

BOARD OF WATER SUPPLY

City and County of Honolulu
Honolulu, Hawaii

SIX-YEAR CAPITAL IMPROVEMENT PROGRAM

For the Fiscal Years
Beginning July 1, 2013 and
Ending June 30, 2019

Submitted by: ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

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FOREWORD

The Six-Year Capital Improvement Program for fiscal years 2014 - 2019, contained herein, represents the projected funding requirements for research and development, renewal and replacement and capacity expansion to adequately meet system needs and the estimated water demand during the program period. Water demand estimates were derived from demographic and community planning data furnished by the Department of Planning and Permitting, City and County of Honolulu.

The level and rate of program execution in subsequent years will depend largely upon the financial capacity of the Board of Water Supply and the extent additional financing is available from various contributory sources.

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CHAIRMAN AND MEMBERS
BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII

In compliance with Section 7-105 (d) of the Revised Charter of the City and County of Honolulu, the following is the Six-Year Capital Improvement Program for the period July 1, 2013 - June 30, 2019.

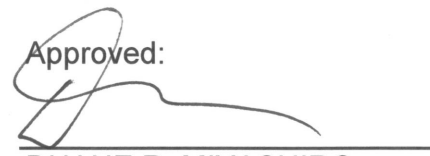
Submitted by:


ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

OCT 28 2013

Date

Approved:


DUANE R. MIYASHIRO
Chairman

OCT 28 2013

Date

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BOARD OF WATER SUPPLY

City and County of Honolulu

BOARD MEMBERS

DUANE R. MIYASHIRO, Chairman

MAHEALANI CYPHER, Vice Chair

THERESIA C. McMURDO

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ROSS S. SASAMURA, Ex-Officio

GLENN M. OKIMOTO, Ex-Officio

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<u>SUMMARY OF COST ESTIMATES</u>	1					
<u>I. RESEARCH AND DEVELOPMENT (R&D)</u>	3					
1. MAAKUA WELL UNIT NO. 2	5	28	2	23	47	KOOLAULOA
2. BWS WATER MASTER PLAN DEVELOPMENT	5	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
3. ENERGY SAVINGS PERFORMANCE CONTRACTING (ESPC) - BWS FACILITIES	5	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
4. BWS WATER MASTER PLAN PROGRAM MANAGEMENT - PHASE I & II	5	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
5. HAUULA WELL REPLACEMENT	6	28	2	23	47	KOOLAULOA
6. KAIMUKI PUMP STATION EXPLORATORY WELLS	6	5	5	10	21	PUC
7. NUUANU RESERVOIR NO. 1, 2 AND 3 DECOMMISSIONING STUDY	6	12	6	13	25, 27	PUC
FY 2014-2019 RESEARCH AND DEVELOPMENT (R&D) TOTAL	6					

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<u>II. RENEWAL AND REPLACEMENT (R&R)</u>	7					
A. PUMPS - R&R						
1. PUMP RENEWAL AND REPLACEMENT	9	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
2. AINA KOA BOOSTER IV AND BOOSTER V: REPLACE PUMPING UNITS	9	3	4	9	18	EAST HONOLULU
3. KAMILOIKI BOOSTER REPLACEMENT	9	1	4	9	17	EAST HONOLULU
4. WAIALEE WELLS II: REPLACE PUMPING UNIT	9	28	2	23	47	KOOLAULOA
5. NUUANU BOOSTER II: REPLACE PUMPING UNIT	10	12	6	13	27	PUC
6. PUNALUU WELLS II: REPLACE PUMP NO. 2 AND NO. 5, PART A	10	28	2	23	47	KOOLAULOA
7. WAHIAWA WELLS I UNIT 3 REHABILITATION	10	26	2	22	46	CENTRAL OAHU
8. HAIKU WELL RENOVATION	10	30	3	23	48	KOOLAUPOKO
9. WAIAMU WELLS AND BOOSTER RENOVATION	10	12	6	13	26	PUC
10. KAAMILO BOOSTER RENOVATION AND AIEA BOOSTER NO. 3 PUMP REPLACEMENT	11	1, 20	4, 6	9, 16	17, 33	PUC
11. BERETANIA PUMP STATION RENOVATION	11	13	6	13	26	PUC
12. BARBERS POINT LINE BOOSTER IMPROVEMENTS	11	34	1	20	42	EWA
13. KAMAILE WELLS RENOVATION	11	24	1	21	44	WAIANAE
14. MARINER'S RIDGE BOOSTER I: REPLACE PUMPING UNITS	12	1	4	9	17	EAST HONOLULU
15. AINA KOA BOOSTER I: REPLACE PUMP NO. 2	12	3	4	9	18	EAST HONOLULU
16. KEANU LINE BOOSTER: REPLACE PUMPING UNITS	12	6	5	10	20	PUC

