and Communications Reliability Program	GD	2	240,000	260,000	100,000	45,000	50,000	695,000
PLANNED	SCADA Master Plan Implementation	GD	2	110,000	45,000	0	0	0	155,000
PLANNED	Security Equipment Reliability Program	GD	2	48,000	0	0	0	0	48,000
PLANNED	Shared IT Computing Reliability Program	GD	2	377,000	60,000	55,000	550,000	900,000	1,942,000
PLANNED	Hansen 7 - Phase 1 Asset Maintenance SW Replacement	GD	2	1,500,000	0	0	0	0	1,500,000
PLANNED	Digital Ops Plan - Phase 1 SW Replacement	GD	2	199,000	0	0	0	0	199,000
PLANNED	WAN Replacement - Phase 2 Routers and Circuits	GD	2	450,000	0	0	0	0	450,000
PLANNED	WiFi - Phase 1 HQ Access Point Replacements	GD	2	83,500	0	0	0	0	83,500
PLANNED	Cyber Security Improvements	GD	2	258,000	215,000	410,000	0	0	883,000
PLANNED	Hansen 7 - Phase 2 Developer Services SW Replacement	GD	2	0	950,000	0	0	0	950,000
PLANNED	Digital Ops Plan - Phase 2 Plant Procedure Development	GD	2	64,500	64,500	0	0	0	129,000
PLANNED	SCADA Hardware Replacement Program	GD	2	50,000	50,000	50,000	50,000	50,000	250,000
PLANNED	WAN - Phase 3 Wireless Redundancy Replacement	GD	2	0	120,000	0	0	0	120,000
PLANNED	WiFi - Phase 2 Plant Building Access Points	GD	2	0	220,000	0	0	0	220,000
PLANNED	ERP - Phase 1 Financial SW Replacement	GD	2	0	0	0	660,000	1,030,000	1,690,000
PLANNED	Hansen 7 - Phase 3 Utility Billing SW Replacement	GD	2	0	650,000	1,690,000	0	0	2,340,000
PLANNED	Digital Ops Plan - Phase 3 Station Procedure Development	GD	2	0	0	46,000	46,000	0	92,000
PLANNED	WiFi - Phase 3 Plant-wide Access Points	GD	2	0	0	220,000	0	0	220,000
17018	SCADA Software Efficiency Program	GD	3	45,000	45,000	45,000	45,000	45,000	225,000
PLANNED	Engineering Plan Check Table	GD	3	30,500	0	0	0	0	30,500
PLANNED	Mobile Devices - Phase 1	GD	3	77,000	0	0	0	0	77,000
			TOTAL:	**4,303,500**	**3,054,500**	**3,007,000**	**1,778,000**	**2,500,000**	**14,643,000**

FERC
Projects

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 10007

Project Name: FERC C51.1 and 51.2 RM Caples Auxiliary Dam and Boat Launch

Project Category: Regulatory Requirements

Priority: 1 **PM:** Hawkins **Board Approval:** 01/28/19

Project Description:

Required by the FERC License, Settlement Agreement, and the USFS 4(e) Condition 51, which, in part, requires the District to provide funding for the following activities:

1. The licensee shall be responsible for one-half the of the following maintenance at the Caples Lake Auxiliary Dam Parking Area: a) routine cleaning, repair, and maintenance of all constructed features, b) toilet pumping, c) trash removal/litter pick up at the site, d) maintenance of the signboards, and e) vegetation management.

2. The licensee shall be responsible for operating and maintaining the boat launching ramp, associated parking lot, and other public facilities constructed at this site for the term of the license. The licensee shall also be responsible for maintenance of signboards. The USFS shall be responsible for maintaining the information on those signboards to USFS standards.

2019 construction expenditure request of $60,000 for sealing and striping of Caples Boat Launch parking lot. Funding under this CIP is required to pay for services, capitalized labor, and materials necessary for operations and maintenance activities at the Caples Lake Auxiliary Dam parking area and at the Caples Lake Boat Launch.

Basis for Priority:

EID would not be able to comply with the FERC License, Settlement Agreement and USFS 4(e) Condition requirements.

Project Financial Summary:			
Funded to Date:	$ 224,000	Expenditures through end of year:	$ 203,524
Spent to Date:	$ 198,524	2019 - 2023 Planned Expenditures:	$ 260,000
Cash flow through end of year:	$ 5,000	Total Project Estimate:	$ 463,524
Project Balance	$ 20,476	Additional Funding Required	$ 239,524

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Services	$25,000	$25,000	$25,000	$25,000	$25,000	$ 125,000
Staff time	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 50,000
Materials	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 25,000
Construction	$ 60,000					$ 60,000
TOTAL	$ 100,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 260,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$42,148
Water Rates	47%	$37,376
		$0
Total	100%	$79,524

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 15016

Project Name: FERC: C50.2 Caples Lake Campground Re-Construction

Project Category: Regulatory Requirements

Priority: 1 **PM:** Delongchamp **Board Approval:** 01/28/19

Project Description:

Required by the License Settlement Agreement and the USFS 4(e) Conditions 50.2, the District must reconstruct the paved surfaces, toilets, and water system at the 36-unit USFS Caples Lake Campground, including upgrade of this facility to meet the current FS design standards and the USDA Forest Service Region 5 accessibility standards requirements of the Americans with Disabilities Act (ADA). Project funding represents the cost estimates agreed upon by USFS and EID in the Dangermond Report for the campground improvements and have been adjusted to reflect current dollars ($2,950,000) and estimated staff time. Design for the campground re-construction was completed in 2018 and anticipated construction is scheduled in 2019.

Basis for Priority:

This project is required to comply with the FERC License Condition No. 50.2 and USFS 4(e) Condition requirements. The District is requesting FERC and FS approval of a time extension to October 18, 2019 to allow additional time to complete consultation with the FS, complete environmental review, obtain the necessary permits, and construct the improvements.

Project Financial Summary:			
Funded to Date:	$ 529,380	Expenditures through end of year:	$ 361,384
Spent to Date:	$ 346,384	2019 - 2023 Planned Expenditures:	$ 2,950,000
Cash flow through end of year:	$ 15,000	Total Project Estimate:	$ 3,311,384
Project Balance	$ 167,996	Additional Funding Required	$ 2,782,004

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Construction (Campground)	$ 2,900,000					$ 2,900,000
Construction (Water System)	$ 50,000					$ 50,000
TOTAL	$ 2,950,000	$ -	$ -	$ -	$ -	$ 2,950,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$1,474,462
Water Rates	47%	$1,307,542
Total	100%	$2,782,004

Funding Comments: Project funding represents the cost estimates agreed upon by USFS and EID in the Dangermond Report for the campground improvements and have been adjusted to reflect current dollars and staff time.

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06019H

Project Name: FERC: C35 Oyster Creek

Project Category: Regulatory Requirements

Priority: 1 **PM:** Money **Board Approval:** 01/28/19

Project Description:

Mandatory requirement of the FERC license. The District conducted a channel assessment and prepared a stabilization plan as required by the FERC license conditions. The stabilization plan has been approved by the regulatory agencies. Environmental review and permitting is expected to be complete in the spring of 2019 with construction anticipated to begin in fall of 2019.

Basis for Priority:

EID would not be in compliance with Condition 35 of the El Dorado Reliensing Settlement Agreement, USFS 4(e) Condition 35, and SWRCB Water Quality Certification Condition 6 requirements contained in the FERC License.

Project Financial Summary:			
Funded to Date:	$ 294,950	Expenditures through end of year:	$ 285,244
Spent to Date:	$256,942	2019 - 2023 Planned Expenditures:	$ 100,000
Cash flow through end of year:	$ 28,302	Total Project Estimate:	$ 385,244
Project Balance	$ 9,706	Additional Funding Required	$ 90,294

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design						$ -
Construction	$ 100,000					$ 100,000
						$ -
TOTAL	$ 100,000	$ -	$ -	$ -	$ -	$ 100,000

Estimated Funding Sources	Percentage	2019	Amount
Water FCCs	53%		$47,856
Water Rates	47%		$42,438
			$0
Total	100%		$90,294

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06021H

Project Name: FERC C37.8 Water Temperature

Project Category: Regulatory Requirements

Priority: 1 **PM:** Deason **Board Approval:** 01/28/19

Project Description:

Mandatory requirement of the FERC license. Funding is necessary to implement an annual water temperature monitoring program at project reservoirs and stream reaches. The data collected from this monitoring effort will be used to determine if the coldwater beneficial uses are being met in designated project reaches.

Basis for Priority:

If unfunded, EID would be out of compliance with the FERC license, Sections 7 and 12 of the Settlement Agreement, USFS 4(e) conditions 37 and 42, and SWRCB Water Quality Certification condition 14.

Project Financial Summary:			
Funded to Date:	$ 279,500	Expenditures through end of year:	$ 274,544
Spent to Date:	$ 249,544	2019 - 2023 Planned Expenditures:	$ 165,000
Cash flow through end of year:	$ 25,000	Total Project Estimate:	$ 439,544
Project Balance	$ 4,956	Additional Funding Required	$ 160,044

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Monitoring	$25,000	$25,000	$15,000	$25,000	$25,000	$ 115,000
Reporting	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 25,000
Staff Time	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 25,000
						$ -
TOTAL	$ 35,000	$ 35,000	$ 25,000	$ 35,000	$ 35,000	$ 165,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$15,924
Water Rates	47%	$14,121
		$0
Total	100%	$30,044

Funding Comments: Annual monitoring is required until it can be demonstrated that operation of the project reasonably protects the cold freshwater beneficial use as determined by the SWRCB, FS, and ERC; coordinated with water quality sampling every three years

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06025H

Project Name: FERC: C41 Canal Release Points

Project Category: Regulatory Requirements

Priority: 1 **PM:** Mutschler **Board Approval:** 01/28/19

Project Description:

Required by the License Settlement Agreement and USFS 4(e) Condition 41, the District must develop and file for FERC approval a canal drainage structure and release point plan. The licensee shall implement the plan upon approval. The plan has been approved and implementation is underway. An update to the plan is needed in 2019 to include upgrades that have been implemented (e.g., Spillway 46), identify future upgrades, and evaluate the condition of spillway channels. Future design and construction costs will depend on the scope of activities identified in the updated plan.

Basis for Priority:

This project is required by the Project 184 FERC License and is on-going.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 28,848
Spent to Date:	$ 28,848	2019 - 2023 Planned Expenditures:	$ 10,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 38,848
Project Balance	$ 21,152	Additional Funding Required	$ -

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning	$ 10,000					$ 10,000
Design						$ -
Construction						$ -
						$ -
TOTAL	$ 10,000	$ -	$ -	$ -	$ -	$ 10,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$0
Water Rates	47%	$0
		$0
Total	100%	$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06076H

Project Name: FERC C38.4b Caples Spillway Channel Stabilization

Project Category: Regulatory Requirements

Priority: 1 **PM:** Money **Board Approval:** 01/28/19

Project Description:

This Project is a mandatory requirement of the conditions of the FERC license. The stabilization plan has been approved by the regulatory agencies. Environmental review and permitting is expected to be complete in the spring of 2019 with construction anticipated to begin in fall of 2019.

Basis for Priority:

If unfunded, EID would be out of compliance with the FERC license, Section 8 of the Settlement Agreement, USFS 4(e) conditions 38.4b, and SWRCB Water Quality Certification condition 5.

Project Financial Summary:			
Funded to Date:	$ 517,857	Expenditures through end of year:	$ 497,064
Spent to Date:	$ 427,064	2019 - 2023 Planned Expenditures:	$ 320,000
Cash flow through end of year:	$ 70,000	Total Project Estimate:	$ 817,064
Project Balance	$ 20,793	Additional Funding Required	$ 299,207

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design						$ -
Construction	$ 320,000					$ 320,000
TOTAL	$ 320,000	$ -	$ -	$ -	$ -	$ 320,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$158,580
Water Rates	47%	$140,627
		$0
Total	100%	$299,207

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06081H

Project Name: FERC: C50.8 Pacific Crest Trail Crossing

Project Category: Regulatory Requirements

Priority: 1 **PM:** Kessler **Board Approval:** 01/28/19

Project Description:

This project is a requirement of the FERC License, Settlement Agreement, and the USFS 4(e) Condition 50.8 which states the licensee shall construct a crossing to meet FS design standards for the Pacific Crest National Scenic Trail across the Echo Conduit at a location agreed to by the FS.

The District has coordinated with the FS , Pacific Crest Trail Association and Tahoe Rim Trail Association regarding the location and design of the crossing, and subsequently developed the design for FS review and approval. To schedule construction, the District has obtained USFS approval, and is awaiting FERC's approval of a time extension to October 18, 2019 to allow additional time to complete consultation with the FS, complete environmental review, obtain any necessary permits, and construct the crossing.

Funding is required to conduct final biological resource surveys, update the design per any FS comments, procure a pre-fabricated bridge and install the bridge in summer 2019.

Basis for Priority:

Project is required by Project 184 license.

Project Financial Summary:			
Funded to Date:	$ 120,000	Expenditures through end of year:	$ 87,182
Spent to Date:	$ 82,182	2019 - 2023 Planned Expenditures:	$ 120,000
Cash flow through end of year:	$ 5,000	Total Project Estimate:	$ 207,182
Project Balance	$ 32,818	Additional Funding Required	$ 87,182

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning	$ 5,000					$ 5,000
Design	$ 5,000					$ 5,000
Construction	$ 110,000					$ 110,000
TOTAL	$ 120,000	$ -	$ -	$ -	$ -	$ 120,000

Estimated Funding Sources	Percentage	2019	Amount
Water FCCs	53%		$46,206
Water Rates	47%		$40,975
			$0
Total	100%		$87,182

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06082H

Project Name: FERC: C50.1 Silver Lake Campground East Re-Construction

Project Category: Regulatory Requirements

Priority: 1 **PM:** Delongchamp **Board Approval:** 01/28/19

Project Description:

Required by the License Settlement Agreement and the USFS 4(e) Conditions, the District must reconstruct the paved surfaces, toilets, and water system at the 62-unit USFS Silver Lake Campground, including upgrade of this facility to meet the current FS design standards and the USDA Forest Service Region 5 accessibility standards requirements of the Americans with Disabilities Act (ADA). Project funding represents the cost estimates agreed upon by USFS and EID in the Dangermond Report for the campground improvements and have been adjusted to reflect 2018 dollars ($3,000,000). The District is required to install a new water system within the campground to the source. The existing source is located approximately 2.5 miles away from the campground, however the District's well is located approximately 1 mile away. The District is working with the USFS to utilize the District's well as the new source to the campground. The USFS is proposing a potential joint project to expand the upgrade project at their cost. This will require additional staff time to review the proposal and manage the cost share throughout the project. The remaining amount is for District staff time and should not be considered as part of the potential USFS settlement amount. Design for the campground re-construction will be complete in 2018 and anticipated construction in 2020.

Basis for Priority:

This project is required to comply with the FERC License Condition No. 50.1 and USFS 4(e) Condition requirements. The District is requesting FERC and FS approval of a time extension to October 18, 2019 to allow additional time to complete consultation with the FS, complete environmental review, obtain the necessary permits, and construct the improvements.

Project Financial Summary:			
Funded to Date:	$ 223,935	Expenditures through end of year:	$ 204,757
Spent to Date:	$ 179,757	2019 - 2023 Planned Expenditures:	$ 4,020,000
Cash flow through end of year:	$ 25,000	Total Project Estimate:	$ 4,224,757
Project Balance	$ 19,178	Additional Funding Required	$ 4,000,822

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design	$ 20,000					$ 20,000
Construction (Campground)		$ 3,000,000				$ 3,000,000
Construction (Water System)		$ 1,000,000				$ 1,000,000
TOTAL	$ 20,000	$ 4,000,000	$ -	$ -	$ -	$ 4,020,000

Estimated Funding Sources	Percentage	2019	Amount
Water FCCs	53%		$436
Water Rates	47%		$386
Total	100%		$822

Funding Comments: Project funding represents the cost estimates agreed upon by USFS and EID in the Dangermond Report for the campground improvements and have been adjusted to reflect 2018 dollars and staff time.

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06086H

Project Name: FERC C33 Lake Aloha Trout Removal

Project Category: Regulatory Requirements

Priority: 1 **PM:** Deason **Board Approval:** 01/28/19

Project Description:

Mandatory requirement of the FERC license. Funding only necessary in years when a spill occurs over the auxiliary dams at Lake Aloha. If spill occurs, EID is required to manually remove trout from the pools downstream of the auxiliary dams to help reduce potential impacts to mountain yellow-legged frogs by trout predation.

Basis for Priority:

If unfunded, EID would be out of compliance with the FERC license, Section 7 of the Settlement Agreement, USFS 4(e) conditions 33, and SWRCB Water Quality Certification condition 4.

Project Financial Summary:			
Funded to Date:	$ 87,000	Expenditures through end of year:	$ 44,671
Spent to Date:	$ 44,671	2019 - 2023 Planned Expenditures:	$ 12,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 56,671
Project Balance	$ 42,329	Additional Funding Required	$ -

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning	$12,000	$0	$0	$0	$0	$ 12,000
Design						$ -
Construction						$ -
						$ -
TOTAL	$ 12,000	$ -	$ -	$ -	$ -	$ 12,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$0
Water Rates	47%	$0
		$0
Total	100%	$0

Funding Comments: Amphibian surveys also required if Lake Aloha spills; funding for amphibian surveys from CIP # 06089H

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06087H

Project Name: FERC C37.1 Fish Monitoring

Project Category: Regulatory Requirements

Priority: 1 **PM:** Deason **Board Approval:** 01/28/19

Project Description:

Mandatory requirement of the FERC license. The objective of this monitoring effort is to evaluate the status of fish populations in selected stream reaches for comparison to the ecological resource objectives to help determine if ecological resource objectives are achievable and being met, as specified in the El Dorado Hydroelectric Project No. 184 Adaptive Management Program.

Basis for Priority:

If unfunded, EID would be out of compliance with the FERC license, Section 7 of the Settlement Agreement, USFS 4(e) conditions 37, and SWRCB Water Quality Certification condition 13.

Project Financial Summary:			
Funded to Date:	$ 290,000	Expenditures through end of year:	$ 266,720
Spent to Date:	$ 266,720	2019 - 2023 Planned Expenditures:	$ 150,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 416,720
Project Balance	$ 23,280	Additional Funding Required	$ 126,720

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Monitoring			$ 60,000	$ 60,000		$ 120,000
Staff time			$ 15,000	$ 15,000		$ 30,000
						$ -
TOTAL	$ -	$ -	$ 75,000	$ 75,000	$ -	$ 150,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$0
Water Rates	47%	$0
		$0
Total	100%	$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06088H

Project Name: FERC: C37.2 Macroinvertebrate Monitoring

Project Category: Regulatory Requirements

Priority: 1 **PM:** Deason **Board Approval:** 01/28/19

Project Description:

Mandatory requirement of the FERC license. The objective of this monitoring effort is to evaluate the status of macroinvertebrates in selected stream reaches for comparison to the ecological resource objectives to help determine if ecological resource objectives are achievable and being met, as specified in the El Dorado Hydroelectric Project No. 184 Adaptive Management Program.

Basis for Priority:

If unfunded, EID would be out of compliance with the FERC license, Section 7 of the Settlement Agreement, USFS 4(e) conditions 37, and SWRCB Water Quality Certification condition 13.

Project Financial Summary:			
Funded to Date:	$ 216,000	Expenditures through end of year:	$ 188,234
Spent to Date:	$ 188,234	2019 - 2023 Planned Expenditures:	$ 130,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 318,234
Project Balance	$ 27,766	Additional Funding Required	$ 102,234

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Monitoring			$ 60,000	$ 60,000		$ 120,000
Staff time			$ 5,000	$ 5,000		$ 10,000
						$ -
						$ -
TOTAL	$ -	$ -	$ 65,000	$ 65,000	$ -	$ 130,000

Estimated Funding Sources	Percentage	2019	Amount
Water FCCs	53%		$0
Water Rates	47%		$0
			$0
Total	100%		$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06089H

Project Name: FERC: C37.3 Amphibian Monitoring

Project Category: Regulatory Requirements

Priority: 1 **PM:** Deason **Board Approval:** 01/28/19

Project Description:

Mandatory requirement of the FERC license. Amphibian surveys are required June through September if at any time flows in the South Fork of the American River (SFAR) are 100 cfs or less and the diversion into the canal causes the flow in the SFAR to change 50 cfs or more in 1 day. The objective of these surveys is to assess the effects of flow fluctuations on foothill yellow-legged frog egg masses and tadpoles. Amphibian surveys for mountain yellow-legged frog (MYLF) and foothill yellow-legged frog (FYLF) are also required every five years at project reservoirs and stream reaches as part of the El Dorado Hydroelectric Project No. 184 Adaptive Management Program. Amphibian surveys are also required in years when a spill occurs over the auxiliary dams at Lake Aloha. If spill occurs, EID is required to survey for mountain yellow-legged frogs in the pools downstream of the auxiliary dams.

Basis for Priority:

If unfunded, EID would be out of compliance with the FERC license, Section 7 of the Settlement Agreement, USFS 4(e) conditions 37, and SWRCB Water Quality Certification condition 13.

Project Financial Summary:			
Funded to Date:	$ 293,000	Expenditures through end of year:	$ 276,692
Spent to Date:	$ 276,692	2019 - 2023 Planned Expenditures:	$ 92,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 368,692
Project Balance	$ 16,308	Additional Funding Required	$ 75,692

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
FYLF/MYLF monitoring			$ 75,000			$ 75,000
SFAR flow fluctuations	$ 5,000	$ -	$ -	$ -	$ -	$ 5,000
Lake Aloha monitoring	$ 12,000	$ -	$ -	$ -	$ -	$ 12,000
						$ -
TOTAL	$ 17,000	$ -	$ 75,000	$ -	$ -	$ 92,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$367
Water Rates	47%	$325
		$0
Total	100%	$692

Funding Comments: Flow fluctuation monitoring only required if license criteria is triggered. Monitoring at Lake Aloha is only necessary in years when a spill occurs over the auxiliary dams.

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06090H

Project Name: FERC: C37.4 Riparian Species Composition

Project Category: Regulatory Requirements

Priority: 1 **PM:** Deason **Board Approval:** 01/28/19

Project Description:

Mandatory requirement of the FERC license. The objective of this monitoring effort is to evaluate riparian species composition at selected stream reaches for comparison to the ecological resource objectives to help determine if ecological resource objectives are achievable and being met, as specified in the El Dorado Hydroelectric Project No. 184 Adaptive Management Program.

Basis for Priority:

If unfunded, EID would be out of compliance with the FERC license, Section 7 of the Settlement Agreement, USFS 4(e) conditions 37, and SWRCB Water Quality Certification condition 13.

Project Financial Summary:			
Funded to Date:	$ 35,000	Expenditures through end of year:	$ 34,051
Spent to Date:	$ 34,051	2019 - 2023 Planned Expenditures:	$ 25,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 59,051
Project Balance	$ 949	Additional Funding Required	$ 24,051

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Monitoring			$ 20,000			$ 20,000
Staff time			$ 5,000			$ 5,000
						$ -
						$ -
TOTAL	$ -	$ -	$ 25,000	$ -	$ -	$ 25,000

Estimated Funding Sources	Percentage	2019	Amount
Water FCCs	53%		$0
Water Rates	47%		$0
			$0
Total	100%		$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06091H

Project Name: FERC: C37.5 Riparian Vegetation Recruitment

Project Category: Regulatory Requirements

Priority: 1 **PM:** Deason **Board Approval:** 01/28/19

Project Description:

Mandatory requirement of the FERC license. The objective of this monitoring effort is to evaluate riparian vegetation recruitment at selected stream reaches for comparison to the ecological resource objectives to help determine if ecological resource objectives are achievable and being met, as specified in the El Dorado Hydroelectric Project No. 184 Adaptive Management Program.

Basis for Priority:

If unfunded, EID would be out of compliance with the FERC license, Section 7 of the Settlement Agreement, USFS 4(e) conditions 37, and SWRCB Water Quality Certification condition 13.

Project Financial Summary:			
Funded to Date:	$ 35,000	Expenditures through end of year:	$ 34,093
Spent to Date:	$ 34,093	2019 - 2023 Planned Expenditures:	$ 25,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 59,093
Project Balance	$ 907	Additional Funding Required	$ 24,093

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Monitoring			$ 20,000			$ 20,000
Staff Time			$ 5,000			$ 5,000
						$ -
						$ -
TOTAL	$ -	$ -	$ 25,000	$ -	$ -	$ 25,000

Estimated Funding Sources	Percentage	2019	Amount
Water FCCs	53%		$0
Water Rates	47%		$0
			$0
Total	100%		$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06092H

Project Name: FERC: C37.7 Geomorphology Evaluation

Project Category: Regulatory Requirements

Priority: 1 **PM:** Deason **Board Approval:** 01/28/19

Project Description:

Mandatory requirement of the FERC license. The objective of this monitoring effort is to monitor representative stream channel areas for comparison to the ecological resource objectives to help determine if ecological resource objectives are achievable and being met, as specified in the El Dorado Hydroelectric Project No. 184 Adaptive Management Program.

Basis for Priority:

If unfunded, EID would be out of compliance with the FERC license, Section 7 of the Settlement Agreement, USFS 4(e) conditions 37, and SWRCB Water Quality Certification condition 13.

Project Financial Summary:			
Funded to Date:	$ 104,276	Expenditures through end of year:	$ 102,367
Spent to Date:	$ 102,367	2019 - 2023 Planned Expenditures:	$ 95,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 197,367
Project Balance	$ 1,909	Additional Funding Required	$ 93,091

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Monitoring		$ 20,000	$ 65,000			$ 85,000
Staff time			$ 10,000			$ 10,000
						$ -
						$ -
TOTAL	$ -	$ 20,000	$ 75,000	$ -	$ -	$ 95,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$0
Water Rates	47%	$0
		$0
Total	100%	$0

Funding Comments: Includes post-project monitoring in 2019 for Oyster Creek Stabilization Plan 06019H and Caples Spillway Channel Stabilization Plan 06076H

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06096H

Project Name: FERC: C55 Heritage Resources

Project Category: Regulatory Requirements

Priority: 1 **PM:** Deason **Board Approval:** 01/28/19

Project Description:

Mandatory requirement of the FERC license. Funding is necessary to complete and implement the Heritage Properties Management Plan (HPMP). The HPMP provides management protocols and mitigation measures for the ongoing protection of archaeological resources located within the FERC boundary.

Basis for Priority:

If unfunded, EID would be out of compliance with the FERC license and USFS 4(e) conditions 55 and 56.

Project Financial Summary:			
Funded to Date:	$ 279,580	Expenditures through end of year:	$ 208,344
Spent to Date:	$ 208,344	2019 - 2023 Planned Expenditures:	$ 55,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 263,344
Project Balance	$ 71,236	Additional Funding Required	$ -

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Reporting	$50,000	*	*	*	*	$ 50,000
Staff Time	$ 5,000					$ 5,000
						$ -
						$ -
TOTAL	$ 55,000	$ -	$ -	$ -	$ -	$ 55,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$0
Water Rates	47%	$0
		$0
Total	100%	$0

Funding Comments: Funding is needed in 2019 to conduct an evaluation of the historic rock walls that are located along the El Dorado Canal.

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06097H

Project Name: FERC: C59 Facility Management Plan

Project Category: Regulatory Requirements

Priority: 1 **PM:** Gibson **Board Approval:** 01/28/19

Project Description:

Required by the License Settlement Agreement, and the USFS 4(e) Condition 59: Within 1 year of license issuance, the licensee shall file with FERC a Facility Management Plan that is approved by the FS. The licensee shall implement the plan upon approval. Every 5 years, the licensee shall prepare a 5-year plan that will identify the maintenance, reconstruction, and removal needs for Project facilities within the FERC boundary and located on Forest Service property. The plan was approved by the USFS and filed with FERC. Items remaining to be evaluated include: buildings at Spillway 20A boathouse; the winch house at the surge chamber, and the water tank shed. The next plan update is scheduled for 2022. Future costs are subject to change based on the scope of the new plan. Access can now be made to potentially remove buildings in the vicinity of spillway 20, paint or restain remaining buildings, clear brush and trees by Camp 2 house.

Basis for Priority:

Project is required by Project 184 license and is on-going.

Project Financial Summary:			
Funded to Date:	$ 70,000	Expenditures through end of year:	$ 47,458
Spent to Date:	$ 47,458	2019 - 2023 Planned Expenditures:	$ 15,000
Cash flow through end of year:		Total Project Estimate:	$ 62,458
Project Balance	$ 22,542	Additional Funding Required	$ -

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning				$ 15,000		$ 15,000
Design						$ -
Construction						$ -
						$ -
TOTAL	$ -	$ -	$ -	$ 15,000	$ -	$ 15,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$0
Water Rates	47%	$0
		$0
Total	100%	$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 06098H

Project Name: FERC: C46 thru C49 Recreation Resource Management

Project Category: Regulatory Requirements

Priority: 1 **PM:** Hawkins **Board Approval:** 01/28/19

Project Description:

Required by the new FERC License, Settlement Agreement, and the USFS 4(e) Conditions. Conditions 46-49: Condition No. 46 – Implementation Plan. A recreation implementation plan shall be developed by the licensee in coordination with the FS within 6 months of license issuance. Condition No. 47 - Recreation Survey. The licensee shall conduct a Recreational Survey and prepare a Report on Recreational Resources that is approved by the FS every 6 years from the date of license issuance. Condition No. 48 – Forest Service Liaison. The FS and the licensee shall each provide an individual for liaison whenever planning or construction of recreation facilities, other major Project improvements, and maintenance activities are taking place within the National Forest. Condition No. 49 - Review of Recreation Developments. The FS and the licensee shall meet at least every 6 years to review all recreation facilities and areas associated with the Project and to agree upon necessary maintenance, rehabilitation, construction, and reconstruction work needed and its timing, as described in Conditions No. 49 and 50. Following the review, the licensee shall develop a 6-year schedule for maintenance, rehabilitation, and reconstruction.

This is a mandatory requirement of the October 18, 2006 FERC Order Issuing New License

Basis for Priority:

EID would not be able to comply with the FERC License, Settlement Agreement and USFS 4(e) Condition requirements.

Project Financial Summary:			
Funded to Date:	$ 304,888	**Expenditures through end of year:**	$ 282,206
Spent to Date:	$ 277,206	**2019 - 2023 Planned Expenditures:**	$ 70,000
Cash flow through end of year:	$ 5,000	**Total Project Estimate:**	$ 352,206
Project Balance	$ 22,682	**Additional Funding Required**	$ 47,318

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Survey					$ 70,000	$ 70,000
Reporting						$ -
						$ -
TOTAL	$ -	$ -	$ -	$ -	$ 70,000	$ 70,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$0
Water Rates	47%	$0
		$0
Total	**100%**	**$0**

Funding Comments: Reporting and agency consultation for the 2023 survey will be performed in 2024 with an estimated cost of approximately $15K

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 07003H

Project Name: FERC: C37.9 Water Quality

Project Category: Regulatory Requirements

Priority: 1 **PM:** Deason **Board Approval:** 01/28/19

Project Description:

Mandatory requirement of the FERC license. Funding is necessary to implement the water quality monitoring program at Project No. 184 reservoirs and stream reaches. The data collected from this monitoring effort will be used to characterize water quality under current project operations and help determine if applicable water quality objectives/criteria are being met and whether designated beneficial uses are protected.

Basis for Priority:

If unfunded, EID would be out of compliance with the FERC license, Section 7 of the Settlement Agreement, USFS 4(e) conditions 37, and SWRCB Water Quality Certification condition 13.

Project Financial Summary:			
Funded to Date:	$ 552,000.00	Expenditures through end of year:	$ 537,551
Spent to Date:	$ 512,551	2019 - 2023 Planned Expenditures:	$ 80,000
Cash flow through end of year:	$ 25,000	Total Project Estimate:	$ 617,551
Project Balance	$ 14,449	Additional Funding Required	$ 65,551

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Monitoring			$ 40,000			$ 40,000
Lab analysis			$ 25,000			$ 25,000
Staff time			$ 15,000			$ 15,000
						$ -
						$ -
TOTAL	$ -	$ -	$ 80,000	$ -	$ -	$ 80,000

Estimated Funding Sources	Percentage	2019	Amount
Water FCCs	53%		$0
Water Rates	47%		$0
			$0
Total	100%		$0

Funding Comments: Future monitoring dependent on agency review of first five years monitoring results (2008, 2010, 2012, 2014, and 2016). Staff is currently consulting with the FS, SWRCB, and ERC to reduce or eliminate monitoring for parameters and/or at sites that are not affected by Project operations.

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 07005H

Project Name: FERC: C51.3 RM Echo Trailhead

Project Category: Regulatory Requirements

Priority: 1 **PM:** Hawkins **Board Approval:** 01/28/19

Project Description:

Required by the FERC License, Settlement Agreement, and the USFS 4(e) Condition 51.3, which requires the District to provide funding for the following activities at Echo Lakes Trailhead:

a. Toilet pumping.
b. Trash removal/litter pick-up within the site.

Funding under this CIP is required to pay the costs for toilet pumping and capitalized labor for operations staff to clean up litter within the site.

Basis for Priority:

EID would not be able to comply with the FERC License, Settlement Agreement and USFS 4(e) Condition requirements.

Project Financial Summary:			
Funded to Date:	$ 30,000	Expenditures through end of year:	$ 21,693
Spent to Date:	$ 20,193	2019 - 2023 Planned Expenditures:	$ 40,000
Cash flow through end of year:	$ 1,500	Total Project Estimate:	$ 61,693
Project Balance	$ 8,307	Additional Funding Required	$ 31,693

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Services	$5,000	$5,000	$5,000	$5,000	$5,000	$ 25,000
Staff time	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 15,000
						$ -
						$ -
TOTAL	$ 8,000	$ 8,000	$ 8,000	$ 8,000	$ 8,000	$ 40,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$0
Water Rates	47%	$0
		$0
Total	100%	$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 07006H

Project Name: FERC: C51.5 and C51.7 RM USFS Payments

Project Category: Regulatory Requirements

Priority: 1 **PM:** Hawkins **Board Approval:** 01/28/19

Project Description:

Required by the FERC License, Settlement Agreement, and USFS 4(e) Condition 51, which, in part, requires the District to provide funding for the following activities:

5. Special Use Administration Funding: The licensee shall annually pay, by October 1, the amount of $4,800 (year 2002 cost basis) to provide for performing monitoring and permit compliance assurance for the campground concessionaire special use permits at Caples Lake Campground and Silver Lake East Campground. The costs shall be escalated based on the U.S. Gross Domestic Product – Implicit Price Deflator (GDP-IDP).

7. Dispersed Area Patrol Funding on Lands Affected by the Project: The licensee shall annually pay, by October 1, $25,000 (year 2002 cost basis). The cost shall be escalated based on the U.S. Gross Domestic Product – Implicit Price Deflator (GDP-IDP). These funds are to provide for patrol and operation of non-concessionaire developed and dispersed recreation facilities, as well as trails and other locations utilized by visitors to the Project, within and adjacent to the Project boundary. The licensee shall annually provide a boat and operator at least twice each season (time to be determined by mutual agreement between the licensee and the FS) on Caples Lake and Silver Lake to share with the FS in policing the shoreline along Silver Lake and Caples Lake, and to clean up litter.

Funding under this CIP is required to pay the annual fees to the USFS for special use administration and dispersed area patrol on USFS lands affected by the Project and for capitalized labor to patrol the shoreline and clean up litter at Silver Lake and Caples Lake.

Basis for Priority:

EID would not be able to comply with the FERC License, Settlement Agreement and USFS 4(e) Condition requirements.

Project Financial Summary:			
Funded to Date:	$ 462,029	Expenditures through end of year:	$ 494,077
Spent to Date:	$ 447,706	2019 - 2023 Planned Expenditures:	$ 273,501
Cash flow through end of year:	$ 46,371	Total Project Estimate:	$ 767,578
Project Balance	$ (32,048)	Additional Funding Required	$ 305,549

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Fees	$47,762	$49,195	$50,671	$52,191	$53,682	$ 253,501
Staff time	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 20,000
						$ -
						$ -
TOTAL	$ 51,762	$ 53,195	$ 54,671	$ 56,191	$ 57,682	$ 273,501

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$44,419
Water Rates	47%	$39,391
		$0
Total	100%	$83,810

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 07010H

Project Name: FERC: C15 Pesticide Use

Project Category: Regulatory Requirements

Priority: 1 **PM:** Gibson **Board Approval:** 01/28/19

Project Description:

Mandatory requirement of the FERC license. Funding is requested to implement the integrated pest management plan (IPMP). The IPMP addresses pesticide use at EID facilities within the jurisdiction of the El Dorado National Forest (ENF) and Lake Tahoe Basin Management Unit (LTBMU).

Basis for Priority:

If unfunded, EID would be out of compliance with the FERC license and USFS 4(e) condition 15.

Project Financial Summary:			
Funded to Date:	$ 773,000	Expenditures through end of year:	$ 678,892
Spent to Date:	$ 678,892	2019 - 2023 Planned Expenditures:	$ 350,000
Cash flow through end of year:		Total Project Estimate:	$ 1,028,892
Project Balance	$ 94,108	Additional Funding Required	$ 255,892

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Implementation	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 300,000
Equipment / Supplies	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 50,000
						$ -
						$ -
TOTAL	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 350,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$0
Water Rates	47%	$0
		$0
Total	100%	$0

Funding Comments: Need to update the plan in 2018 which is anticipated to cost approximately $10k

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 07011H

Project Name: FERC: C38 Adaptive Management Program

Project Category: Regulatory Requirements

Priority: 1 **PM:** Deason **Board Approval:** 01/28/19

Project Description:

Mandatory requirement of the FERC license. Funding is for staff time to implement the adaptive management program (Condition 38) of the FERC license. This program requires coordination with the Ecological Resources Committee (ERC), implementation of the resource monitoring program, and evaluation of monitoring results to determine if resource objectives are achievable and being met.

Basis for Priority:

If unfunded, EID would be out of compliance with the FERC license, Section 14 of the Settlement Agreement, and USFS 4(e) condition 38.

Project Financial Summary:			
Funded to Date:	$ 602,000	Expenditures through end of year:	$ 587,348
Spent to Date:	$ 567,348	2019 - 2023 Planned Expenditures:	$ 250,000
Cash flow through end of year:	$ 20,000	Total Project Estimate:	$ 837,348
Project Balance	$ 14,653	Additional Funding Required	$ 235,348

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Implementation	$50,000	$50,000	$50,000	$50,000	$50,000	$ 250,000
						$ -
						$ -
						$ -
TOTAL	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 250,000

Estimated Funding Sources	Percentage	2019	Amount
Water FCCs	53%		$18,734
Water Rates	47%		$16,613
			$0
Total	100%		$35,348

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 07030H

Project Name: FERC: C57 Transportation System Management Plan

Project Category: Regulatory Requirements

Priority: 1 **PM:** Gibson **Board Approval:** 01/28/19

Project Description:

Condition 57 states within 1 year of license issuance, the licensee shall file with FERC a transportation system management plan that is approved by the FS for roads on or affecting National Forest System lands. The plan was prepared and approved and established the level of licensee responsibility for project-related roads. Also included in this CIP is the Trails Maintenance Plan. Plan updates include consultation with the Forest Service. Future costs are subject to change based on the scope of the new plan. Camp 1 culvert work is planned to be completed by the end of 2017.

Basis for Priority:

Project is required by Project 184 license and is on-going.

Project Financial Summary:			
Funded to Date:	$ 80,000	Expenditures through end of year:	$ 45,877
Spent to Date:	$ 45,877	2019 - 2023 Planned Expenditures:	$ 25,000
Cash flow through end of year:		Total Project Estimate:	$ 70,877
Project Balance	$ 34,123	Additional Funding Required	$ -

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design						$ -
Construction	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 25,000
						$ -
TOTAL	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 25,000

Estimated Funding Sources	Percentage	2019 Amount
Water FCCs	53%	$0
Water Rates	47%	$0
		$0
Total	100%	$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	FERC

Project Number: 08025H

Project Name: FERC C44 Noxious Weed Monitoring

Project Category: Regulatory Requirements

Priority: 1 **PM:** Deason **Board Approval:** 01/28/19

Project Description:

Mandatory requirement of the FERC license. Funding is requested to implement the noxious weed plan for the prevention and control of noxious weeds at Project No. 184 facilities. The plan was amended in 2012 to reduce annual monitoring requirements to conduct annual surveys only at areas where high priority noxious weeds are known to occur and at areas where ground disturbance occurred during the previous year. The amended plan also specifies that the entire project area only needs to be surveyed every 5 years. This amendment significantly reduced the scope and cost associated with this requirement.

Basis for Priority:

If unfunded, EID would be out of compliance with the FERC license, Section 8 of the Settlement Agreement, and USFS 4(e) condition 44.

Project Financial Summary:			
Funded to Date:	$ 237,342	Expenditures through end of year:	$ 228,741
Spent to Date:	$ 219,741	2019 - 2023 Planned Expenditures:	$ 100,000
Cash flow through end of year:	$ 9,000	Total Project Estimate:	$ 328,741
Project Balance	$ 8,601	Additional Funding Required	$ 91,399

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Implementation	$15,000	$15,000	$30,000	$15,000	$15,000	$ 90,000
Reporting	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 10,000
						$ -
						$ -
TOTAL	$ 17,000	$ 17,000	$ 32,000	$ 17,000	$ 17,000	$ 100,000

Estimated Funding Sources	Percentage	2019	Amount
Water FCCs	53%		$4,451
Water Rates	47%		$3,947
			$0
Total	100%		$8,399

Funding Comments: The monitoring plan requires the entire project area be surveyed every five years - this survey is scheduled to be conducted in 2021.

Water Projects

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 06004G

Project Name: SMUD / El Dorado Agreement Water Rights

Project Category: Regulatory Requirements

Priority: 2 **PM:** Poulsen **Board Approval:** 01/28/19

Project Description:

The Sacramento Municipal Utility District and El Dorado County interests, including EID, signed an agreement in 2005 that allows for the use of SMUD's UARP reservoirs for county water storage. The agreement did not include water rights. The transfer of City of Sacramento's or related water rights is the most logical source and application has been made to the SWRCB for that change. The SMUD/El Dorado Agreement provides EID with 30,000 acre feet of storage annually up to 2030. Thereafter, 40,000 acre feet of storage annually is provided. Additionally the agreement allows for the banking of up to 15,000 acre feet for drought carryover storage in dry year conditions.
EID is a party to a 2007 cost share agreement with the El Dorado Water and Power Authority (EDWPA) to pursue the water rights for the SMUD/El Dorado Agreement. EID's share under that agreement is approximately 36%, with El Dorado County and El Dorado County contributing approximately 32% each. Any costs associated with one-time acquisition of up to 15,000 acre-feet of drought storage are not included in this request, although efforts to do so are ongoing, because of the uncertain timing and cost of such an acquisition.

Basis for Priority:

The District's 2015 Urban Water Management Plan, its 2013 Water Resources Master Plan, and several Water Supply Assessments completed in 2013 all identify this project as a source of water supply to serve the District's long-term needs. Categorized as Priority 1, required by agreement.

Project Financial Summary:			
Funded to Date:	$ 2,880,187	Expenditures through end of year:	$ 2,770,697
Spent to Date:	$ 2,770,697	2019 - 2023 Planned Expenditures:	$ 1,687,500
Cash flow through end of year:		Total Project Estimate:	$ 4,458,197
Project Balance	$ 109,490	Additional Funding Required	$ 1,578,010

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning	$337,500	$337,500	$337,500	$ 337,500	$ 337,500	$ 1,687,500
Design						$ -
Construction						$ -
15,000 af acquisition						$ -
TOTAL	$ 337,500	$ 337,500	$ 337,500	$ 337,500	$ 337,500	$ 1,687,500

Estimated Funding Sources	Percentage	2019	Amount
Water FCCs	100%		$228,010
Total	100%		$228,010

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 11032

Project Name: Main Ditch - Forebay to Reservoir 1

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Mueller **Board Approval:** 01/28/19

Project Description:

The Upper Main Ditch is approximately three miles long and conveys a maximum of 15,080 acre-feet of raw water annually at a maximum rate of 40 cubic feet per second from Forebay Reservoir to the Reservoir 1 Water Treatment Plant. Because the Main Ditch is an unlined earthen canal, a portion of the flow up to 1,800 acre-feet per year on average, is lost to seepage and evapotranspiration. This water could be made available for drinking water or power generation. Piping the Upper Main Ditch provides: improved supply reliability; elimination of contamination potential; reduced operations and maintenance costs; water rights protection from unreasonable use claims; reduction in Folsom Reservoir pumping costs in the long term; and on an interim basis, increased hydroelectric revenues. The District has received $568,000 in grant funding from the El Dorado County Water Agency (EDCWA) that has been used to conduct environmental, wetlands, and cultural resources studies, surveys and design work. The Department of Water Resources and Reclamation have both committed grants totalling over $2 million for construction of the project. The Draft EIR is in public review and the Final EIR is anticipated to be considered in early 2019. Construction is estimated to start mid-2019-2020. The District updated the cost estimate for the Blair Road alternative which is likely the most expensive alignment considered in the EIR. Estimated annual expenditures are reduced to account for the remaining two grants.

Basis for Priority:

Improves water quality, conserves water supply, protects health and safety of customer and the public and reduces operations costs.

Project Financial Summary:			
Funded to Date:	**$ 2,244,918**	**Expenditures through end of year:**	**$ 2,080,540**
Spent to Date:	**$ 1,930,540**	**2019 - 2023 Planned Expenditures:**	**$ 9,100,000**
Cash flow through end of year:	**$ 150,000**	**Total Project Estimate:**	**$ 13,180,540**
Project Balance	**$ 164,378**	**Additional Funding Required**	**$ 8,935,622**

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design/Environmental	$100,000					**$ 100,000**
Construction	$3,500,000	$6,500,000				**$ 10,000,000**
Construction Admin	$250,000	$750,000				**$ 1,000,000**
Subtotal	**$3,850,000**	**$7,250,000**				**$ 11,100,000**
Grant offsets	$1,000,000	$1,000,000				**$ 2,000,000**
NET TOTAL	**$ 2,850,000**	**$ 6,250,000**	**$ -**	**$ -**	**$ -**	**$ 9,100,000**

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$2,685,622
Total	**100%**		**$2,685,622**

Funding Comments: The project replaces an existing facility, therefore is funded by water rates. The District has two remaining grants to offset future construction costs totaling approximately $2 million. In addition, $1.4 million in funding from EDCWA and the Carson Creek conservation charge has/will be collected to offset total project costs.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 13015

Project Name: Outingdale Lower Tank Replacement

Project Category: Reliability & Service Level Improvements

Priority: 1 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

Originally constructed in 1993, the tank is 25 years old and has suffered extensive corrosion and deterioration of the rafters and their mounting brackets, reducing structural reliability and confidence for continued service. The total combined storage provided by the Upper and Lower Outingdale tanks is insufficient to meet the total of two hour, 1,000 GPM fire flow plus emergency and equalization volume requirements. The Board awarded a contract to install a bolted steel tank to replace the existing tank on November 17, 2017, and is currently under construction. The tank foundation has been installed and the contractor is currently awaiting tank delivery. The remaining funding is to complete construction of the new bolted tank with internal baffling for added chlorine contact time.

Basis for Priority:

This existing asset is critical to the operation of the Outingdale Water Treatment Plant and providing chlorine contact time in accordance with drinking water regulations. The existing tank is currently in a failing condition.

Project Financial Summary:			
Funded to Date:		Expenditures through end of year:	$ 20,000
Spent to Date:		2019 - 2023 Planned Expenditures:	$ 500,000
Cash flow through end of year:	$ 20,000	Total Project Estimate:	$ 520,000
Project Balance	$ (20,000)	Additional Funding Required	$ 520,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Construction	$ 500,000					$ 500,000
TOTAL	$ 500,000	$ -	$ -	$ -	$ -	$ 500,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$520,000
Total	100%		$520,000

Funding Comments: Project involves storage capacity to meet current regulations only, with no planned increase in potable water delivery capacity, therefore funding is 100% water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 15009

Project Name: Sly Park Intertie Improvements

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The Sly Park Intertie is a key component of supply reliability in times of drought and during emergencies. It provides water delivery flexibility between Jenkinson Reservoir and Forebay supplies. The Intertie includes approximately 3.4 miles of 22"/30" steel waterline built under emergency conditions just after the 1976-77 drought. The unlined pipeline has corroded significantly, resulting in periodic leaks and is currently out of service. The Sly Park Intertie Improvements were identified as a supply reliability project in the 2013 Integrated Water Resources Master Plan. Previous engineering reports from the mid 1990's and in 2006 explored the possibility of rehabilitating the pipeline with a non-structural liner. The 2006 Basis of Design Report (BODR) concluded that even with 13-30% wall thickness loss. An updated BODR in 2018 includes analysis of changed operations that could reduce pumping head up to 180 feet by pumping water from Reservoir A to Reservoir 1 during annual Forebay outages, rehabilitation options, direct replacement alternatives analysis, and a financial analysis. The ability to move water between Reservoir 1 and Reservoir A will also allow for a long overdue inspection of the 60 year old Camino Conduit between Sly Park Reservoir and Reservoir A and provide a longer window for scheduled Reservoir A WTP maintenance. The estimated pipeline construction project cost at this time is $22 million for an open cut replacement based on the June 2018 Draft Evaluation of Rehabilitation Alternatives Technical Memorandum. The technical memorandum also identifies an additional $5.5 million for a new pump station at Reservoir A that would pump water to Reservoir 1 during the Forebay outage. The feasibility of this project element has not been fully investigated to date and therefore is not included in the planning horizon of this CIP. Cost estimates are based on a 10% design level of confidence and include a 30% construction contingency. Typical contingencies for 10% design level cost estimates range between 30% and 100%. The contingency used for this cost estimate is at the low end of the range and higher actual costs are likely.

Basis for Priority:

Replacement of the pipeline and installation of a new pump station will ensuring water supply flexibility/reliability between the two major gravity supply sources that provide two thirds of the District's water supply.

Project Financial Summary:			
Funded to Date:	$ 584,552	**Expenditures through end of year:**	$ 572,251
Spent to Date:	$ 502,251	**2019 - 2023 Planned Expenditures:**	$ 1,115,000
Cash flow through end of year:	$ 70,000	**Total Project Estimate:**	$ 1,687,251
Project Balance	$ 12,301	**Additional Funding Required**	$ 1,102,699

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Engineering	$5,000	$5,000	$5,000	$ 300,000	$ 300,000	$ 615,000
Environmental				$ 200,000	$ 200,000	$ 400,000
Right of Way				$ 50,000	$ 50,000	$ 100,000
Construction Management/Inspection						$ -
Construction						$ -
TOTAL	$ 5,000	$ 5,000	$ 5,000	$ 550,000	$ 550,000	$ 1,115,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	100%	$0
Total	**100%**	**$0**

Funding Comments: The project extends the life of the facility and restores the intended design capacity, therefore is funded by water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 15024

Project Name: Folsom Lake Raw Water Pump Station Improvements

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Money **Board Approval:** 01/28/19

Project Description:

The Folsom Lake Raw Water Pump Station (FLRWPS) delivers EID water supplied from Folsom Lake to the El Dorado Hills Water Treatment Plant (EDHWTP) and is critical to service reliability for the El Dorado Hills service area. In 2005, the District entered into a cooperation agreement with Reclamation for the design and construction of a Temperature Control Device for the benefit and propagation of Chinook salmon and steelhead trout in the lower American River. The federal funding amount, which is specified for the District's facility pursuant to federal legislation, was fifty percent of the eligible costs not to exceed $6,250,000. Minimum federal funding of $5.7 million is included to account for funds already expended, and staff is seeking additional funding appropriations to include inflation adjustments. The FLRPS needs to be upgraded to provide for reliability, long-term operational needs and temperature control. A basis of design report was completed in February 2018 that includes a design for a replacement facility that can provide the minimum current permitted capacity of the EDHWTP (19.5 MGD), and that can be expanded to a planned buildout firm capacity of 26 MGD at some future point. The facility will also allow selective withdrawal of water based on temperature to allow the District to access the second 8,500 acre-feet (AF) Permit 21112 water rights. The BODR recommends a new facility with multiple submersible pumps on the inclined slope pumping directly to the EDHWTP at an estimated project cost of $22.3 M. This estimate is based on a 95% level of design. Final design is expected to be complete by February 1, 2019, and staff is anticipating a contract award in May 2019 after environmental and permitting is complete. Construction is anticipated to run through 2020 with final completion in 2021.

Basis for Priority:

The critical nature of this pump station, age and poor condition of pumps, number of repeated pump failures, difficulty obtaining and high cost of repair parts for 1958 vintage A-side booster pumps is the basis for Priority 1 ranking. This project is needed to maintain service and meet demand for public health and safety purposes.

Project Financial Summary:			
Funded to Date:	$ 1,447,464	Expenditures through end of year:	$ 1,292,431
Spent to Date:	$ 692,431	2019 - 2023 Planned Expenditures:	$ 17,400,000
Cash flow through end of year:	$ 600,000	Total Project Estimate:	$ 18,692,431
Project Balance	$ 155,033	Additional Funding Required	$ 17,244,967

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design/Evironmental	$ 100,000	$ 50,000	$ 50,000			$ 200,000
Construction management	$ 250,000	$ 250,000	$ 100,000			$ 600,000
Construction Costs	$ 2,000,000	$ 16,300,000	$ 4,000,000			$ 22,300,000
USBR Cooperative Agreement Offset	$ (700,000)	$ (3,900,000)	$ (1,100,000)			$ (5,700,000)
TOTAL	$ 1,650,000	$ 12,700,000	$ 3,050,000	$ -	$ -	$ 17,400,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	67%	$1,001,628
Water FCCs	33%	$493,339
Total	100%	$1,494,967

Funding Comments: Funding ratio is based on existing installed capacity (16 mgd) compared to the new capacity of 24 mgd.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 16003

Project Name: Permit 21112 Change in Point of Diversion

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Poulsen **Board Approval:** 01/28/19

Project Description:

In 2013, the District adopted the Integrated Water Resources Master Plan which calls for construction of facilities to divert water at the White Rock Penstock, convey the raw water to a new treatment plant in the Western Region, and transmit the treated water. This project is to prepare feasibility studies required to finalize locations and alignments, refine design criteria and sizing, identify land requirements, and update costs estimates. The water to be diverted will be a combination of 1) supplies obtained by the El Dorado Water and Power Authority and made available under the El Dorado-SMUD Cooperation Agreement, and 2) Permit 21112. To take all or any portion of Permit 21112 water upstream, EID must successfully petition the State Water Resources Control Board (SWRCB) for permit changes to add points of diversion and rediversion. The SWRCB Change Petition process encompasses preparation of the Petition (including preliminary engineering, hydrologic, and biological analyses, mapping, legal review, and preliminary meetings with SWRCB staff, California Department of Fish & Wildlife staff, and other stakeholders); California Environmental Quality Act compliance; prosecution of the Petition; evidentiary hearings before the SWRCB if any protests are unresolved; and potentially administrative appeals and litigation. The planned annual expenditures reflect a timeline CEQA compliance and Petition prosecution in 2018, and Petition prosecution and SWRCB hearing in 2019. Any post-hearing proceedings would require additional funding. Following completion of feasibility studies additional engineering will include pre-design, design and environmental studies for construction and construction of the facilities.

Basis for Priority:

This project provides measurable progress toward achieving the District's goals, meeting demands of increased growth within the District's service area, expansion of services made necessary by new development, and increases water supply and reliability. The Change Petition process can take many years, particularly if it requires a hearing before the SWRCB. Although construction of White Rock diversion facilities will not commence for some time, it is prudent to begin this regulatory approval process well in advance of construction.

Project Financial Summary:			
Funded to Date:	**$ 242,409**	**Expenditures through end of year:**	**$ 62,999**
Spent to Date:	**$ 62,999**	**2019 - 2023 Planned Expenditures:**	**$ 350,000**
Cash flow through end of year:	**$ -**	**Total Project Estimate:**	**$ 412,999**
Project Balance	**$ 179,410**	**Additional Funding Required**	**$ 170,590**

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Petition Prep						$ -
CEQA/Environmental	$ 150,000					$ 150,000
Petition Prosecution		$ 100,000				$ 100,000
SWRCB Hearing		$ 100,000				$ 100,000
TOTAL	**$ 150,000**	**$ 200,000**	**$ -**	**$ -**	**$ -**	**$ 350,000**

Estimated Funding Sources	Percentage	2019	Amount
Water FCCs	100%		$0
Total	**100%**		**$0**

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 16005

Project Name: Diamond Springs Parkway / Hwy 49 Improvements

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Money **Board Approval:** 01/28/19

Project Description:

As part of the County's planned Diamond Springs Parkway project, the County plans to make improvements to Hwy 49 in Diamond Springs that will impact existing waterlines. All of the impacted waterlines are located within existing senior easements and therefore the County is required to perform the relocations at their costs. Due to limited hydraulic capacity of some of the existing water lines, the District plans to increase the size (from 8" to 12") as part of the project. The District will be responsible for the incremental cost of the upsizing. The County anticipates construction to commence in 2019.

Basis for Priority:

All of the impacted waterlines are in existing senior easements, and must be relocated at the County's costs. However, based on hydraulic modeling, the District desires to increase the size of these facilities as part of the project and will be responsible for the increased cost. This work would be considered Priority 2.