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17. MAUNAWILI BOOSTER: REPLACE PUMPING UNITS	13	31	3	24	51	KOOLAUPOKO
18. KALUANUI LINE BOOSTER: REPLACE PUMPING UNITS	13	28	2	23	47	KOOLAULOA
19. DIAMOND HEAD LINE BOOSTER: REPLACE PUMPING UNITS	13	5	5	10	21	PUC
20. KAONOHI BOOSTER I: REPLACE PUMPING UNITS	14	20	8	16	33	PUC
21. WAIHEE LINE BOOSTER: REPLACE PUMPING UNITS	14	29	2	23	48	KOOLAUPOKO
22. PACIFIC HEIGHTS 578 BOOSTER RENOVATION	14	12	6	13	25	PUC
23. KAIMUKI PUMP STATION REDEVELOPMENT	15	5	5	10	21	PUC
24. PUNANANI WELLS MCC REPLACEMENT	15	20	8	16	33	PUC
25. WAIALAE IKI WELL RENOVATION	15	2	4	9	18	EAST HONOLULU
26. MILILANI WELLS II IMPROVEMENTS	15	35	2	22	36	CENTRAL OAHU
27. PEARL CITY WELLS II ISOLATION VALVES	15	21	8	16	34	PUC
28. PEARL CITY WELLS I RENOVATION	15	21	8	16	34	PUC
29. PUNALUU WELLS II RENOVATION	16	28	2	23	47	KOOLAULOA
30. KALIHI PUMP STATION LOW AND HIGH SERVICE RENOVATION	16	15	7	15	29	PUC
31. MILILANI WELLS I RENOVATION	16	35	2	22	36	CENTRAL OAHU
R&R PUMPS SUBTOTAL	16					

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B. RESERVOIRS - R&R						
1. WILHELMINA RISE 811 RESERVOIR REPLACEMENT	17	4	4	10	20	PUC
R&R RESERVOIRS SUBTOTAL	17					
C. PIPELINES - R&R						
1. KALIHI WATER SYSTEM IMPROVEMENTS, PART III	18	15	7	15	30	PUC
2. WATER MAIN REPLACEMENT AT VARIOUS STREETS	18	2, 4, 5, 7, 10, 14	4, 5, 6	9, 10, 11, 13	18, 20, 23, 25, 27	PUC
3. KILAUEA AVENUE 8-INCH MAIN	19	4	4	9	19	PUC
4. WOODLAWN WATER SYSTEM IMPROVEMENTS, PART II	19	7	5	11	23	PUC
5. EWA BEACH WATER SYSTEM IMPROVEMENTS, PART II	19	23	1, 9	19	41	EWA
6. FIRE HYDRANT INSTALLATION AT VARIOUS LOCATIONS IN KAILUA	20	31	3	24, 25	50, 51	KOOLAUPOKO
7. HIHIMANU STREET 20-INCH MAIN	20	32	3	25	51	KOOLAUPOKO
8. KUAHEA STREET 8-INCH MAIN	20	6	5	10	20	PUC
9. WATER MAIN INSTALLATION & REPLACEMENT	20	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
10. PALOLO WATER SYSTEM IMPROVEMENTS, PART III	21	6	5	10	20	PUC
11. PALOLO WATER SYSTEM IMPROVEMENTS, PART IV	21	5, 6	4, 5	10	20	PUC
12. MAPUNAPUNA WATER SYSTEM IMPROVEMENTS, PART I	22	19	7	15	31	PUC
13. WAHIAWA WATER SYSTEM IMPROVEMENTS - PART I	22	26	2	22	46	CENTRAL OAHU

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14. WILHELMINA RISE WATER SYSTEM IMROVEMENTS, PART V	23	3, 4	4	9, 10	18, 20	PUC
15. PACIFIC HEIGHTS WATER SYSTEM IMPROVEMENTS, PART II	23	12	6	13	25	PUC
16. AIEA KAI PLACE AND WAY 8-INCH MAINS	23	20	8	16	31	PUC
17. NIUMALU LOOP AND KUKII STREET 8-INCH MAIN	24	1	4	9	17	EAST HONOLULU
18. MANOA ESTATES WATER SYSTEM IMPROVEMENTS	24	7	5	11	18	PUC
19. FIRE HYDRANT INSTALLATION AT VARIOUS LOCATIONS	24	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
20. ANOI ROAD WATER SYSTEM IMPROVEMENTS	24	30	3	24	48, 49	KOOLAUPOKO
21. LILIHA WATER SYSTEM IMPROVEMENTS, PART V	25	14	6	13	27	PUC
22. DIAMOND HEAD WATER SYSTEM IMPROVEMENTS, PART II	25	3, 4	4	9	19	PUC
23. KULAAUPUNI AND ALTA STREETS WATER SYSTEM IMPROVEMENTS	25	24, 36	1	21	43, 44	WAIANAE
24. PENSACOLA STREET WATER SYSTEM IMPROVEMENTS	26	10, 11	5, 6	11, 12	24, 25, 26	PUC
25. WILHELMINA RISE WATER SYSTEM IMROVEMENTS, PART IV	26	4	4	10	20	PUC
26. KAPAHULU WATER SYSTEM IMPROVEMENTS, PART I	27	5	5	10	19, 20, 21, 23	PUC
27. KAWANANAKOA PLACE 8-INCH MAIN	27	12, 14	6	13	27	PUC
28. PIPELINE TUNNEL RENOVATION AT VARIOUS LOCATIONS	27	4, 5, 6, 17, 20, 32	3, 4, 5, 6	9, 10, 14, 25	17, 19, 20, 32, 33, 51	PUC, EAST HONOLULU, KOOLAUPOKO
29. AULOA ROAD AND ULUKAHIKI STREET: 12-INCH MAIN	27	31	3	24, 25	49, 51	KOOLAUPOKO
30. WAIANAE WATER SYSTEM IMPROVEMENTS, PART III	28	24	1	21	44	WAIANAE
31. KALIHI WATER SYSTEM IMPROVEMENTS, PART VI	28	15,16	7	14,15	28, 29, 30	PUC
32. MAKAKILO WATER SYSTEM IMPROVEMENTS, PART III	29	34	1	20	39, 42	EWA