Project Financial Summary:			
Funded to Date:	$ 219,100	Expenditures through end of year:	$ 33,223
Spent to Date:	$ 28,223	2019 - 2023 Planned Expenditures:	$ 190,000
Cash flow through end of year:	$ 5,000	Total Project Estimate:	$ 223,223
Project Balance	$ 185,877	Additional Funding Required	$ 4,123

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Engineering	$ 10,000					$ 10,000
Inspection	$ 20,000					$ 20,000
Construction	$ 50,000	$ 100,000				$ 150,000
Water Modeling	$ 10,000					$ 10,000
TOTAL	$ 90,000	$ 100,000	$ -	$ -	$ -	$ 190,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	0%		$0
Water FCC's	100%		$0
Total	**100%**		**$0**

Funding Comments: Expenditures are estimates based on a draft County reimbursement agreement. The District share will only pay for upsizing of existing facilities with underlying senior easement rights.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 16039

Project Name: City of Placerville - Western Placerville Interchange Project

Project Category: Reliability & Service Level Improvements

Priority: 1 **PM:** Carrington **Board Approval:** 01/28/19

Project Description:

The City of Placerville is currently constructing a new off ramp on east bound Highway 50 at Ray Lawyer Drive. The project is known as the "Western Placerville Interchange Phase 2". The project requires rerouting portions of Forni Road to make way for the off ramp. The District has existing waterlines in Forni Road that are being impacted by the project and require relocation at District cost since in the public right of way.

As the District has done with many similar projects with the County and City, the District retained the City's consultant to design the waterline relocation. The relocation work would be performed by a contractor retained by the City. The Board approved a reimbursement agreement with the City in 2017.

The project is currently under construction with 1000 feet of waterline and associated appurenances already constructed. The requested budget is to complete the remaining waterline.

Basis for Priority:

The District has facilities that are in the public right of way that will be impacted by the planned projects. The relocation must be done at the District's cost to make way for the City's project.

Project Financial Summary:			
Funded to Date:	$ 986,159	Expenditures through end of year:	$ 871,958
Spent to Date:	$ 861,958	2019 - 2023 Planned Expenditures:	$ 200,000
Cash flow through end of year:	$ 10,000	Total Project Estimate:	$ 1,071,958
Project Balance	$ 114,201	Additional Funding Required	$ 85,799

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Construction	$ 200,000					$ 200,000
TOTAL	$ 200,000	$ -	$ -	$ -	$ -	$ 200,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$85,799
Total	100%		$85,799

Funding Comments: Relocation of existing waterlines.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 16048

Project Name: Outingdale Water Intake Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The community of Outingdale is a satellite community, with only one source of water for public health and safety purposes. The source is the existing river intake which consists of a slotted well screen and flexible hose laid across the river bottom. During low river flow conditions, the intake screen experiences insufficient water cover and often vortexes and air binds the suction lift pumps. During the recent drought the river levels were sufficiently low to completely expose the intake screen and totally prevent the pumping or delivery of any water to the community. All water instead had to be delivered to Outingdale by utilizing a bulk water tanker truck to bring water from elsewhere within the District's distribution system. New facilities will include will have two low lift pumps with a capacity of 100 gpm each that will be pumped through a sand separator and into a small tank, and then two 100 GPM high lift pumps to lift water to the treatment plant.

Installation of the facilities will involve minor piping to tie-in the new pump station discharge piping to the existing pump station discharge piping, and abandonment of the old suction lift style centrifugal pumps. Electrical power and control will be run to the new package pump stations. The proposed project will significantly improve the reliability of the water supply year round and allow operational flexibility during drought conditions. Staff has awarded a design contract on June 25, 2018. The awarded firm is actively working on a draft technical memorandum to help determine the most efficient pumping setup. Design should be completed by early 2019 and environmental permits will soon follow. Construction of the new station is proposed to be in 2020 provided all permits have been collected and there is available funding.

Basis for Priority:

Project will improve reliability of the Outingdale infrastructure and supply. The project was awarded Prop 84 implementation grant funding of $160,000 in 2016.

Project Financial Summary:			
Funded to Date:	**$ 186,500**	**Expenditures through end of year:**	**$ 27,831**
Spent to Date:	**$ 22,831**	**2019 - 2023 Planned Expenditures:**	**$ 205,000**
Cash flow through end of year:	**$ 5,000**	**Total Project Estimate:**	**$ 365,000**
Project Balance	**$ 158,669**	**Additional Funding Required**	**$ 46,331**

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design	$ 15,000					$ 15,000
Construction		$ 350,000				$ 350,000
Subtotal	**$ 15,000**	**$ 350,000**	**$ -**	**$ -**	**$ -**	**$ 365,000**
Grant Offset		$ 160,000				$ 160,000
NET TOTAL	**$ 15,000**	**$ 190,000**	**$ -**	**$ -**	**$ -**	**$ 205,000**

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$0
Total	**100%**		**$0**

Funding Comments: Preliminary costs estimated at $350,000. Annual expenditures reflect cost offset by Prop 84 grant ($160,000).

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 17011

Project Name: Crestview Pump Station Replacement Project

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The District has numerous distribution pump stations throughout the water service area that operate to increase pressures to customers at higher elevations. This is an annual program to replace, rehabilitate or upgrade pump stations that have reached the end of their service life. Engineering and O&M staff identify and prioritize pump stations in need of upgrades to ensure reliable supply of the necessary pressure and flow to their respective service areas, and to comply with fire flow requirements and incorporate emergency standby power where needed. Replacement components include pumps, hydropneumatic tanks, electrical control, valves, yard piping, SCADA equipment, and buildings to accommodate equipment. The Crestview Pump Station is in need of replacement due to maintenance issues with an existing buried pneumatic tank which was not able to be certified due to the inability to examine the entire structure. The existing single pump is also located within a confined space and is a potential maintenance hazard. With no backup pump customers are taken out of water for any regular maintenance.

Basis for Priority:

Potential interruption to service throughout the District in the event of failures and continued use of expiring equipment that may pose a threat to the health and safety of customers, employees, and the public.

Project Financial Summary:			
Funded to Date:		Expenditures through end of year:	$ -
Spent to Date:		2019 - 2023 Planned Expenditures:	$ 275,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 275,000
Project Balance	$ -	Additional Funding Required	$ 275,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design		$ 25,000				$ 25,000
Construction			$ 250,000			$ 250,000
TOTAL	$ -	$ 25,000	$ 250,000	$ -	$ -	$ 275,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$0
Total	100%		$0

Funding Comments: Work involves planning the upgrade of existing facilities for reliability of service and does not increase capacity.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 17012

Project Name: Swansboro Tank Rehabilitation Project

Project Category: Reliability & Service Level Improvements

Priority: 1 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The deterioration of the interior coating of the Swansboro Tank has resulted in advanced corrosion causing damage to structural integrity. The bolted steel tank is located on the north end of the Swansboro distribution system and provides system storage for daily demand, emergency storage and fire flow for 317 EID customers. The tank is supplied via El Dorado Main #1, and water is boosted at the North Canyon pump station through a single 8-inch pipeline crossing the South Fork of the American River to the Swansboro community. The Board has awarded a construction contract on December 11, 2017, construction is set to begin in November 2018, and the remaining funding will allow for the completion of the rehabilitation of the tank.

Basis for Priority:

Potential interruption to service throughout the District in the event of failures and continued use of expiring equipment that may pose a threat to the health and safety of customers, employees, and the public.

Project Financial Summary:			
Funded to Date:		Expenditures through end of year:	$ -
Spent to Date:		2019 - 2023 Planned Expenditures:	$ 250,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 250,000
Project Balance	$ -	Additional Funding Required	$ 250,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Construction	$ 250,000					$ 250,000
TOTAL	$ 250,000	$ -	$ -	$ -	$ -	$ 250,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$250,000
Total	100%		$250,000

Funding Comments: Work involves planning the upgrade of existing facilities for reliability of service and does not increase capacity.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 17014

Project Name: Green Valley PRS #2

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The District has numerous pressure reducing stations throughout the service area to keep line pressures within acceptable ranges as it travels from Pollock Pines down to El Dorado Hills. The pressure reducing station program is to identifies specific stations to rehabilitate, replace or upgrade to maintain service reliability throughout the District. Loss of pressure control or valve failure can result in extensive water line damage or complete failure. The Green Valley Pressure Reducing Station #2 is in need of replacement due to maintenance issues on infrastructure that has outlived its useful life. Additionally, the valves are located below ground and require a confined space permit to access. This project will move the valves above ground to allow for safe access and maintenance.

Basis for Priority:

Potential interruption to service throughout the District in the event of failures and continued use of expiring equipment that may pose a threat to the health and safety of customers, employees, and the public.

Project Financial Summary:			
Funded to Date:		Expenditures through end of year:	$ -
Spent to Date:		2019 - 2023 Planned Expenditures:	$ 80,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 80,000
Project Balance	$ -	Additional Funding Required	$ 80,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Construction	$ 80,000					$ 80,000
TOTAL	$ 80,000	$ -	$ -	$ -	$ -	$ 80,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$80,000
Total	100%		$80,000

Funding Comments: Work involves planning the upgrade of existing facilities for reliability of service and does not increase capacity.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 17015

Project Name: Lakeview PRS #1

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The District has numerous pressure reducing stations throughout the service area to keep line pressures within acceptable ranges as it travels from Pollock Pines down to El Dorado Hills. The pressure reducing station program is to identifies specific stations to rehabilitate, replace or upgrade to maintain service reliability throughout the District. Loss of pressure control or valve failure can result in extensive water line damage or complete failure. The Lakeview Pressure Reducing Station #1 is in need of replacement due to maintenance issues for infrastructure that has outlived its useful life. Additionally, the valves are located below ground and require a confined space permit to access. This project will move the valves above ground to allow for safe access and maintenance. Furthermore, the station needs to be relocated into an easement requiring additional pipe work to be completed as part of this project.

Basis for Priority:

Potential interruption to service throughout the District in the event of failures and continued use of expiring equipment that may pose a threat to the health and safety of customers, employees, and the public.

Project Financial Summary:			
Funded to Date:		Expenditures through end of year:	$ -
Spent to Date:		2019 - 2023 Planned Expenditures:	$ 150,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 150,000
Project Balance	$ -	Additional Funding Required	$ 150,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Construction	$ 150,000					$ 150,000
TOTAL	$ 150,000	$ -	$ -	$ -	$ -	$ 150,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$150,000
Total	100%		$150,000

Funding Comments: Work involves planning the upgrade of existing facilities for reliability of service and does not increase capacity.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 17016

Project Name: El Dorado Main #1 PRS #5

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The El Dorado Main #1 Pressure Reducing Station #5 (EDM1PRS5) is in need of replacement control and isolation valves due to failure issues from operating infrastructure that has outlived its useful life. Additionally, EDM1PRS5 is not equipped with bypass capabilities resulting in large area water service outages in order to complete maintenance activities. During a review of the site it was determined that an extensive shutdown would be required to install new isolation and pressure reducing valves. The shutdown would be from Moose Hall Reservoir to Carson Road and North Canyon Road. The shutdown would also require that the Swansboro supply line be shutdown and the community would rely only upon Swansboro Tank. The alternative to the extensive shutdown is to install a temporary line stop which would isolate the station without causing customer interruption of service. EDM #1 would need to be exposed, and a specialized service company would then come in to perform the insertion and removal of the temporary line stop. Next the station needs to be moved down to the tank elevation to allow for full valve control to properly operate the tank. This will require the installation of approximately 100' of 24" DIP to move the station down from the old reservoir edge. Staff also reviewed the alternatives and decided that in addition to the line stop a new permanent isolation valve setup would provide the District with better operational flexibility and service reliability in the future for EDM #1. The intent is to install a new tee, two isolation valves to allow for any future required shutdowns. This option will provide the District with the opportunity to later connect to EDM #2 to allow for system optimization and flexibility and reduce future water service outage impacts to our customers.

Basis for Priority:

Potential interruption to service throughout the District in the event of failures and continued use of expiring equipment that may pose a threat to the health and safety of customers, employees, and the public.

Project Financial Summary:			
Funded to Date:		**Expenditures through end of year:**	$ -
Spent to Date:		**2019 - 2023 Planned Expenditures:**	$ 550,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 550,000
Project Balance	$ -	**Additional Funding Required**	$ 550,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design			$ 50,000			$ 50,000
Construction				$ 500,000		$ 500,000
TOTAL	$ -	$ -	$ 50,000	$ 500,000	$ -	$ 550,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%	$0	
Total	**100%**	**$0**	

Funding Comments: Work involves planning the upgrade of existing facilities for reliability of service and does not increase capacity.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 17024

Project Name: Moose Hall Pressure Reducing Station Upgrade

Project Category: Reliability & Service Level Improvements

Priority: 1 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The Moose Hall PRS contains two existing 12" Bailey Sleeve Valves within an existing underground vault. One of the two existing valves has broken in the closed position and is no longer operable. During the winter months when Reservoir 1 Water Treatment Plant is offline for maintenance, or during an unplanned outage of the El Dorado canal, water must be pumped through the pressure reducing valves while they are locked in an open position to serve customers in Pollock Pines. With only one operational valve, all the water must pass through the one operating valve, putting added strain on the valve. The valves have reached the end of their useful life and need to be replaced and a bypass needs to be constructed in order to prolong the life of the new valves. The Board awarded a construction contract on August 27, 2018, construction is set to being in October 2018, and the remaining funding will be used to complete the station rehabilitation.

Basis for Priority:

Potential interruption to service throughout the District in the event of failures and continued use of expiring equipment that may pose a threat to the health and safety of customers, employees, and the public.

Project Financial Summary:			
Funded to Date:		Expenditures through end of year:	$ -
Spent to Date:		2019 - 2023 Planned Expenditures:	$ 350,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 350,000
Project Balance	$ -	Additional Funding Required	$ 350,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Construction	$ 350,000					$ 350,000
TOTAL	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$350,000
Total	100%		$350,000

Funding Comments: Work involves planning the upgrade of existing facilities for reliability of service and does not increase capacity.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 17035

Project Name: Green Valley Bridge Relocation

Project Category: State/County Road Projects

Priority: 1 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

El Dorado County plans to construct two new bridges on Green Valley Road one at Mound Springs Creek and one at Indian Creek. The District has existing waterlines and two pressure reducing stations (Green Valley PRS #1 and Greenstone PRS #1) in Green Valley Road that will be impacted by the project and require relocation at District cost since in the public right of way. Based on the County's current design, approximately 1,000 feet of 8 and 12-inch waterline will need to be relocated along with both pressure reducing stations. The relocation work needs to be completed in front of the County's project scheduled for 2020 as the District is in conflict with the new bridge abutments and road realignment. The District has pre-purchased all necessary pressure reducing valves, isolation valves, fittings, and building enclosure for the relocation of both pressure reducing stations, and is working to complete the relocation design to be bid in early 2019.

Basis for Priority:

The District has facilities that are in the public right of way that will be impacted by the planned projects. The relocation must be done at the District's cost to make way for the County's project.

Project Financial Summary:			
Funded to Date:	$ 105,000	Expenditures through end of year:	$ 104,053
Spent to Date:	$ 84,053	2019 - 2023 Planned Expenditures:	$ 425,000
Cash flow through end of year:	$ 20,000	Total Project Estimate:	$ 529,053
Project Balance	$ 947	Additional Funding Required	$ 424,053

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design	$ 25,000					$ 25,000
Construction	$ 400,000					$ 400,000
TOTAL	$ 425,000	$ -	$ -	$ -	$ -	$ 425,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$424,053
Total	100%		$424,053

Funding Comments: Relocation of existing facilities.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 17036

Project Name: Sierra Tank Meter Replacement

Project Category: Reliability & Service Level Improvements

Priority: 1 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The City of Placerville plans to abandon their existing Sierra Tank and other appurtenances and install a new pressure reducing station. As part of this project the District's existing 4-inch water meter is in direct conflict with the new pressure reducing station. The District will upgrade the existing meter to a 6-inch to match the line feeding the City of Placerville to allow for an accurate read on the City's consumption. The City's contractor will install the meter, meter vault, and all necessary appurtenances under a reimbursement agreement with the District.

Basis for Priority:

The District has facilities that are in the public right of way that will be impacted by the planned projects.

Project Financial Summary:			
Funded to Date:	$ 25,000	Expenditures through end of year:	$ 8,626
Spent to Date:	$ 8,626	2019 - 2023 Planned Expenditures:	$ 25,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 33,626
Project Balance	$ 16,374	Additional Funding Required	$ 8,626

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Inspection	$ 10,000					$ 10,000
Construction	$ 15,000					$ 15,000
TOTAL	$ 25,000	$ -	$ -	$ -	$ -	$ 25,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$8,626
Total	100%		$8,626

Funding Comments: Relocation of existing facilities.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 17039

Project Name: Reservoir A Filter Valve Acuator

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Delongchamp **Board Approval:** 01/28/19

Project Description:

The filter valve actuators at Reservoir A are in need of replacement due to maintenance issues from operating infrastructure that has outlived its useful life. This project was included in the Reservoir A Water Treatment Plant Improvements Program 2017 CIP. Additonally, the operation of the current valve actuators require the Operator to enter a confined space. The replacement valve actuators will provide the Operators with easy access and reliability as well as reduce maintenance costs.

Basis for Priority:

Replacement of inefficient and obsolete infrastructure will support regulatory compliance, service reliability, and reduce maintenance costs.

Project Financial Summary:			
Funded to Date:	$ 40,000	Expenditures through end of year:	$ 659
Spent to Date:	$ 659	2019 - 2023 Planned Expenditures:	$ 220,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 220,659
Project Balance	$ 39,341	Additional Funding Required	$ 180,659

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design			$ 20,000			$ 20,000
Construction				$ 200,000		$ 200,000
TOTAL	$ -	$ -	$ 20,000	$ 200,000	$ -	$ 220,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$0
Total	100%		$0

Funding Comments: Work involves upgrade of existing facilities for reliability of service and does not increase capacity.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 17048

Project Name: Strawberry Raw Water Pump Station

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

This project is part of an annual program to replace, rehabilitate or upgrade pump stations that have reached the end of their service life. Engineering and O&M staff identify and prioritize pump stations in need of upgrades to ensure reliable supply of the necessary pressure and flow to their respective service areas, and to comply with fire flow requirements and incorporate emergency standby power where needed. Replacement components include pumps, hydropneumatic tanks, electrical control, valves, yard piping, SCADA equipment, and buildings to accommodate equipment. This station has numerous freeze issues and failing pumps that have outlived their useful lives. The pump station is approximately 250 feet away from the water treatment plant, is only accessible on foot, and is not on the District's property nor does it benefit from a documented easement. District staff over the past few years has spent increasing hours to keep the existing station operational. The station is currently in design to determine the exact layout of the new station in order to determine the needed environmental permits along the river. Additionally, the District is working to adjust the water diversion right from the existing station to the District's property where the new station will be constructed. Construction is planned in 2021 provided all permits are approved and funding is available.

Basis for Priority:

Potential interruption to service throughout the District in the event of failures and continued use of expiring equipment that may pose a threat to the health and safety of customers, employees, and the public.

Project Financial Summary:			
Funded to Date:		**Expenditures through end of year:**	$ -
Spent to Date:		**2019 - 2023 Planned Expenditures:**	$ 410,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 410,000
Project Balance	$ -	**Additional Funding Required**	$ 410,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design	$ 10,000	$ 50,000				$ 60,000
Strawberry Raw Water/Treatment			$ 350,000			$ 350,000
TOTAL	$ 10,000	$ 50,000	$ 350,000	$ -	$ -	$ 410,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$10,000
Total	**100%**		**$10,000**

Funding Comments: Work involves planning the upgrade of existing facilities for reliability of service and does not increase capacity.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 18002

Project Name: Sanders Road Waterline Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The waterline replacement program consists of targeted replacement of leaking waterlines including formerly private lines within the District. Replacing leaking and substandard waterlines in the distribution system will reduce the potential for contamination of the drinking water supply, increase reliability, reduce maintenance expenditures, and decrease losses. The District has completed numerous leak repairs to a section of waterline in Sanders Drive in Pollock Pines. The repair bands in place are on a stretch of approximately 100 linear feet of line that upon the last repair does not appear to have much structural integrity left. District staff is advocating the replacement of this section of waterline with approximately 100 linear feet of new 6" mainline with in house crews.

Basis for Priority:

Continuous line breaks affect water quality and supply reliability to customers and increase maintenance costs. This project is required to protect and preserve the health and safety of customers and the public.

Project Financial Summary:			
Funded to Date:		Expenditures through end of year:	$ -
Spent to Date:		2019 - 2023 Planned Expenditures:	$ 70,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 70,000
Project Balance	$ -	Additional Funding Required	$ 70,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design			$ 10,000			$ 10,000
Construction			$ 60,000			$ 60,000
TOTAL	$ -	$ -	$ 70,000	$ -	$ -	$ 70,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$0
Total	100%		$0

Funding Comments: Project involves storage capacity to meet current regulations only, with no planned increase in potable water delivery capacity, therefore funding is 100% water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 18007

Project Name: Pony Express 8-Inch Waterline Replacement Project

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The waterline replacement program consists of targeted replacement of leaking waterlines including formerly private lines within the District. Replacing leaking and substandard waterlines in the distribution system will reduce the potential for contamination of the drinking water supply, increase reliability, reduce maintenance expenditures, and decrease losses. The District has completed numerous leak repairs on a section of the 8" outside diameter steel (ODS) waterline in Pony Express Trail in Pollock Pines. Recently the District suffered another larger leak (approximately 3,000 GPM) on January 19, 2018. The road was damaged as part of the leak and the District is responsible to repave the portion of damaged road. District staff has reviewed the site with the County and made the determination that it is in the District's best interest to install new 8" ductile iron pipe (DIP) in place of the existing ODS. The replacement will span approximately 300 linear feet of new mainline and can be completed by removing the existing ODS pipe and replacing with 8" DIP. This work will be designed in house and constructed by in house crews in the spring of 2019.

Basis for Priority:

Continuous line breaks affect water quality and supply reliability to customers and increase maintenance costs. This project is required to protect and preserve the health and safety of customers and the public.

Project Financial Summary:			
Funded to Date:		**Expenditures through end of year:**	$ -
Spent to Date:		**2019 - 2023 Planned Expenditures:**	$ 100,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 100,000
Project Balance	$ -	**Additional Funding Required**	$ 100,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design	$ 10,000					$ 10,000
Construction	$ 90,000					$ 90,000
TOTAL	$ 100,000	$ -	$ -	$ -	$ -	$ 100,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$100,000
Total	**100%**		**$100,000**

Funding Comments: Project involves storage capacity to meet current regulations only, with no planned increase in potable water delivery capacity, therefore funding is 100% water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 18018

Project Name: Easy Street Waterline Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The waterline replacement program consists of targeted replacement of leaking waterlines including formerly private lines within the District. Replacing leaking and substandard waterlines in the distribution system will reduce the potential for contamination of the drinking water supply, increase reliability, reduce maintenance expenditures, and decrease losses. The District has reviewed all options for the main replacement list determined by operations and engineering and decided that the best use of funding would be the replacement of Easy Street. The District has experienced approximately 11 leaks on the 900 feet of 6" steel in Easy Street. The District has reviewed the current climate for mainline installation and pavement restoration and the current cost is approximately $375 a linear foot.

Basis for Priority:

Continuous line breaks affect water quality and supply reliability to customers and increase maintenance costs. This project is required to protect and preserve the health and safety of customers and the public.

Project Financial Summary:			
Funded to Date:		Expenditures through end of year:	$ -
Spent to Date:		2019 - 2023 Planned Expenditures:	$ 1,250,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 1,250,000
Project Balance	$ -	Additional Funding Required	$ 1,250,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design			$ 50,000			$ 50,000
Construction				$ 1,200,000		$ 1,200,000
TOTAL	$ -	$ -	$ 50,000	$ 1,200,000	$ -	$ 1,250,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%	$0	
Total	100%	$0	

Funding Comments: Project involves storage capacity to meet current regulations only, with no planned increase in potable water delivery capacity, therefore funding is 100% water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: 18025

Project Name: DOT Construction Projects - Water

Project Category: State/County Road Projects

Priority: 1 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

At Board direction, staff has streamlined contracting procedures with the El Dorado County Department of Transportation (DOT) and City of Placerville for joint projects. EID has many water and sewer lines in roads maintained by the El Dorado County Department of Transportation (DOT). From time to time, DOT initiates a road project where either the EID water, wastewater, or recycled waterlines need to be relocated or upgraded, which presents opportunities to join forces with DOT in the project by simultaneously upgrading and/or relocating our facilities. On August 10, 2015 the Board reauthorized the Master Reimbursement Agreement which is utilized for such projects. The agreement is good for five years.

This CIP is intended for staff coordination with DOT throughout the year and for minor projects. This CIP will also be used to fund minor water related relocations performed by the County under the Agreement. Larger utility relocation projects will have a specific CIP that identifies all the work associated with that project.

Basis for Priority:

Projects are required by law, regulation, contract, agreement or license. This includes projects required to meet requirements imposed by federal, State, or local governments. This also includes relocation of District facilities located in the public right-of-way as necessitated by County road improvements.

Project Financial Summary:			
Funded to Date:	$ 47,777	Expenditures through end of year:	$ 23,204
Spent to Date:	$ 23,204	2019 - 2023 Planned Expenditures:	$ 125,000
Cash flow through end of year:		Total Project Estimate:	$ 148,204
Project Balance	$ 24,573	Additional Funding Required	$ 100,427

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design And Coordination	$25,000	$25,000	$25,000	$25,000	$25,000	$ 125,000
TOTAL	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 125,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%	$427	
Total	100%	$427	

Funding Comments: Typically work involves replacement or relocation of existing facilities. However, funding split will be further evaluated for each project.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: AMR and Small Meter Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Downey **Board Approval:** 01/28/19

Project Description:

Implementation - This project replaces old, inaccurate, or broken small and large meters. It also adds automated meter read capability to new and existing meters. The project is MISSION REQUIRED because it provides for replacement of inaccurate and non-working meters and enables all meters to be read in time for billing. The LIABILITY/RISK to the District if this project is not implemented includes increased likelihood of employee injury, increased labor expenses for manually reading the meters and inputting manual data into the computer system, and loss of customer confidence due to inaccurate and estimated reads. REGULATORY: Continued implementation of meter replacement and AMR technology keeps the District in compliance with the CUWCC's MOU BMP 4. SAFETY/SECURITY: This project reduces employee exposure to injury . As of September 14, 2017 there are 27,375 meters that are equipped with radio read devices. Project funding for implementation should allow the District to install approximately 300 radio read meters per year.

Basis for Priority:

Hiring of additional personnel, collection of inaccurate data, reduced customer satisfaction, increased likelihood of employee injuries, and non-compliance with BMP #4

Project Financial Summary:			
Funded to Date:	$ 200,000	Expenditures through end of year:	$ 200,000
Spent to Date:	$ 120,590	2019 - 2023 Planned Expenditures:	$ 750,000
Cash flow through end of year:	$ 79,410	Total Project Estimate:	$ 950,000
Project Balance	$ -	Additional Funding Required	$ 750,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Implementation	$150,000	$150,000	$150,000	$150,000	$150,000	$ 750,000
TOTAL	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 750,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$150,000
Total	100%		$150,000

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: Construction Storage Facility

Project Category: Reliability & Service Level Improvements

Priority: 3 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

This project will provide a new storage facility in the EID upper yard to house material and equipment for increased security and protection from elements. A portion of this storage facility will need to be temperature controlled to properly store some disposable material. Additionally, the facility will be a prefabricated steel or wood building placed on a concrete foundation. Some of the design funding will be used to procure any necessary City of Placerville permits.

Basis for Priority:

Improve efficiency and provide safe and adequate storage.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 230,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 230,000
Project Balance	$ -	**Additional Funding Required**	$ 230,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design		$ 30,000				$ 30,000
Construction			$ 200,000			$ 200,000
TOTAL	$ -	$ 30,000	$ 200,000	$ -	$ -	$ 230,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$0
Total	**100%**		**$0**

Funding Comments: Work involves installation of new facilities for.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: Critical Water Facility Generators

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

Due to re-operation of the power grid due to wild fire issues the District is in need of adding six emergency generators and associated power equipment to critical water facilities. The District does not maintain adequate emergency back-up power for many of the water pump stations. The facilities that are in immediate need of backup power include North Canyon Pump Station, Gold Ridge Pump Station, Moosehall Reservoir, Sportsman Pump Station, Ridgeview Pump Station, and Monte Vista Pump Station. The addition of these generators will provide for adequate backup power to maintain adequate water supply at times of prolonged power outages during the fire season.