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33. MOILILI WATER SYSTEM IMPROVEMENTS, PART IV	29	5, 8	5	10	21	PUC
34. MONSARRAT AVENUE WATER SYSTEM IMPROVEMENTS	30	5	4	9, 10	19	PUC
35. KIPOU STREET 8-INCH MAIN	30	22	9	17	39	CENTRAL OAHU
36. KAIMUKI WATER SYSTEM IMPROVEMENTS, PART I	30	4	4	9	19	PUC
37. LULUKU ROAD WATER SYSTEM IMPROVEMENTS	30	30	3	24	49	KOOLAUPOKO
38. KAMEHAMEHA HIGHWAY - HALEIWA WATER SYSTEM IMPROVEMENTS, PART I & II	31	27	2	23	47	NORTH SHORE
39. PUHAWAI ROAD, KUWALE ROAD AND PUUHULU ROAD WATER SYSTEM IMPROVEMENTS	32	24	1	21	44	WAIANAE
40. POOLA STREET 8-INCH MAIN	32	2	4	9	18	EAST HONOLULU
41. HALEAHI AND PAHEEHEE ROAD 12-INCH AND 8-INCH MAINS	32	24, 36	1	21	44	WAIANAE
42. WAI AU WATER SYSTEM IMPROVEMENTS, PART II	33	20, 21	8	16	33, 34	PUC
43. NORTH SCHOOL STREET WATER SYSTEM IMPROVEMENTS	33	14, 15, 16	6, 7	14	28, 29, 30	PUC
44. PEARL CITY WATER SYSTEM IMPROVEMENTS, PART IV	34	21	8	16, 17	34, 35	PUC
45. KEOLU HILLS WATER SYSTEM IMPROVEMENTS, PART II	35	31	3	25	51	KOOLAUPOKO
46. KALAMA VALLEY WATER SYSTEM IMPROVEMENTS, PART II	35	1	4	9	17	EAST HONOLULU
47. KILI DRIVE 16-INCH MAIN, PART II	36	24	1	21	44	WAIANAE
48. LANAKILA WATER SYSTEM IMPROVEMENTS	36	14, 15	6, 7	13	27	PUC
49. MARINER'S RIDGE WATER SYSTEM IMPROVEMENTS, PART II	36	1	4	9	17	EAST HONOLULU
50. KAMEHAMEHA HEIGHTS WATER SYSTEM IMPROVEMENTS, PART V	37	14	6	13, 14	27	PUC

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51. KAHUAILANI STREET WATER SYSTEM IMPROVEMENTS	37	22	8	17	38	CENTRAL OAHU
52. WAHIAWA WATER SYSTEM IMPROVEMENTS, PART III	37	26	2	22	46	CENTRAL OAHU
53. HUI ULILI STREET: 12-INCH, 8-INCH AND 4-INCH MAINS	38	29	3	24	48	KOOLAUPOKO
54. SEASIDE AND KAIULANI AVENUE 12-INCH MAINS	38	9	4	12	22	PUC
55. DIAMOND HEAD WATER SYSTEM IMPROVEMENTS, PART III	38	3, 4	4	9	19	PUC
56. WAIPAHAU 36-INCH MAIN RELOCATION	38	22	8	17	38	CENTRAL OAHU
57. PAUOA WATER SYSTEM IMPROVEMENTS	39	12	6	11, 13	24, 25	PUC
58. BARBERS POINT 215 WATER SYSTEM IMPROVEMENTS	39	34	1	20	42	EWA
59. ALA AOLANI 12-INCH MAIN	39	17	6	14	32	PUC
R&R PIPELINES SUBTOTAL	39					
D. TREATMENT - R&R						
No Project Scheduled	40	--	--	--	--	--
R&R TREATMENT SUBTOTAL	40					

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E. FACILITIES - R&R						
1. SLOPE STABILIZATION AT VARIOUS FACILITIES	41	2, 6	4, 5	8, 9	18, 20	PUC, EAST HONOLULU
2. FACILITY RENEWAL AND RENOVATION	41	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
3. NUUANU RESERVOIR NO. 4 DAM IMPROVEMENTS	41	12	6	13	25	PUC
4. KAILUA PRESSURE REDUCING VALVE REPLACEMENT	41	31	3	24	49	KOOLAUPOKO
5. KAMAILE PLANTATION WELLS SEALING	41	24	1	21	44	WAIANAE
6. WAIMALU WELLS I DRAINAGE IMPROVEMENTS	42	20	8	16	33	PUC
7. SECURITY FENCING AT VARIOUS LOCATIONS	42	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
8. CONSTRUCTION MANAGEMENT FOR VARIOUS BWS CONSTRUCTION PROJECTS	42	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
9. BWS FACILITIES MASTER PLAN	42	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
10. KAMILOIKI AND KALAMA VALLEY PRESSURE REDUCING VALVES	42	1	4	9	17	EAST HONOLULU
11. CUSTOMER INFORMATION SYSTEM	42	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
12. MAXIMO UPGRADE	43	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
13. NALU UPGRADE	43	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
14. IT PROJECT MANAGEMENT	43	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
15. PROFESSIONAL SERVICES FOR BWS PROJECTS	43	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
16. 2-WAY RADIO UPGRADES	43	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
17. MICROBIOLOGICAL LABORATORY AIR CONDITIONING UPGRADE	43	13	6	13	26	PUC

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18. RTU UPGRADES	44	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
19. STORM WATER MANAGEMENT PLAN IMPROVEMENTS	44	VARIOUS	VARIOUS	VARIOUS	VARIOUS	PUC, CENTRAL OAHU, KOOLAUPOKO, WAIANAE
20. KAILUA IWI KUPUNA REINTERMENT	44	31	3	25	50	KOOLAUPOKO
21. INTERNET MIGRATION	44	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
22. SCADA REPLACEMENT	44	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
23. RENOVATE / REPLACE RESERVOIR ALTITUDE VALVE ASSEMBLIES - MAKIKI & WAIALAE IKI 180 RESERVOIRS	44	2, 10	4, 6	9, 11	18, 24	PUC, EAST HONOLULU
24. NUUANU RESERVOIR NO. 1 DAM IMPROVEMENTS	45	1	6	13	27	PUC
25. FUTURE METER READING TECHNOLOGY	45	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
26. WAIMANALO TUNNEL III AND WAIANAE PLANTATION TUNNEL III (NO. 19) RENOVATION	45	24, 32	1, 3	21, 25	44, 51	KOOLAUPOKO, WAIANAE
27. SECURITY ENHANCEMENTS FOR ALL BWS CORPORATION YARDS	46	13, 16, 21, 20, 26, 30, 36	1, 2, 3, 6, 8	13, 14, 17, 21, 22, 24	26, 28, 33, 35, 43, 46, 48	PUC, CENTRAL OAHU, KOOLAUPOKO, WAIANAE
28. WAIPIO ACRES CONTROL VALVE IMPROVEMENTS	46	25	2	22	45	CENTRAL OAHU
29. PALOLO TUNNEL PORTAL IMPROVEMENTS	47	6	5	10	20	PUC
30. KRONOS UPGRADE	47	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
31. BUSINESS INTELLIGENCE / DIGITAL DASHBOARD	47	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
32. WAIHEE WELLS CAPPING	47	29	2	23	48	KOOLAUPOKO
R&R FACILITIES SUBTOTAL	47					
FY 2014-2019 RENEWAL AND REPLACEMENT (R&R) TOTAL	47					

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<u>III. CAPACITY EXPANSION</u>	49					
A. PUMPS						
1. KAHUKU WELLS UNIT NO. 3	51	28	2	23	47	KOOLAULOA
2. MAAKUA WELL UNIT NO. 2	51	28	2	23	47	KOOLAULOA
3. KALAELOA DESALINATION FACILITY	51	34	1	21	43	EWA
4. LUALUALEI LINE BOOSTER IMPROVEMENTS	51	36	1	21	43	WAIANAE
5. MILILANI 994 BOOSTER STATION	52	35	2	22	36	CENTRAL OAHU
6. WAIALAE WEST WELL	52	4	4	10	20	PUC
CAPACITY EXPANSION PUMPS SUBTOTAL	52					
B. RESERVOIRS						
1. KALAWAHINE 180 2.0 MG RESERVOIR	53	10	6	11	24	PUC
2. AINA HAINA 170 0.5 MG RESERVOIR NO. 2	53	2	4	9	18	EAST HONOLULU
3. NUUANU 900 SYSTEM RESERVOIR	53	12	6	13	25	PUC
4. EAST KAPOLEI 215 2.0 MG RECYCLED WATER RESERVOIR	54	34	1	20	39	EWA
5. WAIALAE 180 3.0 MG RESERVOIR REPLACEMENT	54	2	4	9	18	EAST HONOLULU
CAPACITY EXPANSION RESERVOIRS SUBTOTAL	54					