Basis for Priority:

Ability to maintain critical water supply during fire season due to unreliable power source from PG&E.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 1,690,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 1,690,000
Project Balance	$ -	**Additional Funding Required**	$ 1,690,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design & Consulting	$ 100,000					$ 100,000
Construction		$ 460,000	$ 880,000	$ 250,000		$ 1,590,000
TOTAL	$ 100,000	$ 460,000	$ 880,000	$ 250,000	$ -	$ 1,690,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$100,000
Total	**100%**		**$100,000**

Funding Comments: Work involves planning the upgrade of existing facilities for reliability of service.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: Diversion Gauging Measurement and Reporting Requirements

Project Category: Regulatory Requirements

Priority: 1 **PM:** Delongchamp **Board Approval:** 01/28/19

Project Description:

Senate Bill (SB) 88, signed by Governor Brown on June 24, 2015, mandated new diversion reporting and measurement requirements for all surface water rights holders within California who divert more than 10 acre-feet per year. SB 88 has a phased effective date between January 2017 and January 2018 depending on size of diversion. The District participated in an ACWA task force in an attempt to eliminate or modify these new requirements, but the law still passed and is now phasing into effect. Staff has initially evaluated the the District's water right portfolio and determined many of the facilities for the smaller water rights will require modification to add measurement and/or SCADA communication. In June of 2017, the District requested extensions for the remaining 4 diversions in need of gauging. These include Esmerelda Creek, Bull Creek, Bryant Creek (Ogilby), and No Name Creek. The extensions are good for 24 months.

Basis for Priority:

If the District does not comply with this requirement, there would be unacceptable risk to the security of the District's water rights including civil liability up to $500 per day pursuant to Water Code Section 1846.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 180,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 180,000
Project Balance	$ -	Additional Funding Required	$ 180,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design	$ 15,000	$ 15,000				$ 30,000
Installation	$ 75,000	$ 75,000				$ 150,000
TOTAL	$ 90,000	$ 90,000	$ -	$ -	$ -	$ 180,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$90,000
Total	100%		$90,000

Funding Comments: Project consits of installation of new stream gauges to comply with new measurement requirements, project does not increase capacity.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: El Dorado Hills Raw Water Pump Replacement B-Side

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The 2013 Integrated Water Resources Master Plan recommends construction of a new Folsom Raw Water Pump Station (FLRWPS) to improve the reliability of this water supply source for El Dorado Hills. The existing raw water C-side intake pumps were designed as a temporary facility in anticipation of a new raw water pump station with a temperature control device (TCD). The original TCD is no longer being contemplated and the temporary C-Side pumps have completely failed as designed. The A-side intake pumps are at the end of their useful life and the B-side pumps are nearing the end of their useful life. This project will replace two of the failing pumps in advance of the pump station upgrade for the A and C-Side pumps. The raw water pump station needs to be upgraded to provide for reliability and long-term operational needs.

Basis for Priority:

Potential interruption to service throughout the District in the event of failures and continued use of expiring equipment that may pose a threat to the health and safety of customers, employees, and the public.

Project Financial Summary:			
Funded to Date:		Expenditures through end of year:	$ -
Spent to Date:		2019 - 2023 Planned Expenditures:	$ 130,000
Cash flow through end of year:		Total Project Estimate:	$ 130,000
Project Balance	$ -	Additional Funding Required	$ 130,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Construction	$ 50,000					$ 50,000
Material	$ 80,000					$ 80,000
TOTAL	$ 130,000	$ -	$ -	$ -	$ -	$ 130,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$130,000
Total	100%		$130,000

Funding Comments: Work involves planning the upgrade of existing facilities for reliability of service and does not increase capacity.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: El Dorado Hills Water Treatment Plant Automation Rehabilitation

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The existing five automation controllers at the El Dorado Hill Water Treatment Plant that have outlived their useful lives. This will also require SCADA programming and configuration changes to meet the needs of the new equipment configuration. The proposed equipment is obsolete, parts are limited or no longer available and not supported by the manufacturer. The following PLCs will be removed and incorporated into the current Control Logix Master Plant PLC: Filters 1 & 2 PLC (PLC 5) , Filters 3 & 4 PLC (PLC 5) , Filter 5 & 6 PLC (PLC 5) , GE PLC and remote racks and the local interface panel in the control room. Additionally, in this project the Control Logix CPUs will need to be upgraded to a redundant system and replace (2) of the problematic 5555 series controllers. The plant PLC network will need to be evaluated and modified to secure the Salmon Falls network radio connection and to accommodate the new PLC I/O racks. Once the automation issues are corrected, the SCADA graphical interface will need to be modified to match the new setup and correct the current visualization short falls. This work will involve the modifications of 30 screens. Replacement of the hardware will warrant reconfiguration of the HMI and rewriting the control descriptions for this facility. Spreading the construction over multiple years in not cost effective due to complexity and interdependency of the system. Many of the controllers and programs have such interdependencies that do not allow replacing one part of the system without requiring major modifications to the other existing systems. The construction estimate in 2020 is a 10% estimate based on the proposed scope of work, and a revised estimate will be presented in the next CIP with a refined cost based on the completed design.

Basis for Priority:

This hardware is failing and has been a service reliability and maintenance issue. This equipment is life cycled out. The original installation was in 1994. This equipment is at a life cycle point where it now presents a service reliability risk to this service area.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 1,500,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 1,500,000
Project Balance	$ -	Additional Funding Required	$ 1,500,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design & Consulting	$ 500,000					$ 500,000
Construction		$ 1,000,000				$ 1,000,000
TOTAL	$ 500,000	$ 1,000,000	$ -	$ -	$ -	$ 1,500,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$500,000
Total	100%		$500,000

Funding Comments: The project replaces existing facilities, therefore is funded by water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: Folsom - EDH Water Treatment Plant Improvements Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

This program consists of targeted process, control and facility improvements from the Folsom Lake Intake to and Including the El Dorado Hills Water Treatment Plant. Several improvements have been identified to insure regulatory compliance, increased service reliability, reduced maintenance expenditures and extended facility life. Individual improvements may change and/or be replaced with other more critical improvements as priorities are set and projects developed. Cost estimates are at the conceptual level of confidence. As projects are better defined, individual project numbers will be established. This also includes facility improvement funding available for any unplanned assets that have failed or been found to have reached their service life and need to be replaced throughout the distribution system or treatment plant.

Basis for Priority:

Replacement and improvements to inefficient processes, obsolete controls and substandard facilities will support regulatory compliance, improvement service reliability and reduce maintenance costs. This program is required to protect and preserve the health and safety of customers and the public.

Project Financial Summary:			
Funded to Date:		Expenditures through end of year:	$ -
Spent to Date:		2019 - 2023 Planned Expenditures:	$ 300,000
Cash flow through end of year:		Total Project Estimate:	$ 300,000
Project Balance	$ -	Additional Funding Required	$ 300,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Facility Improvements			$ 100,000	$ 100,000	$ 100,000	$ 300,000
TOTAL	$ -	$ -	$ 100,000	$ 100,000	$ 100,000	$ 300,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	100%	$0
Total	100%	$0

Funding Comments: The project replaces existing facilities, therefore is funded by water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: Integrated Water Resources Master Plan Update

Project Category: Master Planning

Priority: 2 **PM:** Mueller **Board Approval:** 01/28/19

Project Description:

The District's Integrated Water Resources Master Plan was approved in 2013 and is due for an update. Staff envisions updates to the existing plan will focus on review and adjustment of water demands and growth rates building off the 2015 Urban Water Management Plan and consideration of future State-driven conservation mandates, and updates to the timing and costs of large infrastructure components such as the White Rock penstock diversion. Existing initiatives such as the P21112 water rights change in point of diversion and the SMUD/El Dorado Agreement will be incorporated. With an improved water model, a review of existing and future capacity limititations in the water transmission and distribution systems will also be reviewed.

Basis for Priority:

Updates to master plans are needed periodically to ensure the District is planning water supply and infrastructure needs appropriately.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 250,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 250,000
Project Balance	$ -	**Additional Funding Required**	$ 250,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning	$ 150,000	$ 100,000				$ 250,000
Design						$ -
Construction						$ -
						$ -
TOTAL	$ 150,000	$ 100,000	$ -	$ -	$ -	$ 250,000

Estimated Funding Sources	Percentage	2019	Amount
Water FCCs	100%		$150,000
			$0
			$0
Total	**100%**		**$150,000**

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: Lower Ditch Water Rights SCADA Upgrades

Project Category: Reliability & Service Level Improvements

Priority: 3 **PM:** Volcansek **Board Approval:** 01/28/19

Project Description:

In August 2010, the District and USBR executed a Warren Act Contract for the Rediversion of the Ditch Water Rights. A requirement of that contract is to report diversions at several gaging stations to the USBR on a regular basis. In order to provide accurate and reliable diversion data, the gage stations known as S42, W5, and W4 require upgrading to automation. The automation upgrades consist of installation of telemetry equipment and SCADA. Each station is estimated to cost $5,000 to $10,000 each to install.

Basis for Priority:

Since the Warren Act has been signed, the District is required to report to the USBR. Upgrading the SCADA at the gage stations will provide reliable and accurate reporting.

Project Financial Summary:			
Funded to Date:		Expenditures through end of year:	$ -
Spent to Date:		2019 - 2023 Planned Expenditures:	$ 67,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 67,000
Project Balance	$ -	Additional Funding Required	$ 67,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design		$ 10,000				$ 10,000
Construction			$ 45,000	$ 12,000		$ 57,000
TOTAL	$ -	$ 10,000	$ 45,000	$ 12,000	$ -	$ 67,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$67,000
Total	100%		$67,000

Funding Comments: The project replaces existing facilities, therefore is funded by water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: Pressure Reducing Station Rehabilitation and Replacement Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The District has numerous pressure reducing stations throughout the service area to keep line pressures within acceptable ranges as it travels from Pollock Pines down to El Dorado Hills. This program is to identify specific stations to rehabilitate, replace or upgrade to maintain service reliability throughout the District. Loss of pressure control or valve failure can result in extensive water line damage or complete failure. Program management expenditures identified include prioritizing and designing each PRS replacement. Actual PRS replacement costs for each individual station will be brought to the Board for specific approval.

Basis for Priority:

Existing stations are incurring increasing maintenance costs and reduced service reliability due to age and degradation.

Project Financial Summary:			
Funded to Date:	$ 134,933	Expenditures through end of year:	$ 56,385
Spent to Date:	$ 56,385	2019 - 2023 Planned Expenditures:	$ 1,980,000
Cash flow through end of year:		Total Project Estimate:	$ 2,036,385
Project Balance	$ 78,548	Additional Funding Required	$ 1,901,452

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Francisco PRS1	$80,000					$ 80,000
RES2-6 Inlet From MH		$100,000	$600,000			$ 700,000
DSM PRS22 Control			$60,000			$ 60,000
EDH PRS3			$50,000			$ 50,000
Greenstone Tank PRS			$75,000			$ 75,000
LL PRS1			$75,000			$ 75,000
EDM1 PRS13 RES 6				$100,000	$600,000	$ 700,000
Arrowbee PRS1					$65,000	$ 65,000
EDM2 PRS5					$100,000	$ 100,000
PVS PRS1					$75,000	$ 75,000
HEP PRS1						$ -
TOTAL	$ 80,000	$ 100,000	$ 860,000	$ 100,000	$ 840,000	$ 1,980,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$1,452
Total	100%		$1,452

Funding Comments: Projects involve upgrade of existing facilities and no planned increase in capacity, therefore funding is 100% water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: Pump Station Rehabilitation and Replacement Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

The District has numerous distribution pump stations throughout the water service area that operate to increase pressures to customers at higher elevations. This is an annual program to replace, rehabilitate or upgrade pump stations that have reached the end of their service life. Engineering and O&M staff identify and prioritize pump stations in need of upgrades to ensure reliable supply of the necessary pressure and flow to their respective service areas, and to comply with fire flow requirements and incorporate emergency standby power where needed. Replacement components include pumps, hydropneumatic tanks, electrical control, valves, yard piping, SCADA equipment, and buildings to accommodate equipment.

Basis for Priority:

Potential interruption to service throughout the District in the event of failures and continued use of expiring equipment that may pose a threat to the health and safety of customers, employees, and the public.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 5,685
Spent to Date:	$ 5,685	2019 - 2023 Planned Expenditures:	$ 1,545,000
Cash flow through end of year:		Total Project Estimate:	$ 1,550,685
Project Balance	$ 44,315	Additional Funding Required	$ 1,500,685

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design	$ 75,000	$ 20,000	$ 100,000			$ 195,000
Valley View	$ 50,000	$ 200,000				$ 250,000
Ridgeview				$ 250,000		$ 250,000
Oak Ridge					$ 850,000	$ 850,000
Monte Vista						$ -
Quartz						$ -
Swansboro						$ -
Upper Rancho Del Sol						$ -
TOTAL	$ 125,000	$ 220,000	$ 100,000	$ 250,000	$ 850,000	$ 1,545,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$80,685
Total	100%		$80,685

Funding Comments: Work involves planning the upgrade of existing facilities for reliability of service and does not increase capacity.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: Reservoir 1 Water Treatment Plant Improvements Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

This program consists of targeted process, control and facility improvements at the Reservoir 1 Water Treatment Plant. This also includes any improvements to the Strawberry Water Treatment Plant facility as determined by life cycled assets or regulatory requirements. Several improvements have been identified to insure regulatory compliance, increased service reliability, reduced maintenance expenditures and extended facility life. Individual improvements may change and/or be replaced with other more critical improvements as priorities are set and projects developed. Cost estimates are at the conceptual level of confidence. As projects are better defined, individual project numbers will be established. This also includes facility improvement funding available for any unplanned assets that have failed or been found to have reached their service life and need to be replaced throughout the distribution system or treatment plant.

Basis for Priority:

Replacement and improvements to inefficient processes, obsolete controls and substandard facilities will support regulatory compliance, improvement service reliability and reduce maintenance costs. This program is required to protect and preserve the health and safety of customers and the public.

Project Financial Summary:			
Funded to Date:	$ 15,000	Expenditures through end of year:	$ 12,520
Spent to Date:	$ 12,520	2019 - 2023 Planned Expenditures:	$ 370,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 382,520
Project Balance	$ 2,480	Additional Funding Required	$ 367,520

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Facility Improvements		$ 100,000				$ 100,000
Design SCADA Improvements			$ 45,000			$ 45,000
Construction SCADA Improvements				$ 225,000		$ 225,000
TOTAL	$ -	$ 100,000	$ 45,000	$ 225,000	$ -	$ 370,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$0
Total	100%		$0

Funding Comments: The project replaces existing facilities, therefore is funded by water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: Serviceline Replacement Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

This program consists of targeted replacement of leaking water service lines throughout the District. Replacing leaking and substandard service lines with new copper water service tubing will reduce the potential for contamination of the drinking water supply, increase reliability, reduce maintenance expenditures, and decrease losses. Serviceline projects are prioritized with Operations and Engineering staff based on frequency of leaks and costs of repairs. These estimates and project locations are subject to change as the projects are better defined.

Basis for Priority:

Continuous line breaks affect water quality and supply reliability to customers and increase maintenance costs. This project is required to protect and preserve the health and safety of customers and the public.

Project Financial Summary:			
Funded to Date:		Expenditures through end of year:	$ -
Spent to Date:		2019 - 2023 Planned Expenditures:	$ 210,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 210,000
Project Balance	$ -	Additional Funding Required	$ 210,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design				$ 10,000		$ 10,000
Construction (Various)					$ 200,000	$ 200,000
TOTAL	$ -	$ -	$ -	$ 10,000	$ 200,000	$ 210,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%	$0	
Total	100%	$0	

Funding Comments: Project has no planned increase in potable water delivery capacity, therefore funding is 100% water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: Sly Park - Reservoir A Water Treatment Plant Improvements Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

This program consists of targeted process, control and facility improvements from the Sly Park Reservoir intake to and including the Reservoir A Water Treatment Plant. This also includes any improvements to the Outingdale Water Treatment Plant facility as determined by life cycled assets or regulatory requirements. Several improvements have been identified to insure regulatory compliance, increased service reliability, reduced maintenance expenditures and extended facility life. Individual improvements may change and/or be replaced with other more critical improvements as priorities are set and projects developed. Cost estimates are at the conceptual level of confidence. As projects are better defined, individual project numbers will be established. This also includes facility improvement funding available for any unplanned assets that have failed or been found to have reached their service life and need to be replaced throughout the distribution system or treatment plant.

Basis for Priority:

Replacement and improvements to inefficient processes, obsolete controls and substandard facilities will support regulatory compliance, improvement service reliability and reduce maintenance costs. This program is required to protect and preserve the health and safety of customers and the public.

Project Financial Summary:			
Funded to Date:	$ 459,600	Expenditures through end of year:	$ 144,458
Spent to Date:	$ 144,458	2019 - 2023 Planned Expenditures:	$ 770,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 914,458
Project Balance	$ 315,142	Additional Funding Required	$ 454,858

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Facility Improvements				$ 100,000	$ 100,000	$ 200,000
Access Road Restoration			$ 300,000			$ 300,000
Design SCADA Improvements			$ 45,000			$ 45,000
Construction SCADA Improvements				$ 225,000		$ 225,000
TOTAL	$ -	$ -	$ 345,000	$ 325,000	$ 100,000	$ 770,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$0
Total	100%		$0

Funding Comments: The project replaces existing facilities, therefore is funded by water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: Storage Replacement & Rehabilitation Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

This program consists of targeted replacement and rehabilitation of drinking water storage tanks and reservoirs within the distribution system. The District operates 36 steel storage tanks, ranging in age from 8 to 58 years of age, most of which were constructed in the last 18 years as part of the District line and cover program. Additionally, the District operates 7 floating cover drinking water reservoirs ranging in age from 26 to 33 years of age. This program is to identify specific tanks and reservoirs to rehabilitate, replace, or upgrade to maintain service reliability throughout the District. Program management expenditures identified include prioritizing and designing each tank and reservoir improvement project. Actual replacement costs for each individual tank and reservoir will be brought to the Board for specific approval.

Basis for Priority:

Life cycle replacement of District assets due to age and degradation.

Project Financial Summary:			
Funded to Date:	$ 1,527,555	**Expenditures through end of year:**	$ 243,812
Spent to Date:	$ 243,812	**2019 - 2023 Planned Expenditures:**	$ 5,350,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 5,593,812
Project Balance	$ 1,283,743	**Additional Funding Required**	$ 4,066,257

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design/Planning			$ 200,000	$ 100,000	$ 100,000	$ 400,000
Greenstone (Abandonment)			$ 150,000			$ 150,000
Reservoir 1 Aluminum Dome				$ 2,000,000		$ 2,000,000
Reservoir 1 Contact Tank						
Reservoir 6					$ 2,800,000	$ 2,800,000
Ridgeview						$ -
Dolomite						$ -
TOTAL	$ -	$ -	$ 350,000	$ 2,100,000	$ 2,900,000	$ 5,350,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$0
Total	**100%**		**$0**

Funding Comments: Project involves storage capacity to meet current regulations only, with no planned increase in potable water delivery capacity, therefore funding is 100% water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: Waterline Replacement Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

This program consists of targeted replacement of leaking waterlines including formerly private lines within the District. Replacing leaking and substandard waterlines in the distribution system will reduce the potential for contamination of the drinking water supply, increase reliability, reduce maintenance expenditures, and decrease losses. Pipeline projects are prioritized with Operations and Engineering staff based on frequency of leaks and costs of repairs. These estimates and project locations are subject to change as the projects are better defined.

Basis for Priority:

Continuous line breaks affect water quality and supply reliability to customers and increase maintenance costs. This project is required to protect and preserve the health and safety of customers and the public.

Project Financial Summary:			
Funded to Date:		Expenditures through end of year:	$ -
Spent to Date:		2019 - 2023 Planned Expenditures:	$ 800,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 800,000
Project Balance	$ -	Additional Funding Required	$ 800,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Design		$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 200,000
Construction (Various)		$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 600,000
Salmon Falls Waterline						
TOTAL	$ -	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 800,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	100%	$0
Total	100%	$0

Funding Comments: Project involves storage capacity to meet current regulations only, with no planned increase in potable water delivery capacity, therefore funding is 100% water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: STUDY03

Project Name: WTP Assessments

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wilson **Board Approval:** 01/28/19

Project Description:

In an effort to better understand the needs of Reservoir A, Reservoir 1, El Dorado Hills, and Strawberry Water Treatment Plants for future capital improvement projects and to help aid in creating an asset management plan. This assessment will look at each of the plants individually and provide a roadmap for future work on the plants. Due to the overall age of the facilities, key elements of the existing treatment process need to be examined for rehabilitated or replaced to maintain permit compliance. The general goal and objectives are to review, evaluate, and assess the condition of the structures and equipment taking into account past and future maintenance activities. Additionally, recommendations will include timelines for the use in future CIP projects, including budgetary level cost estimates for each recommendation offered.

Basis for Priority:

Determine replacement and improvement strategy to support regulatory compliance, improve service reliability, and reduce maintenance costs. This study will protect and preserve the health and safety of customers and the public.

Project Financial Summary:			
Funded to Date:	$ 15,000	Expenditures through end of year:	$ 1,351
Spent to Date:	$ 1,351	2019 - 2023 Planned Expenditures:	$ 1,025,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 1,026,351
Project Balance	$ 13,649	Additional Funding Required	$ 1,011,351

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning Reservoir A WTP	$ 225,000	$ 100,000				$ 325,000
Study/Planning El Dorado Hills WTP	$ 225,000	$ 100,000				$ 325,000
Study/Planning Reservoir 1 WTP	$ 100,000	$ 225,000				$ 325,000
Study/Planning Strawberry WTP		$ 50,000				$ 50,000
TOTAL	$ 550,000	$ 475,000	$ -	$ -	$ -	$ 1,025,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$536,351
Total	100%		$536,351

Funding Comments: The project prioritizes existing WTP assets and provides triggers for necessary upgrades and replacement based on reliability and maintenance factors, therefore is funded by water rates.

Wastewater Projects

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: 15036

Project Name: Silva Valley - El Dorado Hills Sewerline

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Carrington **Board Approval:** 01/28/19

Project Description:

The 2013 Wastewater Facility Master Plan (WWMP) identified 2,100 feet of the 18"/21" sewerline along Silva Valley Road and 4,500 feet of 18" sewerline between Silva Valley Rd and the EDH Wastewater Treatment Plant as needing capacity upsizing in the future. In order to further refine the extent and timing of improvements required, flow monitoring and survey work to determine manhole invert and ground elevations was completed under Project 14001 and 14002 in 2014. Flow monitoring and survey data has been incorporated into the District collection system model to determine remaining pipeline capacity. The current capacity analysis indicates the peak wet weather flow rate in 12,000 feet of pipeline exceeds design capacity and of that 4,700 feet is in a surcharged condition, i.e. water backing up into manholes. Additional wet weather flow data has been collected to calibrate the model further.

Preparation of a Basis of Design Report (BODR) will begin in 2019 that will further develop the project considering wet weather flow data. The BODR will address project phasing, and provide more refined project cost estimates by phase. Because project development is conceptual at this time, construction expenditures are not shown within this CIP planning horizon but are expected to be in the range of $6 M. The 2019 expenditures are for a BODR only.

Basis for Priority:

The collection system model identified these gravity sewerlines as having capacity limitations. If the capacity limitations are not corrected, sanitary sewer overflows could occur and future connections to the collection system will be limited.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 31,481
Spent to Date:	$ 23,481	2019 - 2023 Planned Expenditures:	$ 100,000
Cash flow through end of year:	$ 8,000	Total Project Estimate:	$ 131,481
Project Balance	$ 18,519	Additional Funding Required	$ 81,481

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design/Env/CM	$ 100,000					$ 100,000
Construction						$ -
						$ -
TOTAL	$ 100,000	$ -	$ -	$ -	$ -	$ 100,000

Estimated Funding Sources	Percentage	2019	Amount
Wastewater FCCs	100%		$81,481
Wastewater Rates			$0
			$0
Total	100%		$81,481

Funding Comments: The project provides capacity for new wastewater customers, therefore is funded with wastewater FCCs.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: 16008

Project Name: South Pointe Lift Station Rehabilitation

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Money **Board Approval:** 01/28/19

Project Description:

Based on a condition assessment performed by engineering and operations this lift station, which was constructed in 1990 and serves over 65 EDU's, has reached the end of its useful life. This lift station has experienced a SSO in the recent past. This lift station's electrical system is classified as an arc flash Category 3.

New pumps and controls are required, along with associated piping, flow meters and odor controls. Based on condition assessments, it is assumed the existing fiberglass wet well can be rehabilitated and reused. A new bypass manhole is planned next to the existing wet well to increase operational flexibility. After a new roof is installed and the building trim painted, the existing building will be reused to house the controls. A new fence will be installed around the perimeter. The lift station is located in the public right of way with no formal easement. As part of the project, the District will obtain a formal encroachment agreement for the lift station from the County. The design is currently underway and staff anticipates will be ready to bid by early 2019. Construction is scheduled for 2019/2020.

Basis for Priority:

The lift station will continue to degrade increasing the risk of potential failures in the future which could result in hazards to the public and regulatory fines.

Project Financial Summary:			
Funded to Date:	$ 168,611	Expenditures through end of year:	$ 168,611
Spent to Date:	$ 164,217	2019 - 2023 Planned Expenditures:	$ 1,820,000
Cash flow through end of year:	$ 4,394	Total Project Estimate:	$ 1,988,611
Project Balance	$ (0)	Additional Funding Required	$ 1,820,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design/CM/Inspection	$ 70,000	$ 50,000				$ 120,000
Construction	$ 1,200,000	$ 500,000				$ 1,700,000
						$ -
TOTAL	$ 1,270,000	$ 550,000	$ -	$ -	$ -	$ 1,820,000

Estimated Funding Sources	Percentage	2019	Amount
Wastewater Rates	100%		$1,270,000
			$0
			$0
Total	100%		$1,270,000

Funding Comments: Project replaces an existing lift station for current customers.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: 16017

Project Name: DOT Construction Projects - Wastewater

Project Category: State/County Road Projects

Priority: 1 **PM:** Money **Board Approval:** 01/28/19

Project Description:

The Board has directed staff to streamline contracting procedures with the El Dorado County Department of Transportation (DOT) for the two agencies' joint projects. EID has many water and sewer lines in roads maintained by the DOT. From time to time, DOT initiates a road project where either EID water or wastewater need to be relocated or upgraded, which presents opportunities to join forces with DOT in the project by simultaneously upgrading and/or relocating our facilities. On August 10, 2015 the Board reauthorized the Master Reimbursement Agreement which is utilized for such projects. The agreement is valid for five years.

This CIP is intended for staff coordination with DOT throughout the year and for minor projects. This CIP will also be used to fund minor wastewater related relocations performed by the County under the Agreement. Larger utility relocation projects will have a specific CIP that identifies all the work associated with that project.

Basis for Priority:

Projects are required by law, regulation, contract, agreement or license. This includes projects required to meet requirements imposed by federal, State, or local governments. This also includes relocation of District facilities located in the public right-of-way as necessitated by County road improvements.

Project Financial Summary:			
Funded to Date:	$ 49,728	Expenditures through end of year:	$ 20,936
Spent to Date:	$ 20,936	2019 - 2023 Planned Expenditures:	$ 125,000
Cash flow through end of year:		Total Project Estimate:	$ 145,936
Project Balance	$ 28,792	Additional Funding Required	$ 96,208

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design/Inspection	$25,000	$25,000	$25,000	$25,000	$25,000	$ 125,000
Construction Costs						$ -
						$ -
TOTAL	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 125,000

Estimated Funding Sources	Percentage	2019 Amount
Wastewater Rates	100%	$0
		$0
		$0
Total	100%	$0

Funding Comments: Funding is 100% rates. Typically work involves replacement or relocation of existing facilities. However, funding split will be further evaluated for each project.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: 16025

Project Name: Town Center Force Main Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Money **Board Approval:**

Project Description:

This project has been identified as "high priority" due to two recent pipeline failures including a category 1 SSO failure in March 2016 and a category 3 SSO failure in April 2016. The objective of this project is to reduce the potential of sanitary sewer overflows caused by pipe failures. The eight-inch force main runs from the Town Center lift station for 2.6 miles until it ties into the Mother Lode force main at the E Dorado "Y" located two miles west of El Dorado along Mother Lode Drive. The pipe was constructed in 1981 and serves approximately 167 accounts. The pipe is asbestos cement (AC) pipe which is the same material used in the Mother Lode force main. Like the Mother Lode force main, this pipeline is failing due to the AC pipe's low corrosion resistance from the hydrogen sulfides in the pipeline. Staff recommends that the remaining potions of 8-inch AC force main be replaced.

Phase 1 Was completed under two emergency repair projects in 2016. Phase 2 was constructed in 2017-18. Design is complete for the third and fourth phases that are expected to be constructed in years 2019 and 2022 respectively.

Basis for Priority:

If the pipe is not replaced, subsequent sewer spills may occur. If sewer spills occur, the District may be subject to regulatory fines.