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C. PIPELINES						
1. KAMEHAMEHA HIGHWAY: 16-INCH WATER MAIN, PART I	55	27	2	23	47	NORTH SHORE
2. KALAKAUA AVENUE WATER SYSTEM IMPROVEMENTS	55	5, 8, 9, 10, 11	4, 5	9, 10, 12	19, 22, 24, 26	PUC
3. ALA MOANA BOULEVARD 16-INCH MAIN	56	11	4, 5, 6	12	22, 26	PUC
4. HONOLULU DISTRICT 42-INCH MAINS - LILIHA TO MOILIILI	56	8, 10, 11,13,15	5, 6, 7	11,12,13	21, 23, 24, 27, 29	PUC
5. ALA MOANA WATER SYSTEM IMPROVEMENTS	57	9	4	12	22	PUC
6. ALA MOANA WATER SYSTEM IMPROVEMENTS, PART II	57	11, 13	6	12, 13	26	PUC
7. SALT LAKE BOULEVARD 36-INCH MAIN - FOSTER VILLAGE TO ALIAMANU	57	18, 19	7	15	31, 32	PUC
8. NIMITZ HIGHWAY 16-INCH MAIN	58	15	7	13, 15	29	PUC
9. KUALAKAI PARKWAY 16-INCH RECYCLED WATER MAIN	58	23, 34	1, 9	20	39, 42	EWA
CAPACITY EXPANSION PIPELINES SUBTOTAL	58					
D. TREATMENT						
1. GAC FACILITY IMPROVEMENTS	59	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
2. GAC TREATMENT FOR WAIPIO HEIGHTS WELLS AND WAIPIO HEIGHTS WELLS I	59	22	8	17	35	CENTRAL OAHU
CAPACITY EXPANSION TREATMENT SUBTOTAL	59					

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E. FACILITIES						
1. WIRELESS COMMUNICATION SYSTEM	60	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
2. SECURITY CAMERA SYSTEMS	60	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
3. PROJECT INFORMATION MANAGEMENT SYSTEM	60	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
4. EMERGENCY GENERATOR INSTALLATION	60	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
5. BACKUP POWER SYSTEMS FOR WIRELESS SYSTEMS	60	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
6. DOCUMENT MANAGEMENT SYSTEM	61	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
CAPACITY EXPANSION FACILITIES SUBTOTAL	61					
FY 2014-2019 CAPACITY EXPANSION TOTAL	61					
FY 2014-2019 TOTAL	61					

BOARD OF WATER SUPPLY SIX-YEAR CAPITAL IMPROVEMENT PROGRAM

FISCAL YEARS 2014 TO 2019

SUMMARY OF COST ESTIMATES

<u>CATEGORY</u>	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	FISCAL YEARS (FY) TOTALS (\$ 000)					
			<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
I. RESEARCH AND DEVELOPMENT	12,390	3,580	6,510	2,830	1,850	1,200	0	0
II. RENEWAL AND REPLACEMENT	319,402	46,981	51,472	63,055	67,255	38,545	35,965	63,110
III. CAPACITY EXPANSION	112,430	18,269	16,330	8,345	11,245	19,575	45,255	11,680
SUB-TOTAL CATEGORIES I - III	444,222	68,831	74,312	74,230	80,350	59,320	81,220	74,790
Contract Adjustment Account			2,100					
Construction Cost Index Adjustment			5,767	7,423	8,035	5,932	8,122	7,479
TOTAL CAPITAL IMPROVEMENT PROGRAM BUDGET	489,080		82,179	81,653	88,385	65,252	89,342	82,269