Project Financial Summary:			
Funded to Date:	$ 1,763,564	Expenditures through end of year:	$ 1,763,564
Spent to Date:	$ 1,629,235	2019 - 2023 Planned Expenditures:	$ 3,900,000
Cash flow through end of year:	$ 134,329	Total Project Estimate:	$ 5,663,564
Project Balance	$ 0	Additional Funding Required	$ 3,900,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design/CM	$ 100,000			$ 100,000		$ 200,000
Construction	$ 1,850,000			$ 1,850,000		$ 3,700,000
						$ -
TOTAL	$ 1,950,000	$ -	$ -	$ 1,950,000	$ -	$ 3,900,000

Estimated Funding Sources	Percentage	2019	Amount
Wastewater Rates	100%		$1,950,000
			$0
			$0
Total	100%		$1,950,000

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: 16030

Project Name: Solar Assessment Design

Project Category: Regulatory Requirements

Priority: 2 **PM:** Money **Board Approval:** 01/28/19

Project Description:

At the October 13, 2015 Board meeting, the Board directed staff to investigate power mitigation projects. Three projects were initially identified, in-conduit hydro for Tank 3 and Tank 7, and the addition of a solar field. Out of this investigation, in-conduit hydro at Tank 7 and the addition of a new solar field are the most viable. Project number 13013 is assigned to The Tank 7 project, while the solar field expansion is now project 16030.

At the September 11, 2017 Board meeting, the Board approved staff to move forward with a Basis of Design Report (BODR) to identify any available tariffs and/or grants available to the District, develop a system advisory model (SAM) to facilitate the evaluation for renewable energy facilities proposed for the District including solar and onsite battery storage, evaluate the costs of interconnection fees with PG&E at each proposed site, and refine project cost estimates based on 30% design level plans and specifications.

Staff will issue and negotiate a contract with a solar provider in the Fall of 2018 and early Winter 2019. The cost of the solar facilities, consultant costs, and any other qualifying cost will be absorbed into the rates and conditions included in the provider's contract. Costs included in this CIP include project administration and construction inspection costs through the completion of the project.

Basis for Priority:

Provide increased revenues and/or reduced costs.

Project Financial Summary:			
Funded to Date:	$ 378,868	Expenditures through end of year:	$ 343,785
Spent to Date:	$ 178,785	2019 - 2023 Planned Expenditures:	$ 120,000
Cash flow through end of year:	$ 165,000	Total Project Estimate:	$ 463,785
Project Balance	$ 35,084	Additional Funding Required	$ 84,917

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Construction/CM	$ 90,000	$ 30,000				$ 120,000
						$ -
		*	*	*	*	$ -
						$ -
TOTAL	$ 90,000	$ 30,000	$ -	$ -	$ -	$ 120,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	50%	$27,458
Water FCCs	50%	$27,458
		$0
Total	**100%**	**$54,917**

Funding Comments: Estimated construction costs are for two 1MW owner operated facilities

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: 17020

Project Name: Wastewater Collection System Pipeline Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Carrington **Board Approval:** 01/28/19

Project Description:

The District has two large collection systems, El Dorado Hills and Deer Creek Collection Systems. These systems are served by a series of lift stations, force mains, and gravity mains that convey wastewater to the El Dorado Hills Wastewater Treatment Plant and the Deer Creek Wastewater Treatment Plant. Together, the plants serve approximately 22,000 connections. The systems are regulated under the State Water Resources Control Board General Waste Discharge Requirements Order No. 2006-003-DWQ adopted in May 2006 and the amendment to the Monitoring and Reporting Program of the SSR WDR, Order No. WQ 2013-0058-EXEC. The District has approximately 2,334,612 linear feet of pipeline (force main 312,877 and gravity sewer 2,021,735). Fifty-two percent of the pipeline is PVC, 26% asbestos cement, 8% is vitreous clay, 1% is ductile iron and 13% has not been delineated. Life of PVC piping is estimated at 100 years, but some sections of vitreous clay pipe and asbestos cement pipe is past its useful life and already failing. This project begins to meet the needs of infrastructure rehabilitation or replacement with the current funding capabilities. A design contract for the rehabilitation of twenty pipelines was awarded in August, 2017 and is expected to be completed late 2018. Construction of this project will occur Spring/Summer of 2019.

Basis for Priority:

Maintain credibility with the regulators and public for infrastructure maintenance by having a proactive pipeline replacement program. One significant spill to waters of the state could cost the District $10 per gallon in fines.

Project Financial Summary:			
Funded to Date:	$ 168,440	Expenditures through end of year:	$ 134,154
Spent to Date:	$ 84,154	2019 - 2023 Planned Expenditures:	$ 1,050,000
Cash flow through end of year:	$ 50,000	Total Project Estimate:	$ 1,184,154
Project Balance	$ 34,286	Additional Funding Required	$ 1,015,714

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design/CM	$ 50,000					$ 50,000
Construction	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 1,000,000
TOTAL	$ 250,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 1,050,000

Estimated Funding Sources	Percentage	2019	Amount
Wastewater Rates	100%		$215,714
Total	100%		$215,714

Funding Comments:

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **Wastewater**

Project Number: 17023

Project Name: Rancho Ponderosa LS Relocation/Abandonment

Project Category: Reliability & Service Level Improvements

Priority: 1 **PM:** Money **Board Approval:** 01/28/19

Project Description:

The existing Rancho Ponderosa Wastewater Lift Station was constructed without securing a viable property easement to access and service the lift station. Additionally, the existing site is constrained and difficult to access with maintenance equipment. The lift station currently serves 16 EDU's. Access to the site currently requires the use of an adjacent property owner's gated driveway that services their personal residence.

Recently the District was required to negotiate continued access to the site which requires that the District pay the property owner on a monthly basis for access and that the station be relocated.

This project will evaluate relocating the lift station or bypassing the station with a gravity sewerline. Engineered plans and specifications and a construction contract will then be developed for the selected alternative. If the lift station is bypassed there may be additional costs to purchase and record easements for the bypass pipeline.

Basis for Priority:

Project is required by law, regulation, contract, agreement, or license.

Project Financial Summary:			
Funded to Date:	**$ 147,620**	**Expenditures through end of year:**	**$ 118,146**
Spent to Date:	**$ 36,146**	**2019 - 2023 Planned Expenditures:**	**$ 480,000**
Cash flow through end of year:	**$ 82,000**	**Total Project Estimate:**	**$ 598,146**
Project Balance	**$ 29,474**	**Additional Funding Required**	**$ 450,526**

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Legal/Survey	**$ 50,000**					**$ 50,000**
CM	**$ 30,000**					**$ 30,000**
Construction	**$ 400,000**					**$ 400,000**
						$ -
TOTAL	**$ 480,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 480,000**

Estimated Funding Sources	**Percentage**	**2019**	**Amount**
Wastewater Rates	100%		$450,526
			$0
			$0
Total	**100%**		**$450,526**

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: 17033

Project Name: DCWWTP Process Control Design

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Money **Board Approval:** 01/28/19

Project Description:

This project's scope is a complete evaluation of Deer Creek's SCADA system. The intention is to identify the areas that require improvements and create a design to correct these deficiencies. This automation design will focus on reliability, regulatory compliance, operating efficiency and power consumption reporting.

Basis for Priority:

Deer Creek's automation system consists of end of life control systems that suffers from incomplete control solutions and reliability issues. Deer Creek's Operational staff has identified multiple automation issues that impact the level of labor required to operate the system and stay in compliance. Additionally, there are no current tools which provide Operations feedback on how plant tuning parameters can affect one of the District's biggest costs of operation, power.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 36,718
Spent to Date:	$ 6,718	2019 - 2023 Planned Expenditures:	$ 1,420,000
Cash flow through end of year:	$ 30,000	Total Project Estimate:	$ 1,456,718
Project Balance	$ 13,282	Additional Funding Required	$ 1,406,718

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning	$ 45,000					$ 45,000
Design	$ 175,000					$ 175,000
Construction PLC Replacements		$ 550,000	$ 325,000	$ 325,000		$ 1,200,000
Do Control						$ -
TOTAL	$ 220,000	$ 550,000	$ 325,000	$ 325,000	$ -	$ 1,420,000

Estimated Funding Sources	Percentage	2019 Amount
Wastewater Rates	100%	$206,718
		$0
		$0
Total	100%	$206,718

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: 17034

Project Name: Wastewater Collections Facility Relocation

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wells **Board Approval:** 01/28/19

Project Description:

The corporation yard used to support the sewer collection crew will be moved from Bass Lake to El Dorado Hills Wastewater Treatment Plant if all permits and approvals are obtained. The District contracted all lab services at a cost savings of approximately $500,000 annually leaving a building available on the EDH WWTP site. This building will be modified for crew use. Vehicle parking for the collections fleet, bins for materials storage, and a building for construction storage will be part of the design at the plant.

Basis for Priority:

The property is under contract at this time.

Project Financial Summary:			
Funded to Date:	$ 251,498	Expenditures through end of year:	$ 141,448
Spent to Date:	$ 66,448	2019 - 2023 Planned Expenditures:	$ -
Cash flow through end of year:	$ 75,000	Total Project Estimate:	$ 141,448
Project Balance	$ 110,050	Additional Funding Required	$ -

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning	$ 20,000					$ 20,000
Design	$ 80,000					$ 80,000
Construction	$ 825,000					$ 825,000
Proceeds from Bass Lake Sale	$ (925,000)					$ (925,000)
TOTAL	$ -	$ -	$ -	$ -	$ -	$ -

Estimated Funding Sources	Percentage	2019 Amount
Wastewater rates	100%	$0
		$0
		$0
Total	100%	$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: 17046

Project Name: Strolling Hills Pipeline Improvements

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Carrington **Board Approval:** 01/28/19

Project Description:

The Motherlode Force Main transitions to gravity flow before it enters Strolling Hills Road and continues downhill toward the Deer Creek Wastewater Treatment Plant. Several services are connected directly to the 12-inch PVC pipe that conveys flows along this segment. During large storm events and elevated flows the District has received complaints regarding off gassing of the 12-inch line through plumbing fixtures within private residences. This project will address complaints by adding additional hydraulic capacity.

This project will include a Basis of Design report, biddable plans and specifications, a phasing plan, and construction of approximately 6,000 feet of increased diameter pipe. The Strolling Hills pipe was identified in the 2013 Wastewater Master Plan as a candidate for increased capacity. The Basis of Design report will address past complaints as well as system capacity concerns.

Basis for Priority:

Maintain and enhance existing assets.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 35,934
Spent to Date:	$ 20,934	2019 - 2023 Planned Expenditures:	$ 2,180,000
Cash flow through end of year:	$ 15,000	Total Project Estimate:	$ 2,215,934
Project Balance	$ 14,066	Additional Funding Required	$ 2,165,934

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning	$ 30,000					$ 30,000
Design		$ 150,000				$ 150,000
Construction			$ 1,000,000	$ 1,000,000		$ 2,000,000
						$ -
TOTAL	$ 30,000	$ 150,000	$ 1,000,000	$ 1,000,000	$ -	$ 2,180,000

Estimated Funding Sources	Percentage	2019 Amount
Wastewater Rates	50%	$7,967
Wastewater FCCs	50%	$7,967
		$0
Total	100%	$15,934

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: 18003

Project Name: Wastewater Communication Upgrade

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Carrington **Board Approval:** 01/28/19

Project Description:

This project will first look at determining the communication feasibility at each wastewater pump station and then determine the priority of replacing the obsolete PLC/RTUs and add the required monitoring equipment (instrumentation) at the lift stations.

In 2013 and 2014 staff went through an extensive process to define a standardized PLC system setup for all lift stations. Two PLCs were installed in late 2013 and 2014 by staff to wring out the process for planning future installations. 2020-2023 will see a significant catch up effort at 20 stations to address deferred upgrades of existing out-of-date PLCs used extensively for process control in the collection systems. The existing PLCs are now about 30 years old and 10 years beyond their expected useful life. Additionally, these PLCs only provide 10-20% of the monitoring capabilities compared to current standard PLC's (3 to 5 monitoring points versus 30) meaning these facilities have no ability to report pump failures or incrementally report on wet well levels before reaching the high water limit. Also, they can go up to 24 hours before alerting of a communications or control issue, while current standard PLCs will alert within 5 minutes (a 288% increase in time to detect issues proactively). Locating replacement parts and technical support for the old PLCs is nearly impossible.

This project also includes professional services funding to design the electrical and mechanical elements for installation and integration of the PLCs into the facilities and outside construction to install the new PLC systems.

Basis for Priority:

End of Life cycle replacement for PLCs / radios controlling wastewater collections. These units are 10 years beyond end of life (15 years in some cases) and require above normal maintenance attention. The District struggles with finding parts and keeping these units in service. The SCADA Group highly recommends immediate replacement to significantly reduce the risks of sanitary sewer overflows (SSO).

Project Financial Summary:			
Funded to Date:	$ 348,388	Expenditures through end of year:	$ 185,880
Spent to Date:	$ 105,880	2019 - 2023 Planned Expenditures:	$ 3,960,000
Cash flow through end of year:	$ 80,000	Total Project Estimate:	$ 4,145,880
Project Balance	$ 162,508	Additional Funding Required	$ 3,797,492

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design/CM		$ 20,000	$ 20,000	$ 60,000	$ 60,000	$ 160,000
Construction		$ 400,000	$ 400,000	$ 1,500,000	$ 1,500,000	$ 3,800,000
						$ -
TOTAL	$ -	$ 420,000	$ 420,000	$ 1,560,000	$ 1,560,000	$ 3,960,000

Estimated Funding Sources	Percentage	2019 Amount
Wastewater Rates	100%	$0
		$0
		$0
Total	100%	$0

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: 18015

Project Name: EDHWWTP Odor Control

Project Category: Reliability & Service Level Improvements

Priority: 1 **PM:** Carrington **Board Approval:** 01/28/19

Project Description:

The El Dorado Hills Wastewater Treatment Plant has two flow-equalization tanks, each with an odor control carbon scrubber. Odor complaints from the surrounding residents initiated an assessment of the current units. Findings included significant deterioration of the internal screens which lead to the breakthrough of odors.

After preliminary investigations, engineering and operations staff concluded that a new form of odor control would more cost effective than replacing the failing components and continuing to incur costs associated with annual carbon media replacement. HydroScience Engineers was retained to assist with developing alternatives for odor control as well as future design of improvements. The completed analysis indicated that a bio-filter adjacent to the existing equalization tanks would be the most cost effective for construction and long-term maintenance.

Basis for Priority:

Maintain credibility with the regulators and public for infrastructure maintenance by addressing air quality and odor control complaints.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 50,000
Spent to Date:	$ 11,164	2019 - 2023 Planned Expenditures:	$ 787,000
Cash flow through end of year:	$ 38,836	Total Project Estimate:	$ 837,000
Project Balance	$ (0)	Additional Funding Required	$ 787,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design	$ 37,000					$ 37,000
Construction	$ 750,000					$ 750,000
						$ -
TOTAL	$ 787,000	$ -	$ -	$ -	$ -	$ 787,000

Estimated Funding Sources	Percentage	2019	Amount
Wastewater Rates	100%		$787,000
			$0
			$0
Total	100%		$787,000

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: 18027

Project Name: El Dorado Lift Pipeline Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Carrington **Board Approval:** 01/28/19

Project Description:

The El Dorado Lift Station serves approximately 2500 EDU's and is a critical component to the Deer Creek wastewater collection system. Several sections of 36-inch spirolite pipe upstream of the El Dorado Lift Station have been identified as significantly damaged and in need to replacement and/or repair. Construction of the pipe project is planned for Spring/Summer of 2019.

Basis for Priority:

Maintain credibility with the regulators and public for infrastructure maintenance by performing necessary pipeline replacement and/or repair. One significant spill to waters of the state could cost the District $10 per gallon in fines.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 14,052
Spent to Date:	$ 4,052	2019 - 2023 Planned Expenditures:	$ 285,000
Cash flow through end of year:	$ 10,000	Total Project Estimate:	$ 299,052
Project Balance	$ 35,948	Additional Funding Required	$ 249,052

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design	$ 35,000					$ 35,000
Construction	$ 250,000					$ 250,000
						$ -
TOTAL	$ 285,000	$ -	$ -	$ -	$ -	$ 285,000

Estimated Funding Sources	Percentage	2019	Amount
Wastewater Rates	100%		$249,052
			$0
			$0
Total	100%		$249,052

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: PLANNED
Project Name: 2019 Wastewater Equipment Replacement Program
Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Money **Board Approval:** 01/28/19

Project Description:

This is an annual program to replace equipment and facilities used in the wastewater system that have failed or reached end of useful life. This program differs from ongoing maintenance programs in that the equipment, facilities, and labor attributed to these assets constitute a replacement of a capitalized asset. Assets to be replaced or upgraded under this program include but are not limited to pumps, valves, generators, electrical and instrumentation systems, treatment plant equipment, and collection system assets that with replacement will extend the life of the associated system or facility. Items to be replaced each year will be prioritized using ongoing condition assessments and the asset management policies of the district.

Basis for Priority:

Project purpose is to maintain existing assets and prolong their useful service life and reliability.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 13,687
Spent to Date:	$ 13,687	2019 - 2023 Planned Expenditures:	$ 1,000,000
Cash flow through end of year:		Total Project Estimate:	$ 1,013,687
Project Balance	$ 36,313	Additional Funding Required	$ 963,687

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design						$ -
Construction	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 1,000,000
						$ -
TOTAL	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 1,000,000

Estimated Funding Sources	Percentage	2019	Amount
Wastewater Rates	70%		$114,581
Wastewater FCCs	30%		$49,106
Total	100%		$163,687

Funding Comments: Funding split based on available plant capacity

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: PLANNED

Project Name: 2019 Wastewater Generator Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Money **Board Approval:** 01/28/19

Project Description:

The District currently has 45 permanently located (stationary) generators within the wastewater collections system. Thirteen are larger than 200 Kw and are emergency standby power at the wastewater and water treatment plants as well as pumping stations. Some of the sewer lift stations also have either diesel or propane generators for emergency power. This program is to replace the failing and aging assets to ensure reliable service and safe operations at our facilities.

Basis for Priority:

Replace failing assets to ensure operation of collection system lift stations.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 550,000
Cash flow through end of year:		Total Project Estimate:	$ 550,000
Project Balance	$ -	Additional Funding Required	$ 550,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design						$ -
Construction	$150,000	$150,000	$150,000	$100,000		$ 550,000
						$ -
TOTAL	$ 150,000	$ 150,000	$ 150,000	$ 100,000	$ -	$ 550,000

Estimated Funding Sources	Percentage	2019	Amount
Wastewater Rates	100%		$150,000
			$0
			$0
Total	100%		$150,000

Funding Comments: Project replaces existing assets to ensure reliability in collection system.

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **Wastewater**

Project Number: PLANNED

Project Name: EDHWWTP Maintenance Storage

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Wells **Board Approval:**

Project Description:

This project is a companion to PN 17034 - Wastewater Collections Facility Relocation. This new building will be constructed on the existing wastewater plant property, and allow for water and collections staff to share a common facility from which they can provide a wide range of services, including emergency response, as well as routine and preventative maintenance on plant and District-wide assets. This CIP would also cover funding for site access improvements, installation of a water line and fire hydrant, and construction of 4 large material bins that would contain gravel, aggregate base, sand and cut back.

Basis for Priority:

Project enhances reliability of existing assets and resources.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 1,000,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 1,000,000
Project Balance	$ -	**Additional Funding Required**	$ 1,000,000

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Study/Planning						$ -
Design						$ -
Construction	$ 500,000	$ 500,000				$ 1,000,000
						$ -
TOTAL	$ 500,000	$ 500,000	$ -	$ -	$ -	$ 1,000,000

Estimated Funding Sources	**Percentage**	**2019**	**Amount**
Wastewater FCC	100%		$500,000
			$0
			$0
Total	**100%**		**$500,000**

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: PLANNED

Project Name: EDHWWTP PLC Replacement Project

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Carrington **Board Approval:** 01/28/19

Project Description:

Replacement of end of life PLC equipment

Basis for Priority:

This hardware is failing and has been a service reliability and maintenance issue. This equipment is life cycled out. The original installation was over 25 years ago. Parts are no longer being made for these units and they are diffcult to service.

Project Financial Summary:			
Funded to Date:		Expenditures through end of year:	$ -
Spent to Date:		2019 - 2023 Planned Expenditures:	$ 810,000
Cash flow through end of year:		Total Project Estimate:	$ 810,000
Project Balance	$ -	Additional Funding Required	$ 810,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design AB 5 PLC Replacement		$ 85,000				$ 85,000
Construction PLC 5			$ 225,000			$ 225,000
Construction PLC 3				$ 275,000	.	$ 275,000
Construction PLC 4					$ 225,000	$ 225,000
Construction PLC 6						$ -
						$ -
						$ -
TOTAL	$ -	$ 85,000	$ 225,000	$ 275,000	$ 225,000	$ 810,000

Estimated Funding Sources	Percentage	2019	Amount
Wastewater Rates	100%		$1,035,000
Total	100%		$1,035,000

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: PLANNED

Project Name: EDHWWTP WAS DAFT Rehabilitation

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Carrington **Board Approval:** 01/28/19

Project Description:

The waste-activated-sludge dissolved-air-floatation-thickener (WAS DAFT) located at the El Dorado Hills Wastewater Treatment Plant (EDHWWTP) has reached the end of its useful life. The WAS DAFT is utilized to control the amount of microorganisms in the wastewater treatment process by thickening waste-activated sludge before is pumped to the anaerobic digester.

This project will rehabilitate the WAS DAFT concrete unit, replace the air dissolution system, and replace the mechanical components within the unit. Various mechanical components to be replaced include the center drive, distribution well, skimmer arm, bottom scraper arms, float box, baffle skirt, DAF feed well connection pipe, walkway system, and necessary valves, boxes, meters, and piping.

Basis for Priority:

Wastewater at the EDHWWTP is biologically treated with waste-activated-sludge. The deteriorating WAS DAFT unit is utilized to control the amount of microorganisms to create an efficient treatment process. If the WAS DAFT were to fail, the treatment process would be highly in-efficient and the risk of a spill during a storm event would be increased.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 15,000
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 830,000
Cash flow through end of year:	$ 15,000	Total Project Estimate:	$ 845,000
Project Balance	$ 35,000	Additional Funding Required	$ 795,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design	$ 80,000					$ 80,000
Construction	$ 750,000					$ 750,000
						$ -
TOTAL	$ 830,000	$ -	$ -	$ -	$ -	$ 830,000

Estimated Funding Sources	Percentage	2019	Amount
Wastewater Rates	100%		$795,000
			$0
			$0
Total	100%		$795,000

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Wastewater

Project Number: PLANNED

Project Name: Wastewater Lift Station Upgrade Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Money **Board Approval:** 01/28/19

Project Description:

This program combines future lift station upgrades into a single CIP to plan anticipates expenditures. There are several locations that are being or have been investigated. Those locations include: El Dorado Lift Station, Thunderhead Lift Station, and Summit 3 Lift Station. This program will continue to evaluate all facilities for future work.

The Thunderhead Lift Station is located in the Diamond Springs area. Staff anticipates the lift station will require a complete redesign within the next five years. This lift station would be designed to handle all flows from its collection area and the Motherlode Lift Station collection area. This would allow the elimination of the Motherlode Lift Station under a separate program. Design is anticipated to cost $80,000 in 2019 with construction costs estimated at $600,000 in 2020. These costs are not reflected in the project financial summary because a timeline has not been determined for this project. The Motherlode elimination costs are not included in this estimate.

The El Dorado Lift Station (EDLS) is the main pumping facility for the Mother Lode (eastern area) of the District to the DCWWTP via the Mother Lode force main. The EDLS is a critical District facility located in the town of El Dorado and currently serves 2534 EDUs. The facility was constructed in 1975 and is in need of major repairs to the majority of the key components to increase reliability and facilitate operations. A basis of design report was completed in 2015 and staff anticipates a full design in 2021 with construction in 2022/2023. Design is budgeted for $300,000 and construction is estimated at $3,200,000.

The Summit 3 Lift Station will continue to be evaluated as budget allows.

Basis for Priority:

This project provides replacement of failing components at this critical facility; thereby providing safe, reliable collection system assets.

Project Financial Summary:			
Funded to Date:	$ 345,591	**Expenditures through end of year:**	$ 322,970
Spent to Date:	$ 322,970	**2019 - 2023 Planned Expenditures:**	$ 2,480,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 2,802,970
Project Balance	$ 22,621	**Additional Funding Required**	$ 2,457,379

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design		$ 80,000		$ 300,000		$ 380,000
Construction			$ 600,000		$ 1,500,000	$ 2,100,000
TOTAL	$ -	$ 80,000	$ 600,000	$ 300,000	$ 1,500,000	$ 2,480,000

Estimated Funding Sources	Percentage	2019	Amount
Wastewater Rates	65%		$0
Wastewater FCC	35%		$0
Total	**100%**		**$0**

Funding Comments: funding split based on plant capacity

Recycled Water Projects

2019	CAPITAL IMPROVEMENT PLAN	Program:	Recycled Water

Project Number: 17030

Project Name: DC Discharge Management

Project Category: Regulatory Requirements

Priority: 3 **PM:** Money **Board Approval:** 01/28/19

Project Description:

The State Water Resources Control Board, Division of Water Rights approved a Temporary Change Petition filed by the District allowing the reduction of treated wastewater discharges from the Deer Creek Wastewater Treatment Plant into Deer Creek in 2014 and 2015. The additional supply was used to meet recycled water demands, thus reducing the amount of potable water supplementation. Staff had difficulty modifying and managing the reduced flows into Deer Creek. Adjusting and monitoring the discharge flow rate had to be managed by staff manually, creating overtime and fatigue. The plant has a storage tank for influent flows, and plant water supply pumps. All three of these systems could be managed/modified to allow for the automatic calculation and throttling of discharge based on legal obligations from the Division of Water Rights. Automation of permit requirements helps assure the District meets the stringent requirements for the discharge and assures regulators that the fish are being protected. The estimated expenditures listed are estimates at this time; no design has been completed.

Basis for Priority:

Water Right acquisition requires optimization and automation to dial in discharge flow rates based on fish population needs along Deer Creek.

Project Financial Summary:			
Funded to Date:	$ 15,000	Expenditures through end of year:	$ 2,962
Spent to Date:	$ 462	2019 - 2023 Planned Expenditures:	$ 415,000
Cash flow through end of year:	$ 2,500	Total Project Estimate:	$ 417,962
Project Balance	$ 12,038	Additional Funding Required	$ 402,962

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design	$ 45,000					$ 45,000
Construction	$ 185,000	$ 185,000				$ 370,000
						$ -
TOTAL	$ 230,000	$ 185,000	$ -	$ -	$ -	$ 415,000

Estimated Funding Sources	Percentage	2019	Amount
Recycled Water Rates	100%		$217,962
			$0
			$0
Total	100%		$217,962

Funding Comments:

Hydroelectric Projects

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **Hydroelectric**

Project Number: 11004

Project Name: Lake Aloha Dam Repairs

Project Category: Regulatory Requirements

Priority: 1 **PM:** Kessler **Board Approval:** 01/28/19

Project Description:

Necessary repairs for Lake Aloha Dams include the reinforcement of the outlet gate tower (as required by CA Division of Safety of Dams), sealing the upstream face of the Main and Auxiliary Dams, and repairing eroded areas at the base of several auxiliary dams on the reservoir side. The design for the outlet tower reinforcement has been completed and approved by FERC and DSOD. Potential impacts to cultural resources have been evaluated, and the FS has concurred with the District's finding of no effect. Materials and equipment will be transported by helicopter to support in-house construction planned for fall 2019.

This project continues the work of the previously approved and funded PN 04002H.

Basis for Priority:

Non-compliance with FERC and DSOD dam safety regulations.

Project Financial Summary:			
Funded to Date:	**$ 276,583**	**Expenditures through end of year:**	
Spent to Date:	**$ 58,295**	**2019 - 2023 Planned Expenditures:**	**$ 100,000**
Cash flow through end of year:	**$ 5,000**	**Total Project Estimate:**	**$ 100,000**
Project Balance	**$ 213,288**	**Additional Funding Required**	**$ -**

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Study/Planning	**$ 5,000**					**$ 5,000**
Design						**$ -**
Construction	**$ 95,000**					**$ 95,000**
						$ -
TOTAL	**$ 100,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 100,000**

Estimated Funding Sources	**Percentage**	**2019 Amount**
Water FCCs	53%	$0
Water Rates	47%	$0
		$0
Total	**100%**	**$0**

Funding Comments:

2019 CAPITAL IMPROVEMENT PLAN Program: Hydroelectric

Project Number: 11005
Project Name: Silver Lake Dam Replacement
Project Category: Regulatory Requirements

Priority: 1 **PM:** Kessler **Board Approval:** 01/28/19

Project Description:

The long-term reliability of the dam came into question in the spring of 2015 when a sink hole was discovered. In response, DSOD restricted the reservoir level, and the District conducted emergency repairs and a corresponding geotechnical investigation. The likely cause of the sink hole was the creation of voids in the dam as a result of rotting interior logs that have been encapsulated as fill and were part of the original rock and soil filled timber crib structure constructed in 1876. Other evidence of voids occurring within the fill of the dam is uneven crest settlement and shifting locations of leakage discharge. In addition, the upstream gunite face of Silver Lake Dam is at the end of its useful life and no longer reliable. Repairs have been employed since the late 1990's to stem leakage and extend the life of the 50-year old gunite. However, the gunite continues to thin, crack and crumble making repairs increasingly less durable and sustainable. Unforeseeable periods of leakage have also caused delayed filling or early drawdown of the reservoir resulting in loss of water supply and power generation. The leakage through the dam has to be controlled to acceptable rates in order to prevent creation of more voids in the dam as caused by soil particle migration (piping).

The District has evaluated rehabilitation/replacement alternatives to remediate the three major defects (upstream face, interior fill, spillway capacity). The alternatives analysis was submitted to FERC and DSOD in fall 2016, and District staff met with their representatives in January 2017. FERC and DSOD agreed with the District's preliminary findings that the most effective, reliable and least cost alternative is to replace the dam. The project will need to undergo a progression of design and environmental activities over the next several years beginning in 2019 with preparing a Basis of Design Memorandum, conducting a geotechnical investigation to establish foundation conditions, and performing initial environmental review and permitting. As these steps evolve and refine the project, the District will be able to estimate the construction cost with greater accuracy.

This project continues the work of the previously approved and funded PN 06017H.

Basis for Priority:

Compliance with FERC and DSOD dam safety program requirements.

Project Financial Summary:			
Funded to Date:		**Expenditures through end of year:**	**$ -**
Spent to Date:		**2019 - 2023 Planned Expenditures:**	**$ 1,350,000**
Cash flow through end of year:		**Total Project Estimate:**	**$ 1,350,000**
Project Balance	**$ -**	**Additional Funding Required**	**$ 1,350,000**

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Study/Planning	**$150,000**	**$150,000**	**$ 150,000**	**$ 150,000**	**$ 150,000**	**$ 750,000**
Design		**$ 150,000**	**$ 150,000**	**$ 150,000**	**$ 150,000**	**$ 600,000**
Construction				*	*	**$ -**
TOTAL	**$ 150,000**	**$ 300,000**	**$ 300,000**	**$ 300,000**	**$ 300,000**	**$ 1,350,000**

Estimated Funding Sources	**Percentage**	**2019**	**Amount**
Water FCCs	53%		$79,500
Water Rates	47%		$70,500
Total	**100%**		**$150,000**

Funding Comments: Preliminary construction cost estimate not included in 5 year planning horizon. Construction is assumed to take place beyond 5-years but may be accelerated based on further analysis and regulatory feedback.

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: 14024

Project Name: Flume 44 Canal Conversion

Project Category: Reliability & Service Level Improvements

Priority: 1 **PM:** Mutschler **Board Approval:** 01/28/19

Project Description:

Flume 44 is 476 feet in length and last replaced in 1948. The wooden flume consists of one ground level and three elevated flume segments with a maximum height of 34 feet traversing a large existing landslide. The flume has been relined with plywood in 1997 and 2002. Extensive repairs were made to the flume by District crews between 2002 and 2004. In 2014 a comprehensive inspection and physical testing of the asset was conducted showing that the structural members were in degraded condition. As a result, additional repairs were performed on the asset to allow for the continued operations until a complete phased replacement of the flume can be performed. The project includes installing U-shaped canal on 1,800 feet of canal, widen the bench to provide construction and maintenance access, stabilize the active landslide which the elevated flume traverses, and replace the degraded elevated timber flume with a mechanically stabilized earth bench and U-shaped canal. This project is currently under construction and will be completed during the 2019 outage. K.W. Emerson is the contractor that has been awarded this project

Basis for Priority:

Under construction.

Project Financial Summary:			
Funded to Date:	$ 14,434,862	Expenditures through end of year:	$ 6,104,275
Spent to Date:	$ 1,104,275	2019 - 2023 Planned Expenditures:	$ 8,330,587
Cash flow through end of year:	$ 5,000,000	Total Project Estimate:	$ 14,434,862
Project Balance	$ 8,330,587	Additional Funding Required	$ 0

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design						$ -
Construction Costs	$7,130,587	$1,000,000				$ 8,130,587
Warranty/FERC QCIP	$ 125,000	$75,000				$ 200,000
TOTAL	$ 7,255,587	$ 1,075,000	$ -	$ -	$ -	$ 8,330,587

Estimated Funding Sources	Percentage	2019	Amount
Water FCCs	53%		$0
Water Rates	47%		$0
			$0
Total	100%		$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: 16022

Project Name: Flume 38-40 Canal Conversion

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Mutschler **Board Approval:** 01/28/19

Project Description:

In 2014, an inspection of the flumes listed in Table 1 found severe degradation of the wooden flume structures that could result in failure. As a result of the inspection, interim repairs were made to Flumes 39/40 to maintain the safe operation of the flumes until a full replacement can occur.

The proposed project includes localized improvements to canal and conversion of wooden flume structures to box culvert canal structures supported on Mechanically Stabilized Earth (MSE) walls. Project components include all-weather Aggregate Base Rock (AB) surface improvements to Camp X Road, a new canal crossing at the siphon, canal bench AB improvements, conversion of Flumes 38 and 39/40 to canal with a new MSE bench, repair of the landslide at the L-Wall (immediately downstream of 39/40), canal replacement, canal crossing at Road R71, and AB improvements to Road R71 to eliminate helicopter use and provide construction and maintenance access. Construction is estimated to occur in 2020 . Current construction cost estimates are based on a 50% design level plans. The cost estimate will be refined as the project design becomes finalized.

Basis for Priority:

The flume will continue to deteriorate potentially causing flume failures that would result in significant impacts to environmentally sensitive areas. Additionally, one third of the District's water supply would be out of service for an extended period to make emergency repairs resulting in interruption of the reliable delivery of water for consumptive use and hydroelectric power generation.

Project Financial Summary:			
Funded to Date:	$ 916,753	Expenditures through end of year:	$ 768,073
Spent to Date:	$ 568,073	2019 - 2023 Planned Expenditures:	$ 14,098,000
Cash flow through end of year:	$ 200,000	Total Project Estimate:	$ 14,866,073
Project Balance	$ 148,680	Additional Funding Required	$ 13,949,320

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning/Env	$ 40,000	$ 10,000				$ 50,000
Design	$ 148,000					$ 148,000
Construction			$ 13,600,000	$ 100,000		$ 13,700,000
Warranty/FERC QCIP			$ 100,000	$ 100,000		$ 200,000
TOTAL	$ 188,000	$ 10,000	$ 13,700,000	$ 200,000	$ -	$ 14,098,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	47%	$18,480
Water FCCs	53%	$20,839
		$0
Total	100%	$39,320

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: 16044

Project Name: Pacific Tunnel Portal Rehab

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Mutschler **Board Approval:** 01/28/19

Project Description:

The Pacific Tunnel was constructed in 1929 and is approximately 300 feet in length. The upstream and downstream tunnel portals were replaced in 2003 and constructed of untreated timber, which are now in degraded condition and must be replaced with new timber or permanent steel reinforced shotcrete portals. The tunnel between the portals is unlined and comprised of soft relatively volcanic rock that has eroded below the high water line. To prevent continued erosion of the tunnel and prevent failure, a new steel reinforced shotcrete liner and invert slab must be installed to stop further erosion of the tunnel invert and walls. The geotechnical assessment and design for the project have not been started so the construction costs shown in this CIP is an estimate based on construction costs for the Esmeralda Tunnel. Construction cost estimates will be refined upon completion of the geotechnical assessment and design.

Basis for Priority:

The Pacific Tunnel portals, interior side walls, and invert will continue to degrade that will result in the ultimate collapse of the tunnel if not addressed. Failure of the tunnel would cause interruption of Project 184 water deliveries that provides one-third of the District's water supply and hydroelectric power generation for an extended period in order to make emergency repairs.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 30,476
Spent to Date:	$ 30,476	2019 - 2023 Planned Expenditures:	$ 1,977,500
Cash flow through end of year:		Total Project Estimate:	$ 2,007,976
Project Balance	$ 19,524	Additional Funding Required	$ 1,957,976

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning/Env	$ 15,000	$ 10,000				$ 25,000
Design	$ 160,000					$ 160,000
Construction		$ 1,667,500	$ 25,000			$ 1,692,500
FERC/QCIP		$ 75,000	$ 25,000			$ 100,000
TOTAL	$ 175,000	$ 1,752,500	$ 50,000	$ -	$ -	$ 1,977,500

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	47%	$73,074
Water FCCs	53%	$82,402
		$0
Total	100%	$155,476

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: 16046

Project Name: Powerhouse Roof

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Kessler **Board Approval:** 01/28/19

Project Description:

The El Dorado Powerhouse roof has been maintained over the past 30 + years by applying an overlay membrane/coating onto previous ones. This method of maintenance has become ineffective due to various drainage and failing roof penetration issues. As a result, the roof is leaking and causing structural damage. Roof leakage and drainage is also creating a safety hazard in some areas due to its uncontrolled path into high volltage (6,600 Volt) bus work and switchgear. The District has conducted an engineering assessment with structural and roofing specialists, and obtained recommendations for roof covering removal and replacement including drainage improvements. Next steps include conducting a structural assessment, choosing a roofing system among alternatives, developing plans and spec's, conducting construction bidding, followed by construction in 2019. PG&E has indicated a willingness to cost share in proportion to their switchyard facilities with the overall scope of work.

Basis for Priority:

Maintain existing assets and safety for personnel working conditions.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 36,690
Spent to Date:	$ 24,690	2019 - 2023 Planned Expenditures:	$ 350,000
Cash flow through end of year:	$ 12,000	Total Project Estimate:	$ 386,690
Project Balance	$ 13,310	Additional Funding Required	$ 336,690

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design	$ 75,000					$ 75,000
Construction	$ 275,000					$ 275,000
						$ -
TOTAL	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$336,690
Water FCCs	0%		$0
			$0
Total	100%		$336,690

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: 17013H

Project Name: Forebay Dam Upgrades

Project Category: Regulatory Requirements

Priority: 1 **PM:** Kessler **Board Approval:** 01/28/19

Project Description:

Construction is underway. The Board in its August 14, 2017 meeting, authorized funding of $25,155,336, award of a $19,147,500 construction contract to Shimmick, and other associated contracts and contingency. Tiumber harvesting at the dam and in the soil borrow area was completed in 2017. Instalation of the stability berm and butress began in 2018 and will continue in 2019. Reservoir dewatering is occurring during fall 2018 enabling significant other improvements to occur to meet current dam safety standards. Construction is planned through December 15, 2019.

Basis for Priority:

Public safety is to be maintained and DSOD/FERC have issued a dam safety mandate. The Project is required to achieve the following:
- Safety: Protect life and property below the dam and meet dam safety regulatory mandates of DSOD and FERC
- Reliability: Protect and improve drinking water reliability for the District's customers
- Financial: Protect District ratepayers from the cost of required repairs by optimizing hydroelectric generation and minimizing capital costs

Project Financial Summary:			
Funded to Date:	$ 25,312,035	Expenditures through end of year:	$ 10,058,280
Spent to Date:	$ 6,058,280	2019 - 2023 Planned Expenditures:	$ 15,253,755
Cash flow through end of year:	$ 4,000,000	Total Project Estimate:	$ 25,312,035
Project Balance	$ 15,253,755	Additional Funding Required	$ 0

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design						$ -
Construction	$ 14,000,000	$ 1,253,755				$ 15,253,755
						$ -
TOTAL	$ 14,000,000	$ 1,253,755	$ -	$ -	$ -	$ 15,253,755

Estimated Funding Sources	Percentage	2019	Amount
Water FCCs	53%		$0
Water Rates	47%		$0
			$0
Total	100%		$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: 17025

Project Name: Flume 45 Abutment Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Mutschler **Board Approval:** 01/28/19

Project Description:

This section of Flume 45 is an elevated wood flume approximately 100 feet in length and last replaced in 1945, which was constructed to span a section of the historic rock bench that had previously failed. In 2014 the District crews made interim repairs to ensure the continued safe operation. The replacement of this entire flume is scheduled to occur during the scheduled canal outage in the future. This project will only address the abutment section. Construction cost estimates will be revised upon completion of the geotechnical assessment and design.

Basis for Priority:

The flume will continue to deteriorate potentially causing flume failures that would result in significant impacts to the public, Highway 50, and the South Fork of the American River. Additionally, water supply would be out of service for an extended period to make emergency repairs resulting in interruption of the reliable delivery of water for consumptive use and hydroelectric power generation.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 27,122
Spent to Date:	$ 12,122	2019 - 2023 Planned Expenditures:	$ 1,760,000
Cash flow through end of year:	$ 15,000	Total Project Estimate:	$ 1,787,122
Project Balance	$ 22,878	Additional Funding Required	$ 1,737,122

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning/Env	$ 25,000	$ 25,000				$ 50,000
Geo/Design	$ 75,000	$ 75,000				$ 150,000
Construction				$ 1,500,000		$ 1,500,000
QCIP				$ 60,000		$ 60,000
TOTAL	$ 100,000	$ 100,000	$ -	$ 1,560,000	$ -	$ 1,760,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	47%		$36,247
Water FCCs	53%		$40,875
			$0
Total	100%		$77,122

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: 17026

Project Name: Flume 47C Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Mutschler **Board Approval:** 01/28/19

Project Description:

Flume 47C is an elevated flume, approximately 150 feet in length, and constructed by PG&E in the mid 1950's. In 2016, District construction crews made interim repairs to ensure the continued safe operation until a complete replacement of the flume can occur. The geotechnical assessment and design for the project have been completed and the project is in the process of being designed. The construction costs shown in this CIP is an estimate based on the average of prior construction bids received for prior flume replacement projects. Construction cost estimates will be refined upon completion of the design.

Basis for Priority:

The flume will continue to deteriorate potentially causing flume failures that would result in significant impacts to environmentally sensitive areas. Additionally, one third of the District's water supply would be out of service for an extended period to make emergency repairs resulting in interruption of the reliable delivery of water for consumptive use and hydroelectric power generation.

Project Financial Summary:			
Funded to Date:	$ 443,955	Expenditures through end of year:	$ 365,261
Spent to Date:	$ 165,261	2019 - 2023 Planned Expenditures:	$ 2,252,500
Cash flow through end of year:	$ 200,000	Total Project Estimate:	$ 2,617,761
Project Balance	$ 78,694	Additional Funding Required	$ 2,173,806

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning/Env	$ 10,000					$ 10,000
Design	$ 67,500					$ 67,500
Construction	$ 2,100,000					$ 2,100,000
Warranty/FERC QCIP		$ 75,000				$ 75,000
TOTAL	$ 2,177,500	$ 75,000	$ -	$ -	$ -	$ 2,252,500

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	47%		$986,439
Water FCCs	53%		$1,112,367
			$0
Total	100%		$2,098,806

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: 17027

Project Name: Spill 3 Crib Wall

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Mutschler **Board Approval:** 01/28/19

Project Description:

Spillway No. 3 is located on the south side of the American River above the USFS 30-Mile Tract subdivision. Spillway No. 3 is no longer used due to the presence of erosive soils in the spillway channel. The spillway structure and canal bench at this location is supported by an earth fill bench and degraded timber crib wall, which was identified for replacement during a recent comprehensive inspection of all flumes and spillways in the Project 184 conveyance between Kyburz and Forebay Reservoir. District crews will construct the support for the canal in the spring during high flows.

Basis for Priority:

The flumes will continue to deteriorate potentially causing flume failures that may result in significant impacts to the public, Highway 50, and the South Fork of the American River. Additionally, 1/3 of the District's water supply would be out of service for an extended period to make emergency repairs resulting in possible interruption of the reliable delivery of water for consumptive use and hydroelectric power generation.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 23,396
Spent to Date:	$ 23,396	2019 - 2023 Planned Expenditures:	$ 25,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 48,396
Project Balance	$ 26,604	Additional Funding Required	$ -

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design						$ -
Construction	$ 25,000					$ 25,000
Warranty-FERC QCIP						$ -
TOTAL	$ 25,000	$ -	$ -	$ -	$ -	$ 25,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	47%		$0
Water FCCs	53%		$0
			$0
Total	100%		$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: 17028

Project Name: Flume 48 Replacement/Tunnel option

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Mutschler **Board Approval:** 01/28/19

Project Description:

Flume 48 was originally constructed of wood in 1876 and supported by an un-mortared, hand-stacked rock bench located north of Highway 50 near Camp 5. In 1948, the wooden flume was completely replaced. District crews have been performing extensive maintenance work of the asset to extend the service life of the critically degraded structure until the full replacement can occur. The District will begin evaluating two replacement alternatives for this degraded flume. Alternative 1 is to stabilize the hand-stacked rock bench utilizing stabilization measures developed and employed at Flume 41 and the degraded wood flume would be replaced with steel reinforced precast flume. Alternative 2 would be to construct a 500 foot tunnel between Flume 48 and Highway 50 and abandon approximately 700 feet of canal and 448 feet of elevated wood flume. Option 2, if feasible, could result in significantly lower construction costs but would require acquisition of an easement on an adjacent parcel and a FERC boundary adjustment. The District was able to purchace the parcel that the majority of the tunnel would be placed in 2018. This parcel will also be used as a staging area whether or not the tunnel option is feasible. Design and construction costs are unknown at this time, and will be updated in 2019 after further alternatives analysis. Construction planned to be deferred until the next bond issuance.

Basis for Priority:

The flumes will continue to deteriorate potentially causing flume failures that may result in significant impacts to the public, Highway 50, and the South Fork of the American River. Additionally, 1/3 of the District's water supply would be out of service for an extended period to make emergency repairs resulting in possible interruption of the reliable delivery of water for consumptive use and hydroelectric power generation.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 16,876
Spent to Date:	$ 1,876	2019 - 2023 Planned Expenditures:	$ 620,000
Cash flow through end of year:	$ 15,000	Total Project Estimate:	$ 636,876
Project Balance	$ 33,124	Additional Funding Required	$ 586,876

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning	$ 20,000					$ 20,000
Design/Env	$ 200,000	$ 200,000	$ 200,000		$ -	$ 600,000
Construction				*		$ -
Warranty-FERC QCIP						$ -
TOTAL	$ 220,000	$ 200,000	$ 200,000	$ -	$ -	$ 620,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	47%		$87,832
Water FCCs	53%		$99,044
			$0
Total	100%		$186,876

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: 17041

Project Name: Flume 30 Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Mutschler **Board Approval:** 01/28/19

Project Description:

Flume 30 is approximately 350 feet in length and last replaced by PG&E in the early 1990's. Abutment stability measures were implemented during the outage of 2011 to ensure the continued integrity of the entire flume. In 2015, visual inspections and core samples of the wooden structural timbers were collected and analyzed. The findings of the inspection show that when the flume was replaced in the 1990's undersized structural timber was used. This condition is compounded today by the degradation of the sills over the last 25 years that have resulted in overstressing of the wood flume support structure. In 2015, District crews added additional posts and sills and installed additional supports to the cantilevered ends of each sill end to stabilize the flume to ensure safe operation of the asset until a complete replacement can occur. The project will need to ensure that the trail to the diversion structure on Bull Creek is maintained, the Bull Creek diversion is preserved, the rock wall abutment will need to be reconstructed and the flume converted to concrete. Due to the location of this flume, all materials and supplies will need to be brought in by helicopter. The geotechnical assessment and design for the project have not been started so the construction costs are estimated based on previous projects. Construction cost estimates will be refined to the CIP upon completion of the geotechnical assessment and design.

Basis for Priority:

The flume will continue to deteriorate potentially causing flume failures that would result in significant impacts to environmentally sensitive areas. Additionally, one third of the District's water supply would be out of service for an extended period to make emergency repairs resulting in interruption of the reliable delivery of water for consumptive use and hydroelectric power generation.

Project Financial Summary:			
Funded to Date:	$ 154,898	Expenditures through end of year:	$ 21,969.27
Spent to Date:	$ 11,969	2019 - 2023 Planned Expenditures:	$ 9,175,000
Cash flow through end of year:	$ 10,000	Total Project Estimate:	$ 9,196,969
Project Balance	$ 132,929	Additional Funding Required	$ 9,042,071

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning/Env	$ 75,000					$ 75,000
Geo/Design	$ 750,000					$ 750,000
Construction		$ 8,250,000				$ 8,250,000
Warranty/QCIP		$ 100,000				$ 100,000
TOTAL	$ 825,000	$ 8,350,000	$ -	$ -	$ -	$ 9,175,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	47%	$325,273
Water FCCs	53%	$366,798
		$0
Total	100%	$692,071

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: 17051

Project Name: Weber Dam Access

Project Category: Reliability & Service Level Improvements

Priority:	1	PM:	Money	Board Approval:	01/28/19

Project Description:

District staff routinely inspect Weber dam and the communication device located at the top of the dam. Currently staff must climb up steep terrain and over slippery rock to get to the top of the right and left abutments of the dam. The current access route is difficult during dry weather conditions and can be hazardous during wet weather conditions. An injury has occurred in the past when staff was trying to access the left abutment. This project is needed to provide safe access to staff that routinely access the dam. The project will include new stairways leading to the top of the dam. The design was completed in 2018 and construction by District crews is scheduled for Spring 2019.

Basis for Priority:

This project is needed to improve the safe access for staff to inspect and maintain the facility.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 28,247
Spent to Date:	$ 23,247	2019 - 2023 Planned Expenditures:	$ 50,000
Cash flow through end of year:	$ 5,000	Total Project Estimate:	$ 78,247
Project Balance	$ 21,753	Additional Funding Required	$ 28,247

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design						$ -
Construction	$ 50,000					$ 50,000
						$ -
TOTAL	$ 50,000	$ -	$ -	$ -	$ -	$ 50,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	100%	$28,247
		$0
		$0
Total	100%	$28,247

Funding Comments:

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **Hydroelectric**

Project Number: 18010

Project Name: Penstock Stabilization and Repair

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Kessler **Board Approval:** 01/28/19

Project Description:

Water is provided from Forebay Reservoir to the El Dorado Powerhouse through a 60-inch diameter penstock for power generation. FERC regulations and our standard operating procedures require the penstock to be inspected and assessed at regular intervals. This project was approved in 2015 to perform a large scale assessment of the penstock and determine if any upgrades or replacements need to be made for continued reliability. The condition assessment continued into 2017 and identified the following needed improvements. The cost of improvements beyond 2019 will be developed upon completion of design for later phases.

1) Improving access to support conducting O&M and capital improvements safely
2) Relining the interior of the surge tank and the buried section between the penstock tunnel and surge tank at welded joints where the original lining was applied in the field
3) Performing drainage improvements to the high-pressure penstock section where a channel continues to erode including around some of the anchor blocks
4) Stabilizing the bench d/s of the penstock tunnel section where significant rockfall and landslide potential exists
5) Improving the anchoring of the surge tank to meet seismic loading; Work planned for 2019 and 2020 includes improving access, and developing plans and specifications and conducting environmental review/permitting for accomplishing items 1 - 5 above. The repair costs will be estimated as part of the plan development efforts.

Basis for Priority:

The project is to maintain penstock safety and service reliability. The ability for the District to receive $5 million - $10 million annually in power generation revenues depends on the availability of the penstock. The penstock is one of the highest pressure and oldest in the United States.

Project Financial Summary:			
Funded to Date:	**$ 50,000**	**Expenditures through end of year:**	**$ 49,900**
Spent to Date:	**$ 48,500**	**2019 - 2023 Planned Expenditures:**	**$ 1,620,000**
Cash flow through end of year:	**$ 1,400**	**Total Project Estimate:**	**$ 1,669,900**
Project Balance	**$ 100**	**Additional Funding Required**	**$ 1,619,900**

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Study/Planning	**$ 30,000**					**$ 30,000**
Design	**$ 130,000**	**$ 50,000**	**$ 60,000**	**$ 50,000**	**$ 50,000**	**$ 340,000**
Construction	**$ 400,000**	**$ 400,000**	**$ 250,000**	**$ 100,000**	**$ 100,000**	**$ 1,250,000**
						$ -
TOTAL	**$ 560,000**	**$ 450,000**	**$ 310,000**	**$ 150,000**	**$ 150,000**	**$ 1,620,000**

Estimated Funding Sources	**Percentage**	**2019 Amount**
Water rates	100%	$559,900
		$0
		$0
Total	**100%**	**$559,900**

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: 18013

Project Name: Project 184 SCADA System Hardware Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Volcansek **Board Approval:** 01/28/19

Project Description:

This project is to replace end of life cycle SCADA Hardware, specifically the Moscad L RTUs and level/flow measurement equipment. Replacement sites are: Alarms 3, 5, 12, 14, 18, 20, 22, 23 Spills 10, 20A, 20, 23, 27, 32, 37, 42, 44, 47C, Echo Lake, Silver Lake, Pyramid Creek, Forebay, EDPH, Caples Lake. This system has served the district well and is no longer supported. This CIP would slowly replace the existing system over multiple years:
2017- Complete design of Diversion and (15) monitoring sites
2018 – Construction for the monitoring sites and Diversion. Design for the remaining spillway sites.
2019 - Construction for spill ways sites and any monitoring sites that were not in 2018's budget
2020 - Construction for spill ways sites
2021 – Powerhouse design
2022 – Power house construction

Basis for Priority:

This equipment is at the end of its life cycle and warrants replacement to retain the reliability of the system. Additionally new replacement parts are not available due to obsolescence. This system cannot be support on a modern computer.

Project Financial Summary:			
Funded to Date:	$ 150,775	Expenditures through end of year:	$ 150,663
Spent to Date:	$ 68,663	2019 - 2023 Planned Expenditures:	$ 1,430,000
Cash flow through end of year:	$ 82,000	Total Project Estimate:	$ 1,580,663
Project Balance	$ 112	Additional Funding Required	$ 1,429,888

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Spillway Design	$ 45,000					$ 45,000
Construction Monitoring						$ -
Construction Diversion	$ 350,000					$ 350,000
Construction Spillways	$ 300,000	$ 300,000				$ 600,000
PH Design			$ 85,000			$ 85,000
PH Construction				$ 350,000		$ 350,000
TOTAL	$ 695,000	$ 300,000	$ 85,000	$ 350,000	$ -	$ 1,430,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$694,888
			$0
			$0
Total	100%		$694,888

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: PLANNED

Project Name: Annual Canal and Flume Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Gibson **Board Approval:** 01/28/19

Project Description:

Canals and flumes are assessed annually by District staff to assess and prioritize needed improvements that will be implemented during the annual Canal outage. These improvements are needed to extend the service life of the asset and maintain system reliability. Improvements to the degraded canal and flume sections include materials, concrete, shotcrete, helicopter support, equipment, and District crew labor. Canal, flume, and spillway improvements are necessary in order to maintain reliability of the water supply. Annual system improvements will be determined by Hydro Operations each spring for implementation to be achieved during the scheduled Canal outage. In 2019 the Hydro construction crew will reline Flume 48 with marine grade plywood, repair Camp 1 and Flume 7 slides and repair/patch the canal sections.

Basis for Priority:

These are projects that provide measurable progress toward achieving the District's goals, but over which the District has a moderate level of control as to when they should be performed.

Project Financial Summary:			
Funded to Date:	$ 446,566	Expenditures through end of year:	$ 446,566
Spent to Date:	$ 82,572	2019 - 2023 Planned Expenditures:	$ 2,500,000
Cash flow through end of year:	$ 363,994	Total Project Estimate:	$ 2,946,566
Project Balance	$ 363,994	Additional Funding Required	$ 2,136,006

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design						$ -
Construction	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 2,500,000
						$ -
TOTAL	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 2,500,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	47%		$63,923
Water FCCs	53%		$72,083
			$0
Total	100%		$136,006

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: PLANNED

Project Name: Annual Dam Program

Project Category: Reliability & Service Level Improvements

Priority: 1 **PM:** Gibson **Board Approval:** 01/28/19

Project Description:

The dams in the District are in need of repairs to extend their life and comply with safety standards. The fall protection tie-off line at Caples Aux Dam needs to be inspected along with the swinging bridge wire rope over the Diversion Dam Facility ($9k). The boom logs at the Diversion Dam structure are at the end of their service life and need to be replaced ($15.5k). Other unforseen activities typically arise as a result of the District's surveillance and monitoring program, and as identified in FERC's and DSOD's annual inspections to maintain the dams in conformance with dam safety standards.

Basis for Priority:

Project purpose is to maintain existing assets and prolong their useful service life and reliability..

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 65,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 65,000
Project Balance	$ -	Additional Funding Required	$ 65,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design						$ -
Construction	$ 65,000					$ 65,000
						$ -
TOTAL	$ 65,000	$ -	$ -	$ -	$ -	$ 65,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	100%	$65,000
		$0
		$0
Total	100%	$65,000

Funding Comments:

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **Hydroelectric**

Project Number: PLANNED

Project Name: Echo Conduit Rehabilitation

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Heape **Board Approval:** 01/28/19

Project Description:

The Echo conduit was installed in 1922 and is approximately 2,250 feet in length. In 1953 and 1967 sections of the 36-inch diameter pipe were replaced. Many sections of the pipe are now degraded and must be replaced with new pipe and the supporting substructure. The plan is to replace the existing conduit in a staged approach replacing approximately 600' a construction season. Total length is 2,250' taking 4 years to complete. Typically over 1,300 acre feet of water is transfered annually from Echo Lake for domestic use and power generation. The total revenue from Echo Lake water can exceed over $700,000 annually. Construction costs for the repair will be estimated upon completion of an engineering assessment and design.