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CATEGORY I

RESEARCH AND DEVELOPMENT

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BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS
		TOTAL	APPNS	(\$ 000)						
		(\$ 000)	(\$ 000)	2014	2015	2016	2017	2018	2019	
<u>I. RESEARCH AND DEVELOPMENT (R&D)</u>										
1. MAAKUA WELL UNIT NO. 2										Second well unit provides system reliability by providing standby capacity to existing single well pump station in accordance with BWS standards. Well to be located within existing site
Prepare Environmental Assessment for exploratory/production well at existing Maakua Wells Station (TMK: 5-4-005:001)	P&E	0	80	--	--	--	--	--	--	
Drill and case new well at existing Maakua Wells Station	Const	210	--	210	--	--	--	--	--	
2. BWS WATER MASTER PLAN DEVELOPMENT										
Develop a water master plan for the renewal, replacement and upgrade of BWS pipelines, reservoirs, pump stations, sources, treatment and other facilities. Work includes root cause analyses, detailed condition assessments, system analyses and evaluations, defining and prioritizing projects and the development of a comprehensive capital improvements program and financial plan	P&E	7,500	2,000	5,500	2,000	--	--	--	--	
	Const	0	--	--	--	--	--	--	--	
3. ENERGY SAVINGS PERFORMANCE CONTRACTING (ESPC) - BWS FACILITIES										
Implement an ESPC project on BWS facilities with a goal of reducing energy demand by 20%	P&E	800	--	800	--	--	--	--	--	
4. BWS WATER MASTER PLAN PROGRAM MANAGEMENT - PHASE I & II										
Phase I: Developing water master plan requirements and scope of work, assisting in evaluating and selecting consultants and overseeing, coordinating, reviewing, and monitoring the development of the water master plan	P&E	750	1,500	--	750	--	--	--	--	
Phase II: Overseeing, coordinating, reviewing, and monitoring the implementation of the water master plan	P&E	1,500	--	--	--	750	750	--	--	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
5. HAUULA WELL REPLACEMENT										Replace existing artesian well and connect to existing line shaft pumps. Well to be located within existing site
Prepare Environmental Assessment for replacement exploratory/production well at existing Hauula Wells Station	P&E	80	--	--	80	--	--	--	--	
Drill and case replacement exploratory well at existing Hauula Wells Station (TMK: 5-4-015:030)	Const	250	--	--	--	--	250	--	--	
6. KAIMUKI PUMP STATION EXPLORATORY WELLS										Replace existing artesian wells constructed between 1898 and 1928
Drill and case four (4) replacement exploratory wells at existing Kaimuki Wells Pump Station (TMK: 2-7-030:012)	P&E	1,100	--	--	--	1,100	--	--	--	
7. NUUANU RESERVOIR NO. 1, 2 AND 3 DECOMMISSIONING STUDY										
Prepare study to identify the alternatives for decommissioning or retaining all three reservoirs, including but not limited to operations & maintenance requirements, improvements, costs, permitting, regulatory requirements, liabilities and potential issues	P&E	200	--	--	--	--	200	--	--	
R&D P&E TOTAL	P&E	11,930	3,580	6,300	2,830	1,850	950	0	0	
R&D Land TOTAL	Land	0	0	0	0	0	0	0	0	
R&D Const TOTAL	Const	460	0	210	0	0	250	0	0	
FY 2014-2019 RESEARCH AND DEVELOPMENT (R&D) TOTAL		12,390	3,580	6,510	2,830	1,850	1,200	0	0	

CATEGORY II

RENEWAL AND REPLACEMENT

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BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019	
II. RENEWAL AND REPLACEMENT (R&R)										
A. PUMPS - R&R										
1. PUMP RENEWAL AND REPLACEMENT										Annual emergency and small design, renewal/maintenance and replacement of BWS pumps
Renewal and replacement of various BWS pumps and plant facilities	P&E	3,000	3,088.4	500	500	500	500	500	500	
	Const	2,600	4,328	100	500	500	500	500	500	
2. AINA KOA BOOSTER IV AND BOOSTER V: REPLACE PUMPING UNITS										
Replace two (2) booster pumps. Remove and provide new pump isolation valves. Replace existing motor controller with soft start motor controller. Corrosion control and repainting of all interior piping	Const	600	--	600	--	--	--	--	--	Design completed under Pump R&R
3. KAMILOIKI BOOSTER REPLACEMENT										
Replace three (3) pumps. Remove and provide new pump isolation valves. Replace existing motor controls with new soft starters. Corrosion control and repainting of all interior piping	Const	375	--	375	--	--	--	--	--	Design under Pump R&R
4. WAIALEE WELLS II: REPLACE PUMPING UNIT										
Remove and provide new pump building, cast in place concrete foundation with curb walls. Remove and provide new pump, motor, column pipe, lineshaft, discharge head assembly, air line, valves, and flow tube. Provide new solid-state soft start motor starter and PLC control. Provide new PLC controller. Include isolation valve to waste discharge	Const	550	--	550	--	--	--	--	--	Design completed under Pump R&R

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
5. NUUANU BOOSTER II: REPLACE PUMPING UNIT										
Remove and provide new pump building, cast in place concrete foundation with curb walls. Remove and provide new booster pump, valves, piping and electrical components. Provide new emergency booster pump suction and discharge connections. Provide new wall mounted disconnects, lighting and light switches	Const	250	--	250	--	--	--	--	--	Design completed under Pump R&R
6. PUNALUU WELLS II: REPLACE PUMP NO. 2 AND NO. 5, PART A										
Replace Pumps No. 2 and No. 5, including electrical	Const	250	--	250	--	--	--	--	--	Design under Pump R&R
7. WAHIAWA WELLS I UNIT 3 REHABILITATION										In-house design
Rehabilitate well unit 3 by extending existing well casing (drill and clear existing bore, drill additional 100 feet, install steel casing, transition casing and video log	Const	375	--	375	--	--	--	--	--	Units 1 & 2 are active
8. HAIKU WELL RENOVATION										
Prepare plans and specifications	P&E	0	163	--	--	--	--	--	--	
Replace pumping unit, valves, discharge piping, conduits, power, control wiring and MCC	Const	2,000	--	2,000	--	--	--	--	--	
9. WAIAU WELLS AND BOOSTER RENOVATION										
Prepare plans and specifications	P&E	0	225	--	--	--	--	--	--	
Replace motors, discharge piping and valves, chlorinators, MCC and wiring	Const	2,400	--	2,400	--	--	--	--	--	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
10. KAAMILO BOOSTER RENOVATION AND AIEA BOOSTER NO. 3 PUMP REPLACEMENT										
Prepare plans and specifications	P&E	0	104	--	--	--	--	--	--	
Kaamilo: Replace pumping units, discharge valves and piping	Const	950	--	950	--	--	--	--	--	
Aiea: Replace pumping units, discharge valves, piping and install emergency pump connection	Const	1,050	--	1,050	--	--	--	--	--	
11. BERETANIA PUMP STATION RENOVATION										Re-design to update plans & permits
Prepare plans and specifications	P&E	130	75	130	--	--	--	--	--	
Replace four (4) pump units (3 low, 1 high service), valves, MCC, cables, controls and wires	Const	1,200	--	--	--	1,200	--	--	--	
12. BARBERS POINT LINE BOOSTER IMPROVEMENTS										
Prepare plans and specifications	P&E	0	200	--	--	--	--	--	--	
Replace pumps and motors, discharge piping and valves, MCC, wiring and appurtenances	Const	2,000	--	--	2,000	--	--	--	--	
13. KAMAILE WELLS RENOVATION										
Prepare plans and specifications	P&E	0	150	--	--	--	--	--	--	
Renovate and install drain line for pump discharges	Const	500	--	--	500	--	--	--	--	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
14. MARINER'S RIDGE BOOSTER I: REPLACE PUMPING UNITS										
Replace two (2) existing pumps and motors including diaphragm and butterfly valves. Replace the existing two (2) check valves and four (4) rubber-seated butterfly valves on suction and discharge lines of the pumping units in the basement of the pump station. Install new MCC. Replace existing low voltage transformers and panel, which are used primarily for lighting and control power. Corrosion control and repaint all interior piping	Const	970	--	--	970	--	--	--	--	Design under Pump R&R
15. AINA KOA BOOSTER I: REPLACE PUMP NO. 2										
Replace Pump No. 2 motor. Replace altitude valve along with existing solenoid control valves and control panel. Replace existing rubber-seated butterfly valves at the suction and discharge lines of Pump No. 2. Replace gate valves at emergency discharge piping in the pump building. Replace existing cracked drain pipes, including fittings in the pump building basement. Replace compressor located in the utility room. Corrosion control and repaint all interior piping	Const	310	--	--	310	--	--	--	--	Design under Pump R&R
16. KEANU LINE BOOSTER: REPLACE PUMPING UNITS										
Replace all three (3) existing pump units including pumps, motors, discharge head assemblies, valves, flow tube, and all above-ground piping and components. The construction work will be properly sequenced to maintain two (2) pumps in service at all times. Replace center-guided check valves with new tilting-disc check valves. Install mute structure if feasible. Replace/relocate MCC from existing weather-proof enclosures and install new into existing pump building; remove existing equipment from existing pump building. Install new solid-state soft-starters	Const	1,820	--	--	1,820	--	--	--	--	Design under Pump R&R

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019	
17. MAUNAWILI BOOSTER: REPLACE PUMPING UNITS										
Replace the existing four (4) gate valves on the suction and discharge lines with four (4) new non-rising stem, resilient seated gate valves, in place complete. Replace the existing two (2) control valves located in the valve vault with straight sections of pipe. Replace existing metal grating on top of the existing valve vault with new grating. Replace existing valve vault rungs with new service ladder. Replace deteriorated metal support beam in vault. No electrical work is to be performed at the Maunawili BPS site. Corrosion control and repaint all piping including booster pumping units	Const	100	--	--	100	--	--	--	--	Design under Pump R&R
18. KALUANUI LINE BOOSTER: REPLACE PUMPING UNITS										
Replace three (3) existing pumping units with new pumping units on existing concrete pads including pumps, motors, and pump supports. Pumps and motors will be downsized from 2 MGD to 1 MGD. Provide new piping and valves. Perform corrosion control and repaint all interior piping. Renew/replace tiles on concrete pump bases. Replace existing RVAT starters with new solid-state soft start motor starters. Remove butterfly valves and their actuators	Const	935	--	--	935	--	--	--	--	Design under Pump R&R
19. DIAMOND HEAD LINE BOOSTER: REPLACE PUMPING UNITS										
Replace four (4) existing pumping units with four (4) new pumping units including pumps, motors, discharge head assemblies, valves, piping, and components. Provide new metal-seated butterfly valve and check valve on bypass lines to match existing. Replace safety disconnect and junction boxes at bypass control valve and all four pumps. Perform corrosion control and repaint all piping	Const	935	--	--	935	--	--	--	--	Design under Pump R&R