Basis for Priority: The Echo conduit needs to be repaired so the District can continue to use this water supply. The water rights are pre-1914 and are critical for drought years and to generate revenue.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 100,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 100,000
Project Balance	$ -	**Additional Funding Required**	$ 100,000

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Study/Planning	$ 100,000					$ 100,000
Design						$ -
Construction						$ -
						$ -
TOTAL	$ 100,000	$ -	$ -	$ -	$ -	$ 100,000

Estimated Funding Sources	**Percentage**	**2019**	**Amount**
	100%		$100,000
			$0
			$0
Total	**100%**		**$100,000**

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: PLANNED

Project Name: Flume 46A Canal Conversion

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Mutschler **Board Approval:** 01/28/19

Project Description:

Flume 46A is an elevated fiberglass lined wood flume, approximately 144 feet in length, and constructed by PG&E in 1966. The substructure lumber is under sized at 8 x 6 feet instead of 8 x 8 feet. This work is scheduled to occur towards the end of this 5-year horizon. Construction costs will be refined once design is complete.

Basis for Priority:

The flume will continue to deteriorate potentially causing flume failures that would result in significant impacts to the public, Highway 50, and the South Fork of the American River. Additionally, water supply would be out of service for an extended period to make emergency repairs resulting in interruption of the reliable delivery of water for consumptive use and hydroelectric power generation.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 2,200,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 2,200,000
Project Balance	$ -	Additional Funding Required	$ 2,200,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning/Enviro		$ -	$ 45,000	$ 40,000		$ 85,000
Geo/Design			$ 115,000			$ 115,000
Construction					$ 2,000,000	$ 2,000,000
FERC QCIP						$ -
TOTAL	$ -	$ -	$ 160,000	$ 40,000	$ 2,000,000	$ 2,200,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	47%		$0
Water FCCs	53%		$0
			$0
Total	100%		$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: PLANNED

Project Name: Hydro Facility Replacement Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Gibson **Board Approval:** 01/28/19

Project Description:

This is a program to replace equipment and facilities used in the hydro system that have failed or reached end of useful life. Funding will be used for hydro facilities rehabilitation such as road and building improvements that will extend the life of the asset. In 2019 the plan is to finish grading and rocking the SMUD canal access road. 1.5 miles of improvements were completed in 2018 and the remaining 1.5 miles will be completed in 2019. Camp 5 crewroom and bathroom improvements are planned to be completed in 2019. There is only one unisex bathroom for over 20 employees and contractors. The crewroom is small and crowded and needs to be expanded.

Basis for Priority:

Project purpose is to maintain existing assets and prolong their useful service life and reliability.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 500,000
Cash flow through end of year:		Total Project Estimate:	$ 500,000
Project Balance	$ -	Additional Funding Required	$ 500,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design						$ -
Construction	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 500,000
						$ -
TOTAL	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 500,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$100,000
Total	100%		$100,000

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: PLANNED

Project Name: Powerhouse Electrical Safety Improvements

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Volcansek **Board Approval:** 01/28/19

Project Description:

The project is to add two safety switches at powerhouse one for each generator. Adding these two medium voltage switches (6,600 volts) to the system would engineer out the requirement of operating the unsafe and high energy equipment. Currently EID staff has to perform unsafe racking process of switch within 6 foot work area. The energy stored at the gear has a second degree burn boundary at 30 feet. This process of racking the switch is performed periodically during routine generator maintenance. The existing racking switches have failed to operate properly in numerous occasions. In addition to safety improvements, adding switches will save staff time needed for coordination with PG&E staff and improve the reliability of the revenue generating facility.

Basis for Priority:

The project will improve staff safety and increase reliability of revenue generating facility.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 120,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 120,000
Project Balance	$ -	Additional Funding Required	$ 120,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design	$ 35,000					$ 35,000
Construction		$ 85,000				$ 85,000
						$ -
TOTAL	$ 35,000	$ 85,000	$ -	$ -	$ -	$ 120,000

Estimated Funding Sources	Percentage	2019	Amount
Water	100%		$35,000
			$0
			$0
Total	100%		$35,000

Funding Comments:

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **Hydroelectric**

Project Number: **PLANNED**

Project Name: **Spare Powerhouse Turbine Runner**

Project Category:

Priority: **2** **PM:** **Kessler** **Board Approval:** **01/28/19**

Project Description:

The Pelton turbine runners (impulse turbines or water wheels) were installed in 1958 with a life expectancy of 30 - 40 years depending on operating and water conditions. It requires approximately 18 months to procure a new turbine runner if one of the two turbines were to fail. A spare turbine runner can be used for either of the two turbine-generator units as the units are identical. The estimated revenue loss of waiting for a new runner to be manufactured is $6 million based on loss of availability of one 10 MW unit for 18 months. The existing turbine runners are constructed of carbon steel and are not as resilient to wear and cracking as modern runners constructed of stainless steel. The District expended approximately $150,000 in welding and restoration of the two turbine runners in 2016. The primary risk of continuing to extend the service life of the aging turbine runners is that they can incur a sudden failure from stresses induced by and associated with the accumulation of start-ups and shutdowns of the turbine-generator units. While staff carefully inspects and monitors the condition of the runners for early warning signs, and makes repairs to areas subject to cracking and wear, the risk of sudden failure increases with time. The 2019 costs are to explore options for replacing the turbine runner with a modern design which willl also consider improvements in efficiency (to produce more power per unit of water over a greater span of its operating range). The study will also evaluate the economy of purchasing two vs. one runner at a time considering the design will likely be custom, and there would be savings in casting two runners concurrently compared to at different times.

Basis for Priority:

Both powerhouse turbine-generator units have turbine runners that operated significantly past their predicted service life and are subject to failure. The revenue loss for waiting for a turbine wheel to be manufactured is approximately $6 million. Staff beleives it is prudent to study options for replacing the runners, either minimally to maintain a spare, or to consider replacing both runners in light of overall manufacturing cost savings, and potential reliability/efficiency improvements.

Project Financial Summary:			
Funded to Date:	**$ -**	**Expenditures through end of year:**	**$ -**
Spent to Date:	**$ -**	**2019 - 2023 Planned Expenditures:**	**$ 75,000**
Cash flow through end of year:	**$ -**	**Total Project Estimate:**	**$ 75,000**
Project Balance	**$ -**	**Additional Funding Required**	**$ 75,000**

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Study/Planning	**$ 75,000**					**$ 75,000**
Design						**$ -**
Construction						**$ -**
						$ -
TOTAL	**$ 75,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 75,000**

Estimated Funding Sources	**Percentage**	**2019**	**Amount**
Water	100%		$75,000
			$0
			$0
Total	**100%**		**$75,000**

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: STUDY01

Project Name: Canal Assessment

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Mutschler **Board Approval:** 01/28/19

Project Description:

This project will evaluate the Project 184 canal and provide a condition assessment report. This report will be used to categorize the canal system for future CIP projects. Canal assessments are planned to occur every 5 years to give an overall condition of the system and to prioritize projects.

Basis for Priority:

The canal system has not had an assessment done and no priorities set to determine what work needs to be completed and what issues are needing to be addressed. Additionally, one third of the District's water supply would be out of service for an extended period in the event of a canal breach resulting in interruption of the reliable delivery of water for consumptive use and hydroelectric power generation.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 20,000
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 30,000
Cash flow through end of year:	$ 20,000	Total Project Estimate:	$ 50,000
Project Balance	$ 30,000	Additional Funding Required	$ -

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning	$ 30,000					$ 30,000
Design						$ -
Construction						$ -
						$ -
TOTAL	$ 30,000	$ -	$ -	$ -	$ -	$ 30,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	47%	$0
Water FCCs	53%	$0
		$0
Total	100%	$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: STUDY02

Project Name: Tunnel Assessment

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Mutschler **Board Approval:** 01/28/19

Project Description:

This project will evaluate the following tunnels and provide a condition assessment report:

Mill to Bull Tunnel
Hazel Creek
Pacific
Esmerelda
El Dorado
14 Mile
Camp Creek

In 2014 a portion of the Esmerelda tunnel collapsed and the tunnel repair and rehabilitation completed in 2017. The Pacific, El Dorado, Mill to Bull tunnels were inspected in 2016 outage. Pacific, Camp Creek and Hazel Creek Tunnels were inspected during the 2017 outage. 14 Mile tunnel was inspected in 2015 and will be lengthened in the Forebay dam rehab project.

This report will be used to categorize the tunnels for future CIP projects. Tunnel assessments are being scheduled every 5 years.

Basis for Priority:

The Project 184 tunnels should be inspected by competent persons every 5 years to determine what issues are needing to be addressed. Additionally, one third of the District's water supply would be out of service for an extended period in the event of a tunnel collapse resulting in interruption of the reliable delivery of water for consumptive use and hydroelectric power generation.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 21,222
Spent to Date:	$ 6,222	2019 - 2023 Planned Expenditures:	$ 28,778
Cash flow through end of year:	$ 15,000	Total Project Estimate:	$ 50,000
Project Balance	$ 28,778	Additional Funding Required	$ 0

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning	$ 28,778					$ 28,778
Design						$ -
Construction						$ -
						$ -
TOTAL	$ 28,778	$ -	$ -	$ -	$ -	$ 28,778

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	100%	$0
		$0
		$0
Total	100%	$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Hydroelectric

Project Number: STUDY04

Project Name: Flume Assessment

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Mutschler **Board Approval:** 01/28/19

Project Description:

Engineering is using GPS to map the Flumes to update the GIS MRAP. This project will provide greater detail on the Flume system and will incorporate pictures of the flumes. Flume material, year built and length will also be included in the update. In addition, an update to the Flume assessment done around 2012 will be conducted.

Basis for Priority:

The Project 184 flumes have not been evaluated by structural and geotechnical experts since around 2012. Additionally, one third of the District's water supply would be out of service for an extended period in the event of a flume failure resulting in interruption of the reliable delivery of water for consumptive use and hydroelectric power generation.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 6,364
Spent to Date:	$ 1,364	2019 - 2023 Planned Expenditures:	$ 43,636
Cash flow through end of year:	$ 5,000	Total Project Estimate:	$ 50,000
Project Balance	$ 43,636	Additional Funding Required	$ -

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning	$ 43,636					$ 43,636
Design						$ -
Construction						$ -
						$ -
TOTAL	$ 43,636	$ -	$ -	$ -	$ -	$ 43,636

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	47%	$0
Water FCCs	53%	$0
		$0
Total	100%	$0

Funding Comments:

Recreation Projects

2019	CAPITAL IMPROVEMENT PLAN	Program:	Recreation

Project Number: PLANNED

Project Name: Recreation Facility Replacement Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Hawkins **Board Approval:** 01/28/19

Project Description:

This is a program to replace infrastructure at District-owned recreation facilities that have failed or reached end of useful life. Funding will be used for recreation facilities such as road and building improvements that will extend the life of the asset. Shoreline stabilization projects to protect water quality and existing assets such as road ways, boat ramps, day use areas and campgrounds. Need to make numerous repairs to the roadways within SPRA; all campground access roads need to be replaced and have storm water mitigation features incorporated. Main park roadway, Lakewood Drive, will need to be resealed within the next 5 years. Access road to Scout Hill youth camp should be chip sealed, at a minimum, to reduce the amount of annual rehabilitation that occurs every spring.

Basis for Priority:

Project purpose is to maintain existing assets and prolong their useful service life and reliability.

Project Financial Summary:			
Funded to Date:	$ 8,300	Expenditures through end of year:	
Spent to Date:	$ 8,253	2019 - 2023 Planned Expenditures:	$ 250,000
Cash flow through end of year:	$ 41,747	Total Project Estimate:	$ 250,000
Project Balance	$ (41,700)	Additional Funding Required	$ 241,700

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design						$ -
Construction	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 250,000
						$ -
TOTAL	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 250,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$91,700
Total	100%		$91,700

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	Recreation

Project Number: PLANNED

Project Name: Sly Park Recreation Area Facility Improvments

Project Category: Master Planning

Priority: 2 **PM:** Hawkins **Board Approval:** 01/28/19

Project Description:

The scope of this project will be to analyze and implement park improvements as described in the Sly Park Master Plan. The addition of these new facilities will generate more income, enhance the level of environment protection, improve water quality, provide facilities that enhance the visitors experience and increase the level of safety for park visitors and EID employees. These projects would include but would not be limited too; 1) Repositioning the SPRA entrance gatehouse to increase the distance between the gate and CR E-16, thus reducing traffic back ups on E-16 and the potential for traffic accidents. 2) Expanding the number of day use facilities, improving and enlarging existing day use facilities and improving and enlarging the associated parking areas. This expansion/improvement would help reduce the need to close the park during periods of high use, resulting in increased revenue. These improvements would also reduce camper/day user conflict and would provide a means potentially reduce the impact to the MET accessed day use areas. Day Use access to SPRA was restricted for one (1) to three (3) hours every Sat & Sun, from 5/27/17-9/3/2017 due to reaching facility capacity thresholds. 3) Improved campsite parking spur delineation and campground roadways to reduce soil compaction and improve storm water runoff control and capture to reduce erosion and improve water quality. Currently, many of the day use areas and campgrounds in SPRA have minimal or zero storm water management systems in place. By clearly delineating parking areas and improving roadways with culverts and oil separators, storm water could be directed and contaminates captured before entering Jenkinson Lake. Clearly defined parking areas will also reduce the amount of soil compaction which will lead to increased revegetation through out SPRA, thus improving water quality.

Basis for Priority:

Continued increased risk to the environment and water quality, health and safety risk for SPRA visitors and EID staff, revenue generation and increased customer satisfaction.

Project Financial Summary:			
Funded to Date:	$ 25,000	**Expenditures through end of year:**	$ 20,853
Spent to Date:	$ 8,853	**2019 - 2023 Planned Expenditures:**	$ 400,000
Cash flow through end of year:	$ 12,000	**Total Project Estimate:**	$ 420,853
Project Balance	$ 4,148	**Additional Funding Required**	$ 395,853

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning	$ 50,000			$ 50,000		$ 100,000
Design		$ 50,000			$ 50,000	$ 100,000
Construction		$ 50,000	$ 100,000		$ 50,000	$ 200,000
						$ -
TOTAL	$ 50,000	$ 100,000	$ 100,000	$ 50,000	$ 100,000	$ 400,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	100%	$45,853
		$0
		$0
Total	**100%**	**$45,853**

Funding Comments:

General District Projects

2019 CAPITAL IMPROVEMENT PLAN **Program:** **General District**

Project Number: 16037

Project Name: SCADA Configuration and Alarm Response

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Volcansek **Board Approval:** 01/28/19

Project Description:

This project is to replace the current unsupported call out software, SCADAlarm. In addition, this project will be used to correct and replace SCADA graphics and configurations at the HMI level, since they are closely related to the alarm call out software configuration. This will allow the current system to be more user friendly and to more accurately represent the processes they control. The current visualization of the SCADA system is maintenance intensive and is not intuitive to the end user. This can lend itself to operational error and increased operation and reporting time. This also includes additional SCADA licensing to ensure alarm and data access to remote users.

Basis for Priority:

The current alarm software, SCADAlarm is obsolete and unsupported. SCADAlarm has known "bugs" that have caused notification service interruptions, and put the District at risk for regulatory violations District-wide. This software is key to providing reliable service to our ratepayers. Additionally, this software regularly requires staff attention and overtime for corrective maintenance.

Project Financial Summary:			
Funded to Date:	**$ 30,000**	**Expenditures through end of year:**	**$ 25,000**
Spent to Date:	**$ -**	**2019 - 2023 Planned Expenditures:**	**$ 135,000**
Cash flow through end of year:	**$ 25,000**	**Total Project Estimate:**	**$ 160,000**
Project Balance	**$ 5,000**	**Additional Funding Required**	**$ 130,000**

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
EDHWWTP	**$ 45,000**					**$ 45,000**
Res A		**$ 45,000**				**$ 45,000**
Collections			**$ 45,000**			**$ 45,000**
						$ -
TOTAL	**$ 45,000**	**$ 45,000**	**$ 45,000**	**$ -**	**$ -**	**$ 135,000**

Estimated Funding Sources	**Percentage**	**2019**	**Amount**
Wastewater Rates	40%		$16,000
Water Rates	60%		$24,000
			$0
Total	**100%**		**$40,000**

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: 17018

Project Name: SCADA Software Efficiency Program

Project Category: Reliability & Service Level Improvements

Priority: 3 **PM:** Volcansek **Board Approval:** 01/28/19

Project Description:

Maintain and improve the reliability and performance of the current SCADA infrastructure used to manage automated process control through identifying areas that needlessly consume staff time and workflow.

Rolling improvement program.

Basis for Priority:

Continue to develop efficiencies in automatic reports, development templates, operational notification and organizing software programs.

Project Financial Summary:			
Funded to Date:	$ 22,684	Expenditures through end of year:	$ 31,352
Spent to Date:	$ 21,668	2019 - 2023 Planned Expenditures:	$ 225,000
Cash flow through end of year:	$ 9,684	Total Project Estimate:	$ 256,352
Project Balance	$ (8,668)	Additional Funding Required	$ 233,668

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Consultant Services	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 125,000
Software Purchases	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 100,000
						$ -
						$ -
TOTAL	$ 45,000	$ 45,000	$ 45,000	$ 45,000	$ 45,000	$ 225,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	60%	$32,201
Wastewater Rates	40%	$21,467
		$0
Total	100%	$53,668

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: 18019

Project Name: 2019 Vehicle Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Warden **Board Approval:** 01/28/19

Project Description:

The following vehicle replacements are planned for 2019 - 2023:

2019: 3-1/2 ton 4X4 pickups, 1-John Deere excavator, 1-1 1/2 ton 4X4 service truck with crane, 1-1 ton 4X4 service truck, 1-used John Deer 310 backhoe, 3-Polars Ranger 500
2020: 2-1/2 ton 4X4 pickups, 1-1 ton 4X4 service truck, 1- 4X4 SUV, 1-1 1/2 ton 4X4 service truck with crane, 1-1 ton 4X4 flatbed extended cab truck
2021: 2-1/2 ton 4X4 pickups, 1-4X4 SUV's, 2-1 ton 4X4 service truck, 1-1 1/2 ton 4X4 service truck with crane
2022: 2-used 6-7 yard dump trucks, 3-1/2 ton 4X4 pickup
2023: 5-1/2 ton 4X4 pickups, 2- used 6-7 yard dump trucks The planned expenditures are listed below.

Basis for Priority:

Enhances District assets through life-cycle replacement of existing vehicles.

Project Financial Summary:			
Funded to Date:	$ 175,000	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 1,967,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 1,967,000
Project Balance	$ 175,000	**Additional Funding Required**	$ 1,792,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Vehicles	$ 524,000	$ 320,000	$ 336,000	$ 372,000	$ 415,000	$ 1,967,000
						$ -
						$ -
						$ -
TOTAL	$ 524,000	$ 320,000	$ 336,000	$ 372,000	$ 415,000	$ 1,967,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	100%	$349,000
		$0
		$0
Total	**100%**	**$349,000**

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: 18032

Project Name: EUC - Phase 1 Desktop Environment Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Stevenson **Board Approval:** 01/28/19

Project Description:

This project maintains the reliability, security, and performance of the District's computer workstations and terminals required to conduct daily District business by replacing end-of-life equipment and operating systems, including thin and zero-client terminals, image managment and delivery systems, end-point protection systems, and other specialized equipment and operating software enabling modern end-user-computing (EUC).

Major actions in 2019 include:
- Complete replacement of end-of-life Unidesk image management and delivery software with modern alternative
- Complete replacement and configuration of 100+ software application images used daily by District employees

Basis for Priority:

Maintain the reliability and performance of the current personal computing environment used to perform operations, customer service, billing, financial management, regulatory reporting, security, and other critical and essential functions of the district. End-of-life means equipment and/or operating software is no longer supported by the manufacturer and presents a significantly heightened risk of failure or security compromise.

Project Financial Summary:			
Funded to Date:	$ 50,000	Expenditures through end of year:	$ 50,000
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 167,000
Cash flow through end of year:	$ 50,000	Total Project Estimate:	$ 217,000
Project Balance	$ -	Additional Funding Required	$ 167,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Professional Services	$ -					$ -
Capitalized Labor	$ 72,000					$ 72,000
HW/SW/Other	$ 80,000					$ 80,000
Contingency (10%)	$ 15,000					$ 15,000
TOTAL	$ 167,000	$ -	$ -	$ -	$ -	$ 167,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	60%	$100,200
Wastewater Rates	40%	$66,800
		$0
Total	100%	$167,000

Funding Comments: Funding carried over from prior year in CIP, previously part of the Business IT Infrastructure Reliability Program.

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: 18033

Project Name: Radio Telemetry and Network Replacement Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Volcansek **Board Approval:** 01/28/19

Project Description:

Life cycle replacement of our private radio SCADA network components. This radio system moves crital monitoring data into our network from 180 + of our sewer and water pump stations. This radio system carries no monthly service charges and continues to provide reliable data at a low cost of ownership.

Rolling improvement program.

Basis for Priority:

Many of our radios in service are past their service life and are slowly failing. This CIP would allow replacement of older telemetry (generally around 15 years old or more) and any related hardware such as antennas, antenna cable, lighting protectors, etc.

Project Financial Summary:			
Funded to Date:	$ 46,000	Expenditures through end of year:	$ 35,000
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 75,000
Cash flow through end of year:	$ 35,000	Total Project Estimate:	$ 110,000
Project Balance	$ 11,000	Additional Funding Required	$ 64,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Hardware	$ 35,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 75,000
						$ -
						$ -
						$ -
TOTAL	$ 35,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 75,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	60%	$14,400
Wastewater Rates	40%	$9,600
		$0
Total	100%	$24,000

Funding Comments:

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **General District**

Project Number: PLANNED

Project Name: Cyber Security Improvements

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Eberhard **Board Approval:** 01/28/19

Project Description:

This project will enhance and implement technology, plans, policies, and procedures identified by the 2011 Enterprise Security Assessment Report and required to ensure the ongoing cyber security of District data and IT assets.

Priority actions currently planned for 2019 include:
Implement a system to identify and alert on the activities of advanced persistent threats that breach layers of network defenses.

Basis for Priority:

If this project is not approved the District may not be able to effectively safeguard information against unauthorized use, disclosure, modification, damage, or loss. These projects address elevating concerns from government agencies to adequately protect utility information technology assets from cyber attack.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 883,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 883,000
Project Balance	$ -	**Additional Funding Required**	$ 883,000

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Professional Services	$50,000	$50,000	$100,000			$ 200,000
Capitalized Labor	$45,000	$45,000	$80,000			$ 170,000
HW/SW/Other	$120,000	$120,000	$230,000			$ 470,000
Contingency (20%)	$43,000					$ 43,000
						$ -
TOTAL	$ 258,000	$ 215,000	$ 410,000	$ -	$ -	$ 883,000

Estimated Funding Sources	**Percentage**	**2019**	**Amount**
Water Rates	60%		$154,800
Wastewater Rates	40%		$103,200
			$0
Total	**100%**		**$258,000**

Funding Comments: Funding carried over from prior year in CIP with the same name.

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **General District**

Project Number: PLANNED

Project Name: Digital Ops Plan - Phase 1 SW Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Sundaram **Board Approval:** 01/28/19

Project Description:

Project replaces the obsolete digital Operations Plan (Ops Plan) software application and documents proper operational procedures for one (1) of the District's complex water treatment systems to ensure public safety, regulatory compliance, and operational efficiency.

Once implemented, modern Ops Plan software:
- helps enforce and ensure operational compliance to current regulatory requirements
- centralizes and consolidates the location of information to enable ease of access by various teams from various sites
- provides uniformity in the creation, updates, and daily use of Ops Plans for all District water treatment and transport systems
- optimizes daily operations tasks associated with water treatment processes
- improves information access and accruacy to make better decisions
- delivers adability for an uncertain regulatory future
- decreases public and employee safety risks, or worse

This implementation will retire a myriad of workarounds used daily by District operations employees to perform routine job functions including treatment process control, chemical applications, quality control, records management, and more. The workarounds are largely stand-alone, causing duplicate sets of data to be maintained in multiple places and leading to widespread inefficiency, plus confusion and potentially bad decisions when using data of poor or inconsistent quality involving operations of complex integrated water treatment and transport systems valued in the millions of dollars each, while also delivering safe and reliable service to District customers.

Basis for Priority:

The existing custom software has had no new feature development since 2003, requires supplemental software products that are difficult to use and no longer supported by the manufacturer, and can no longer be adapted to current and evolving regulatory and operational requirements. Continued use of the obsolete software to guide operations processes contributes to widespread inefficiency and increased risk of service interruptions, regulatory fines, or worse.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 199,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 199,000
Project Balance	$ -	**Additional Funding Required**	$ 199,000

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Professional Services	$ 140,000					$ 140,000
Capitalized Labor	$ 33,000					$ 33,000
HW/SW/Other	$ -					$ -
Contingency (15%)	$ 26,000					$ 26,000
TOTAL	$ 199,000	$ -	$ -	$ -	$ -	$ 199,000

Estimated Funding Sources	**Percentage**	**2019**	**Amount**
Water Rates	60%		$119,400
Wastewater Rates	40%		$79,600
Total	**100%**		**$199,000**

Funding Comments:

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **General District**

Project Number: PLANNED

Project Name: Digital Ops Plan - Phase 2 Plant Procedure Development

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Sundaram **Board Approval:** 01/28/19

Project Description:

Project builds on the prior phase to document proper operational procedures for each of the District's complex and unique plants within modern Operations Plan (Ops Plan) software to ensure public safety, regulatory compliance, and operational efficiency. The scope of this project phase encompasses multiple drinking water plants, wastewater treatment plants, and power generation plants.

Once implemented, modern Ops Plan software:
- helps enforce and ensure operational compliance to current regulatory requirements
- centralizes and consolidates the location of information to enable ease of access by various teams from various sites
- provides uniformity in the creation, updates, and daily use of Ops Plans for all District water treatment and transport systems
- optimizes daily operations tasks associated with water treatment processes
- improves information access and accruacy to make better decisions
- delivers adability for an uncertain regulatory future
- decreases public and employee safety risks, or worse

This implementation will retire a myriad of workarounds used daily by District operations employees to perform routine job functions including treatment process control, chemical applications, quality control, records management, and more. The workarounds are largely stand-alone, causing duplicate sets of data to be maintained in multiple places and leading to widespread inefficiency, plus confusion and potentially bad decisions when using data of poor or inconsistent quality involving operations of complex integrated water treatment and transport systems valued in the millions of dollars each, while also delivering safe and reliable service to District customers.

Basis for Priority:

The existing custom software has had no new feature development since 2003, requires supplemental software products that are difficult to use and no longer supported by the manufacturer, and can no longer be adapted to current and evolving regulatory and operational requirements. Continued use of the obsolete software to guide operations processes contributes to widespread inefficiency and increased risk of service interruptions, regulatory fines, or worse.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 129,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 129,000
Project Balance	$ -	**Additional Funding Required**	$ 129,000

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Professional Services	$ -					$ -
Capitalized Labor	$ 56,000	$ 56,000				$ 112,000
HW/SW/Other	$ -					$ -
Contingency (15%)	$ 8,500	$ 8,500				$ 17,000
TOTAL	$ 64,500	$ 64,500	$ -	$ -	$ -	$ 129,000

Estimated Funding Sources	**Percentage**	**2019 Amount**
Water Rates	60%	$38,700
Wastewater Rates	40%	$25,800
Total	**100%**	**$64,500**

Funding Comments:

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **General District**

Project Number: PLANNED

Project Name: Digital Ops Plan - Phase 3 Station Procedure Development

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Sundaram **Board Approval:** 01/28/19

Project Description:

Project builds on the prior phase to document proper operational procedures for each of the District's complex water distribution and conveyance station types within modern Operations Plan (Ops Plan) software to ensure public safety, regulatory compliance, and operational efficiency. The scope of this project phase encompasses various types of drinking water pumping and pressure reducing stations, sewer lift stations, hydroelectric diversion and gauging stations, and others - numbering in the hundreds District-wide.

Once implemented, modern Ops Plan software:
- helps enforce and ensure operational compliance to current regulatory requirements
- centralizes and consolidates the location of information to enable ease of access by various teams from various sites
- provides uniformity in the creation, updates, and daily use of Ops Plans for all District water treatment and transport systems
- optimizes daily operations tasks associated with water treatment processes
- improves information access and accruacy to make better decisions
- delivers adability for an uncertain regulatory future
- decreases public and employee safety risks, or worse

This implementation will retire a myriad of workarounds used daily by District operations employees to perform routine job functions including transport process control, chemical applications, quality control, records management, and more. The workarounds are largely stand-alone, causing duplicate sets of data to be maintained in multiple places and leading to widespread inefficiency, plus confusion and potentially bad decisions when using data of poor or inconsistent quality involving operations of complex integrated water treatment and transport systems valued in the millions of dollars each, while also delivering safe and reliable service to District customers.