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019		
20. KAONOHI BOOSTER I: REPLACE PUMPING UNITS											
Replace both existing pumping units with new pumping units including pumps, motors, pump mounting bases, valves, piping, and components. Provide new Low Suction Pressure Switches on the suction side of each pumping unit. Provide new rubber-seated butterfly valves and check valves on the suction and discharge lines of each pumping unit. Provide new surge-anticipator valve, piping, and appurtenances	Const	585	--	--	585	--	--	--	--	Design under Pump R&R	
21. WAIHEE LINE BOOSTER: REPLACE PUMPING UNITS											
Replace motors at Pumps No. 1, No. 3, and No. 4 of Waihee set of pumps. Replace motors at Pump No. 1, No. 3, and No. 4 of Punaluu set of pumps. Replace shaft seals and flow switches for Pump No. 2, No. 3, and No. 4 of Waihee set of pumps. Replace shaft seals and flow switches for Pump No. 3 and No. 4 of Punaluu set of pumps. Coordinate with HECO to shut down overhead 46,000-volt line during crane lift operation for motor replacement. Perform corrosion control and repaint all above-ground piping for all eight (8) Waihee and Punaluu pumping units	Const	900	--	--	900	--	--	--	--	Design under Pump R&R	
22. PACIFIC HEIGHTS 578 BOOSTER RENOVATION											
Prepare plans and specifications	P&E	0	97	--	--	--	--	--	--		
Replace pumping units, valves, discharge piping, MCC, replace roof and renovate building	Const	1,500	--	--	1,500	--	--	--	--		

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
23. KAIMUKI PUMP STATION REDEVELOPMENT										
Prepare Environmental Assessment and Redevelopment Plan for four (4) new wells. Perform Condition Assessment of existing suction piping for potential reuse	P&E	0	620	--	--	--	--	--	--	Plan to assess transition from artesian to submersible pump system
Prepare plans and specifications	P&E	400	--	--	--	--	400	--	--	
Construct four (4) new wells, connections to discharge piping, valves, MCC, wiring and appurtenances	Const	0	--	--	--	--	--	--	--	
24. PUNANANI WELLS MCC REPLACEMENT										Redesign
Prepare plans and specifications	P&E	300	50	--	300	--	--	--	--	
Replace MCC, power cables and control wiring	Const	2,000	--	--	--	--	2,000	--	--	
25. WAIALAE IKI WELL RENOVATION										
Prepare plans and specifications	P&E	150	--	--	150	--	--	--	--	
Replace pump unit, MCC, conduits, controls and wires	Const	300	--	--	--	--	300	--	--	
26. MILILANI WELLS II IMPROVEMENTS										
Prepare plans and specifications	P&E	150	--	--	150	--	--	--	--	
Install permanent PRV assembly for system operations	Const	350	--	--	--	--	350	--	--	
27. PEARL CITY WELLS II ISOLATION VALVES										
Prepare plans and specifications	P&E	50	--	--	50	--	--	--	--	
Install isolation valves	Const	350	--	--	--	--	350	--	--	
28. PEARL CITY WELLS I RENOVATION										
Prepare plans and specifications	P&E	150	--	--	150	--	--	--	--	
Replace MCC and renovate building	Const	1,500	--	--	--	--	1,500	--	--	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016 (\$ 000)	2017	2018	2019		
29. PUNALUU WELLS II RENOVATION											
Provide new pumping unit at Pump No. 6. Provide new piping, valves, wiring, and appurtenances at Pumps No. 1, 2, 3, 5, and 6. Provide new surge anticipating valve at Pumps No. 1, 3, and 6. Replace Sodium hypochlorite system. Replace all existing motor controls with new soft starters. Provide new telemetering and supervisory control equipment in new SCADA cabinet with new UPS system. Replace existing underground pump discharge line from Pumps No. 1, 2, 3, 5, and 6. Replace existing main discharge line along access road, install a new main bypass line along the access road to serve as a redundant main discharge line. Provide new discharge lines from surge anticipator valves at Pumps No. 1, 2, 3, 5 and 6 to the existing storm drainage system. Widen access road to accommodate new utilities and to accommodate trailer for emergency generator. Renovate existing control building	Const	10,700	--	--	--	10,700	--	--	--	Design under Pump R&R	