Basis for Priority:

The existing custom software has had no new feature development since 2003, requires supplemental software products that are difficult to use and no longer supported by the manufacturer, and can no longer be adapted to current and evolving regulatory and operational requirements. Continued use of the obsolete software to guide operations processes contributes to widespread inefficiency and increased risk of service interruptions, regulatory fines, or worse.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 92,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 92,000
Project Balance	$ -	**Additional Funding Required**	$ 92,000

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Professional Services						$ -
Capitalized Labor			$ 40,000	$ 40,000		$ 80,000
HW/SW/Other						$ -
Contingency (15%)			$ 6,000	$ 6,000		$ 12,000
TOTAL	$ -	$ -	$ 46,000	$ 46,000	$ -	$ 92,000

Estimated Funding Sources	**Percentage**	**2019**	**Amount**
Water Rates	60%		$0
Wastewater Rates	40%		$0
Total	**100%**		**$0**

Funding Comments:

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **General District**

Project Number: PLANNED

Project Name: Engineering Plan Check Table

Project Category: Reliability & Service Level Improvements

Priority: 3 **PM:** Brink **Board Approval:** 01/28/19

Project Description:

The project will provide a large "touchscreen plan check table" which will allow electronic plan check of engineering plans. Engineering staff perform about 75 CIP plans reviews a year, and Development Services reviews over 100 plans per year. Currently hard copies of the plans are received, and reviewed manually, sheet by sheet. Review comments are then transferred to a clean set and provided to the engineer, or the sheets are individually scanned and emailed. The process is a very labor intensive process for all involved. File storage is also an issue, finding the space to store the large plan submittals.

On Developer projects, the plans are independnently review by EID, the County and the Fire Department. The El Dorado Hills Fire Department implemented electronic plan review a few years ago. It has greatly increased their efficiency internally on file manangement and on turn around times for the customers. It also provides a very efficient way to provide the comments to multiple parties, versus providing a single hard copy of the comments to one party. El Dorado County is also considering moving to electronic plan review. Other agencies in the region have successfully moved to electronic plan check.

The plan review table would be located in a common area that would be accessible to all engineers as a new work station. New software licenses for Bluebeam Extreme 2018 would be obtained for staff performing plan check tasks.

Basis for Priority:

The new equipment will increase the efficiency of staff's review of engineering plans, will greatly improve file management and aid in the transfer of the plans to multiple parties.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 30,500
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 30,500
Project Balance	$ -	**Additional Funding Required**	$ 30,500

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Professional Services	$ -					$ -
Capitalized Labor	$ 8,200					$ 8,200
HW/SW/Other	$ 18,300					$ 18,300
Contingency (15%)	$ 4,000					$ 4,000
TOTAL	$ 30,500	$ -	$ -	$ -	$ -	$ 30,500

Estimated Funding Sources	**Percentage**	**2019**	**Amount**
Water Rates	50%		$15,250
Wastewater Rates	50%		$15,250
Total	**100%**		**$30,500**

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: PLANNED

Project Name: ERP - Phase 1 Financial SW Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Sundaram **Board Approval:** 01/28/19

Project Description:

First in a series of projects to replace a number of stand-alone software products and related work-arounds with an integrated Enterprise Resource Planning (ERP) software application. This phase replaces the aging finance software application configured to manage accounting and purchasing requirements. Once implemented, modern software:

- optimizes daily service delivery, billing, and management processes
- improves data access and accruacy to make better decisions
- delivers adability for an uncertain regulatory future
- decreases system and information security risk

This implementation will retire a myriad of workarounds used daily by District employees to perform routine job functions including accounts payable and receivable, budget management, records management, and more. The workarounds are largely stand-alone, causing duplicate sets of data to be maintained in multiple places and leading to widespread inefficiency, plus confusion and potentially bad decisions when using data of poor or inconsistent quality related to fiscal management for income and expenditures in excess of $100,000,000 annually.

Basis for Priority:

The current software no longer adapts to support current and evolving operational requirements and best practices. Continued use of the aging financial software system for procurement and fiscal management contributes to widespread inefficiency and increased financial risk.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 1,690,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 1,690,000
Project Balance	$ -	Additional Funding Required	$ 1,690,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Professional Services				$ 300,000	$ 500,000	$ 800,000
Capitalized Labor				$ 200,000	$ 360,000	$ 560,000
HW/SW/Other				$ 50,000		$ 50,000
Contingency (20%)				$ 110,000	$ 170,000	$ 280,000
TOTAL	$ -	$ -	$ -	$ 660,000	$ 1,030,000	$ 1,690,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	60%	$0
Wastewater Rates	40%	$0
Total	**100%**	**$0**

Funding Comments:

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **General District**

Project Number: PLANNED

Project Name: Hansen 7 - Phase 1 Asset Maintenance SW Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Sundaram **Board Approval:** 01/28/19

Project Description:

Project replaces the obsolete Hansen 7 utility asset management software application and retire a myriad of workarounds used daily by District employees to perform routine job functions including utility asset management, maintenance management, customer service, records management, materials management, and fleet management. The workarounds are largely stand-alone, causing duplicate sets of data to be maintained in multiple places and leading to widespread inefficiency, plus confusion and potentially bad decisions when using data of poor or inconsistent quality involving operations and maintenance of District assets valued at approximately $1,000,000,000.

The proposed project includes the introduction of efficient and secure integrated mobile access to the software application for employees in the field using a tablet device.

Once implemented and configured to support current and evolving regulatory and operational requirements, modern software:
- optimizes daily asset maintenance and repair management processes
- improves data access and accruacy to make better decisions
- delivers adability for an uncertain regulatory future
- decreases system and information security risk

Basis for Priority:

Hansen 7 software has had no new feature development since 2003 and no longer supports current and evolving regulatory and operational requirements. Continued use of Hansen 7 software for asset and maintenance management contributes to widespread inefficiency and increased risk of service interruptions, regulatory fines, or worse.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 1,500,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 1,500,000
Project Balance	$ -	**Additional Funding Required**	$ 1,500,000

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Professional Services	$ 775,000					$ 775,000
Capitalized Labor	$ 275,000					$ 275,000
HW/SW/Other	$ 200,000					$ 200,000
Contingency (20%)	$ 250,000					$ 250,000
TOTAL	$ 1,500,000	$ -	$ -	$ -	$ -	$ 1,500,000

Estimated Funding Sources	**Percentage**	**2019**	**Amount**
Water Rates	60%		$900,000
Wastewater Rates	40%		$600,000
Total	**100%**		**$1,500,000**

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: PLANNED

Project Name: Hansen 7 - Phase 2 Developer Services SW Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Sundaram **Board Approval:** 01/28/19

Project Description:

Project replaces the obsolete Hansen 7 developer services software application and retire a myriad of workarounds used daily by District employees to perform routine job functions including service application processing, plan review and acceptance, construction inspection, customer service, records management, and billing. The workarounds are largely stand-alone, causing duplicate sets of data to be maintained in multiple places and leading to widespread inefficiency, plus confusion and potentially bad decisions when using data of poor or inconsistent quality involving FCC and related cost recovery revenue typically ranging from $5,000,000 to $25,000,000 annually.

Once implemented, modern software configured to manage utility service connection changes and related operational requirements:
- optimizes daily facility connection management processes
- improves data access and accruacy to make better decisions
- delivers adability for an uncertain regulatory future
- decreases system and information security risk

Basis for Priority:

Hansen 7 software has had no new feature development since 2003 and no longer supports current and evolving operational requirements. Continued use of Hansen 7 software for developer service management contributes to widespread inefficiency and increased risk of service quality or capacity issues, or worse.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 950,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 950,000
Project Balance	$ -	Additional Funding Required	$ 950,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Professional Services		$ 500,000				$ 500,000
Capitalized Labor		$ 260,000				$ 260,000
HW/SW/Other		$ 30,000				$ 30,000
Contingency (20%)		$ 160,000				$ 160,000
TOTAL	$ -	$ 950,000	$ -	$ -	$ -	$ 950,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	60%		$0
Wastewater Rates	40%		$0
Total	100%		$0

Funding Comments:

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **General District**

Project Number: PLANNED

Project Name: Hansen 7 - Phase 3 Utility Billing SW Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Sundaram **Board Approval:** 01/28/19

Project Description:

Project replaces the antiquated Hansen 7 utility billing software application and retire a myriad of workarounds used daily by District employees to perform routine job functions including meter reading and repair, customer service and account management, incident handling and notification, bill preparation and payment processing, water consumption management and conservation programs, records management, and more. The workarounds are largely stand-alone, causing duplicate sets of data to be maintained in multiple places and leading to widespread inefficiency, plus confusion and potentially bad decisions when using data of poor or inconsistent quality related to utility billing revenue in excess of $50,000,000 annually.

Once implemented, modern software configured to manage customer service, utility billing, regulatory and operational requirements:
- optimizes daily service delivery, billing, and management processes
- improves data access and accruacy to make better decisions
- delivers adability for an uncertain regulatory future
- decreases system and information security risk

Basis for Priority:

Hansen 7 has had no new feature development since 2003 and no longer supports current and evolving operational requirements. Continued use of Hansen 7 software for customer service and utility billing management contributes to widespread inefficiency and increased risk of service interruptions, regulatory fines, or worse.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 2,340,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 2,340,000
Project Balance	$ -	**Additional Funding Required**	$ 2,340,000

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Professional Services		$ 500,000	$ 1,000,000			$ 1,500,000
Capitalized Labor		$ 150,000	$ 250,000			$ 400,000
HW/SW/Other			$ 50,000			$ 50,000
Contingency (20%)			$ 390,000			$ 390,000
TOTAL	$ -	$ 650,000	$ 1,690,000	$ -	$ -	$ 2,340,000

Estimated Funding Sources	**Percentage**	**2019 Amount**
Water Rates	60%	$0
Wastewater Rates	40%	$0
Total	**100%**	**$0**

Funding Comments:

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **General District**

Project Number: PLANNED

Project Name: IT Network and Communications Reliability Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Eberhard **Board Approval:** 01/28/19

Project Description:

This ongoing project maintains the reliability, security, and performance of the District's networks and communications systems required to conduct daily District business by replacing end-of-life equipment and operating systems, including network switches and routers, firewalls and network security equipment, telephone and messaging systems, audio-visual systems, and other specialized equipment enabling modern communications and collaboration.

Major actions in 2019 include:
- Replace end of life network switches that provide connectivity for hundreds of devices in numerous District facilities,
- Replace end-of-life audio/visual equipment in Board Room.

Basis for Priority:

Maintain the reliability and performance of the current business IT network used to perform operations, customer service, billing, financial management, regulatory reporting, security, and other critical and essential functions of the district.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 695,000
Cash flow through end of year:		**Total Project Estimate:**	$ 695,000
Project Balance	$ -	**Additional Funding Required**	$ 695,000

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Professional Services	$ -					$ -
Capitalized Labor	$ 78,000	$ 60,000	$ 40,000	$ 10,000	$ 10,000	$ 198,000
HW/SW/Other	$ 140,000	$ 200,000	$ 60,000	$ 35,000	$ 40,000	$ 475,000
Contingency (10%)	$ 22,000					$ 22,000
TOTAL	$ 240,000	$ 260,000	$ 100,000	$ 45,000	$ 50,000	$ 695,000

Estimated Funding Sources	**Percentage**	**2019**	**Amount**
Water Rates	60%		$144,000
Wastewater Rates	40%		$96,000
			$0
Total	**100%**		**$240,000**

Funding Comments: Funding carried over from prior year in CIP, previously part of the Business IT Infrastructure Reliability Program.

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: PLANNED

Project Name: Mobile Devices - Phase 1

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Eberhard **Board Approval:** 01/28/19

Project Description:

Project implements modern mobile capabilities for field workers using consumer-grade handheld mobile devices and District-owned software configured to support current and evolving regulatory and operational requirements. This implementation will retire a myriad of workarounds used daily by District employees to perform routine job functions. Modern mobile devices and software apps will improve the speed and accuracy of critical business processes performed routinely by District employees working in the field.

Project builds off prior efforts that constructed accurate digital system maps in the GIS, plus implemented mobile device management (MDM) to efficiently provision, patch, update, and secure consumer-grade mobile devices. With MDM in place, future additions of software applications - such as the Hansen software replacement - to mobile devices can be performed in minutes versus days or weeks.

Basis for Priority:

Existing solution uses laptop-style devices mounted in vehicles and requires constant network connectivity to function - which is neither practical nor feasible. In addition the devices have reached the end of manufacturer support and can no longer be repaired or easily replaced when they fail. These limitations cause duplicate sets of data to be maintained in multiple places and lead to widespread inefficiency, plus confusion and potentially poor decisions when using data where the quality is poor or inconsistent.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 77,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 77,000
Project Balance	$ -	Additional Funding Required	$ 77,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Professional Services	$ -					$ -
Capitalized Labor	$ 45,000					$ 45,000
HW/SW/Other	$ 25,000					$ 25,000
Contingency (10%)	$ 7,000					$ 7,000
TOTAL	$ 77,000	$ -	$ -	$ -	$ -	$ 77,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	60%		$46,200
Wastewater Rates	40%		$30,800
			$0
Total	100%		$77,000

Funding Comments: Funding carried over from prior year in CIP, previously part of the Mobile GIS and MMS Program.

2019 **CAPITAL IMPROVEMENT PLAN** **Program:** **General District**

Project Number: PLANNED

Project Name: SCADA Hardware Replacement Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Volcansek **Board Approval:** 01/28/19

Project Description:

Rolling CIP fund to replace end of life cycle SCADA hardware District wide. While specific areas of SCADA have been identified, this project is intended to replace failed hardware items identified in the SCADA Master Plan.

Basis for Priority:

Rolling CIP to replace end of life cycle SCADA hardware, ensure service reliability and to reduce problem areas of the SCADA system causing overtime.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2019 - 2023 Planned Expenditures:**	$ 250,000
Cash flow through end of year:	$ -	**Total Project Estimate:**	$ 250,000
Project Balance	$ -	**Additional Funding Required**	$ 250,000

Description of Work	**Estimated Annual Expenditures**					
	2019	**2020**	**2021**	**2022**	**2023**	**Total**
Replacement Installation & Parts	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 250,000
						$ -
						$ -
						$ -
						$ -
						$ -
TOTAL	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 250,000

Estimated Funding Sources	**Percentage**	**2019 Amount**
Water Rates	60%	$30,000
Wastewater Rates	40%	$20,000
		$0
Total	**100%**	**$50,000**

Funding Comments: The project replaces existing facilities, therefore is funded by water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: PLANNED

Project Name: SCADA Master Plan Implementation

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Volcansek **Board Approval:** 01/28/19

Project Description:

This CIP is to develop SCADA automatic reporting and a detailed CIP plan as recommended by our hired consultant. Please refer to the SCADA Master Plan.

Basis for Priority:

There is the potential for "wasted work" and great operational inefficiencies amounting to the hundreds of thousands of dollars or more by moving forward on SCADA development without a written plan or standard.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 155,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 155,000
Project Balance	$ -	Additional Funding Required	$ 155,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
						$ -
						$ -
Consultant services for CIP development.	$ 25,000					$ 25,000
Consulting services Automatic Reports Generation	$ 85,000	$ 45,000				$ 130,000
						$ -
						$ -
TOTAL	$ 110,000	$ 45,000	$ -	$ -	$ -	$ 155,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	60%	$66,000
Wastewater Rates	40%	$44,000
		$0
Total	100%	$110,000

Funding Comments: The project replaces existing facilities, therefore is funded by water rates.

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: PLANNED

Project Name: Security Equipment Reliability Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Kilburg **Board Approval:** 01/28/19

Project Description:

Integrated security systems have been protecting District critical infrastructure and key resources since 2006, providing alarm verification through real-time CCTV system viewing of alarm events. Integrated security systems provide timely detection and law enforcement response elements that mitigate theft, vandalism, trespassing, other potentially serious malevolent incidents, and provide an important emergency response capability consistent with the District Drinking Water Vulnerability Assessment, FERC Security Assessment, Emergency Operations and Department Emergency Actions Plans as required by the Federal Safe Drinking Water Act, Title IV - Drinking Water Security and Safety.

Basis for Priority:

Maintain integrated security system operational performance, and provide a real-time emergency response assessment tool.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ 12,000
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 48,000
Cash flow through end of year:	$ 12,000	Total Project Estimate:	$ 60,000
Project Balance	$ (12,000)	Additional Funding Required	$ 60,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Study/Planning						$ -
Design						$ -
Construction	$ 48,000					$ 48,000
						$ -
TOTAL	$ 48,000	$ -	$ -	$ -	$ -	$ 48,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	100%		$60,000
			$0
			$0
Total	100%		$60,000

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: PLANNED

Project Name: Shared IT Computing Reliability Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Proctor **Board Approval:** 01/28/19

Project Description:

This ongoing project maintains the reliability and performance of the District's highly-available "private cloud" or unified computing system (UCS) configured to conduct daily District business by replacing end-of-life equipment and operating systems, including host blades and clusters, data storage and backup systems, core networks and gateways, and other specialized systems to support unique high-performance and high-availability computing environment requirements.

Major actions in 2019 include:
- replace end-of-life blade servers and related equipment that host the District's Internet DMZ and SCADA management environments.
- replace significant components of the data center core network that can no longer be adapted to meet operational requirements.
- replace end-of-life UPS providing continuous power for the backup data center.

Basis for Priority:

Project ensures the reliability and performance of the unified computing environment used to perform operations, customer service, billing, financial management, regulatory reporting, security, and other critical and essential functions of the district. End-of-life equipment is no longer supported by the manufacturer and presents a significantly heightened risk of failure or security compromise if left in service.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 1,942,000
Cash flow through end of year:		Total Project Estimate:	$ 1,942,000
Project Balance	$ -	Additional Funding Required	$ 1,942,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Professional Services	$ 20,000					$ 20,000
Capitalized Labor	$ 43,000	$ 10,000	$ 10,000	$ 100,000	$ 200,000	$ 363,000
HW/SW/Other	$ 280,000	$ 50,000	$ 45,000	$ 450,000	$ 700,000	$ 1,525,000
Contingency (10%)	$ 34,000					$ 34,000
TOTAL	$ 377,000	$ 60,000	$ 55,000	$ 550,000	$ 900,000	$ 1,942,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	60%	$226,200
Wastewater Rates	40%	$150,800
		$0
Total	100%	$377,000

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: PLANNED

Project Name: WAN Replacement - Phase 2 Routers and Circuits

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Eberhard **Board Approval:** 01/28/19

Project Description:

Project replaces the antiquated wired private point-to-point (or T1) wide area network (WAN) with a broadband-based software-defined WAN (SD-WAN) configured to securely connect manned District facilites to information and and communications resources hosted in the District's data centers or in "the cloud" (Internet). Once implemented, a modern SD-WAN with centralized and integrated security features:

- improves imformation access and flow between employees and systems to make better decisions
- optimizes ongoing telecommunications service and management expenses
- mitigates system and information security risk
- delivers scalability and flexibility for the future

This implementation will retire a myriad of low band-width high-cost T1 circuits and related workarounds used daily by District employees and systems to perform routine job functions including utility operations and maintenance, security, communications and colaboration, systems management, and more. The workarounds include moving staff and duplicate sets of data between facilities for collaborations, maintenance tasks, and other activities that could be conducted virtually or remotely over a modern SD-WAN, leading to widespread inefficiency, plus confusion and potentially bad decisions when needed data is unavailable or of poor quality involving operations, maintenance, and security of District assets valued at approximately $1,000,000,000.

Basis for Priority:

Private T1 networks were prevalent prior to widespread business use of the Internet and web-based software beginning in the early 2000s. With development and innovation focused on next-generation broadband networks, the recurring cost-per-megabyte of bandwidth has fallen dramatically compared to T1 services. With T1 networks now obsolete, the primary telcommunications providers are actively pursuing regulatory approval to decommission their old wireline infrastructure or sell it off to regional tier-2 service providers. As a result, T1 service reliability is declining and costs are projected to increase sharply if a tier-2 provider acquires the local wireline infrastructure.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 450,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 450,000
Project Balance	$ -	Additional Funding Required	$ 450,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Professional Services	$ -					$ -
Capitalized Labor	$ 50,000					$ 50,000
HW/SW/Other	$ 360,000					$ 360,000
Contingency (10%)	$ 40,000					$ 40,000
TOTAL	$ 450,000	$ -	$ -	$ -	$ -	$ 450,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	60%	$270,000
Wastewater Rates	40%	$180,000
Total	**100%**	**$450,000**

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: PLANNED

Project Name: WAN - Phase 3 Wireless Redundancy Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Eberhard **Board Approval:** 01/28/19

Project Description:

Project builds on the prior phase and replaces the aging 4th-Generation (4G) cellular communications equipment and services configured to securely communicate SCADA alarms and provide remote operator access in the event the primary wired network connection fails to District treatment plants and other critical facilities. Once implemented, a modern 5G wireless virtual private network (W-VPN):

- improves information access and flow between employees and systems to make better decisions
- optimizes ongoing telecommunications service and management expenses
- mitigates system and information security risk
- delivers scalability and flexibility for the future

This implementation will retire end-of-life equipment, services, and a number of related workarounds used by District employees and systems to perform routine job functions including utility operations and maintenance, security, communications and colaboration, systems management, and more when wired network services fail. Such failures are quite common across the District's service area due to downed utility poles from storms, fires, vehicle accidents, and other causes. The workarounds include moving staff and duplicate sets of data between facilities for collaborations, maintenance tasks, and other activities that could be conducted virtually or remotely over a modern WAN, leading to inefficiency, plus confusion and potentially bad decisions when needed data is unavailable or of poor quality involving operations, maintenance, and security of District assets valued at approximately $1,000,000,000.

Basis for Priority:

Redundant 4G cellular network services were implemented to provide business continuity only for SCADA alarms and remote operator access around 2014. With development and innovation focused on next-generation 5G wireless networks that will rival wired broadband performance, and the recurring cost-per-megabyte of bandwidth is anticipated to fall dramatically compared to current cellular services - opening the possibility of cost-effective full business continuity for these remote District facilities. With 4G networks becoming obsolete, the primary telcommunications providers will pursue regulatory approval to decommission their old 4G infrastructure or sell it off to regional tier-2 service providers. As a result, 4G service reliability is expected to decline rapidly in coming years while the recurring cost-per-megabyte of bandwidth in 4G cellular networks remains extremely expensive.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 120,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 120,000
Project Balance	$ -	Additional Funding Required	$ 120,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Professional Services		$ -				$ -
Capitalized Labor		$ 50,000				$ 50,000
HW/SW/Other		$ 60,000				$ 60,000
Contingency (10%)		$ 10,000				$ 10,000
TOTAL	$ -	$ 120,000	$ -	$ -	$ -	$ 120,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	60%	$0
Wastewater Rates	40%	$0
Total	100%	$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: PLANNED

Project Name: WiFi - Phase 1 HQ Access Point Replacements

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Eberhard **Board Approval:** 01/28/19

Project Description:

Project replaces the antiquated WiFi access points (WAPs) and retire obsolete equipment and related workarounds used daily by District employees and systems to perform routine job functions including utility operations and maintenance, security, communications and colaboration, systems management, and more. The workarounds include moving staff and duplicate sets of data between locations for collaborations, maintenance tasks, and other activities that could be conducted virtually or remotely over a modern WiFi network, leading to widespread inefficiency, plus confusion and potentially bad decisions when needed data is unavailable when involving operations, maintenance, and security of District assets valued at approximately $1,000,000,000.

Once implemented, a modern WiFi network configured to securely connect mobile devices including laptops, tablets, and phones in the District HQ facility to information and and communications resources hosted in the District's data centers or in "the cloud" (Internet):
- improves imformation access and flow between employees and systems to make better decisions
- optimizes ongoing telecommunications service and management expenses
- mitigates system and information security risk
- delivers scalability and flexibility for the future

Basis for Priority:

The existing HQ WiFi network equipment is obsolete, has known security risks, and can no longer be adapted to meet District needs. With software application development and innovation focused on mobile device access, plus the coming wave of "smart" things, a modern and secure WiFi network is essential for efficient business and operations practices.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 83,500
Cash flow through end of year:	$ -	Total Project Estimate:	$ 83,500
Project Balance	$ -	Additional Funding Required	$ 83,500

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Professional Services	$ 10,000					$ 10,000
Capitalized Labor	$ 20,000					$ 20,000
HW/SW/Other	$ 45,000					$ 45,000
Contingency (10%)	$ 8,500					$ 8,500
TOTAL	$ 83,500	$ -	$ -	$ -	$ -	$ 83,500

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	60%		$50,100
Wastewater Rates	40%		$33,400
Total	100%		$83,500

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: PLANNED

Project Name: WiFi - Phase 2 Plant Building Access Points

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Eberhard **Board Approval:** 01/28/19

Project Description:

Project builds on prior phase and places WiFi access points (WAPs) to retire workarounds used daily by District employees and systems to perform routine job functions including utility operations and maintenance, security, communications and colaboration, systems management, and more. The workarounds include moving staff and duplicate sets of data between locations for collaborations, maintenance tasks, and other activities that could be conducted virtually or remotely over a modern WiFi network, leading to widespread inefficiency, plus confusion and potentially bad decisions when needed data is unavailable when involving operations, maintenance, and security of District assets valued at approximately $1,000,000,000.

Once implemented, a modern WiFi network configured to securely connect mobile devices including laptops, tablets, and phones within the District's plant buildings to information and and communications resources hosted in the District's data centers or in "the cloud" (Internet):
- improves imformation access and flow between employees and systems to make better decisions
- optimizes ongoing telecommunications service and management expenses
- mitigates system and information security risk
- delivers scalability and flexibility for the future

Basis for Priority:

The plants lack any WiFi network equipment, the remote locations typcially lack cellular coverage, and when cellular service is present, the building's construction materials generally prevent the signal from reaching interior work areas. With software application development and innovation focused on mobile device access, plus the coming wave of "smart" things, a modern and secure WiFi network is essential for efficient business and operations practices.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 220,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 220,000
Project Balance	$ -	Additional Funding Required	$ 220,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Professional Services		$ 60,000				$ 60,000
Capitalized Labor		$ 40,000				$ 40,000
HW/SW/Other		$ 100,000				$ 100,000
Contingency (10%)		$ 20,000				$ 20,000
TOTAL	$ -	$ 220,000	$ -	$ -	$ -	$ 220,000

Estimated Funding Sources	Percentage	2019	Amount
Water Rates	60%		$0
Wastewater Rates	40%		$0
Total	100%		$0

Funding Comments:

2019	CAPITAL IMPROVEMENT PLAN	Program:	General District

Project Number: PLANNED

Project Name: WiFi - Phase 3 Plant-wide Access Points

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Eberhard **Board Approval:** 01/28/19

Project Description:

Project builds on prior phase and places WiFi access points (WAPs) or other wireless service solutions outdoors at certain District plant facilities lacking adequate cellular service and retire workarounds used daily by District employees and systems to perform routine job functions including utility operations and maintenance, security, communications and colaboration, systems management, and more. The workarounds include moving staff and duplicate sets of data between locations for collaborations, maintenance tasks, and other activities that could be conducted virtually or remotely over a modern WiFi network, leading to widespread inefficiency, plus confusion and potentially bad decisions when needed data is unavailable when involving operations, maintenance, and security of District assets valued at approximately $1,000,000,000.

Once implemented, a modern WiFi network configured to securely connect mobile devices including laptops, tablets, and phones to information and and communications resources hosted in the District's data centers or in "the cloud" (Internet):
- improves imformation access and flow between employees and systems to make better decisions
- optimizes ongoing telecommunications service and management expenses
- mitigates system and information security risk
- delivers scalability and flexibility for the future

Basis for Priority:

The plants lack any outdoor WiFi network equipment, and the remote locations of several lack cellular coverage. With software application development and innovation focused on mobile device access, plus the coming wave of "smart" things, a modern and secure wireless network infrastructure (either 5G cellular or WiFi) is essential for efficient business and operations practices.

Project Financial Summary:			
Funded to Date:	$ -	Expenditures through end of year:	$ -
Spent to Date:	$ -	2019 - 2023 Planned Expenditures:	$ 220,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 220,000
Project Balance	$ -	Additional Funding Required	$ 220,000

Description of Work	Estimated Annual Expenditures					
	2019	2020	2021	2022	2023	Total
Professional Services			$ 60,000			$ 60,000
Capitalized Labor			$ 40,000			$ 40,000
HW/SW/Other			$ 100,000			$ 100,000
Contingency (10%)			$ 20,000			$ 20,000
TOTAL	$ -	$ -	$ 220,000	$ -	$ -	$ 220,000

Estimated Funding Sources	Percentage	2019 Amount
Water Rates	60%	$0
Wastewater Rates	40%	$0
Total	100%	$0

Funding Comments: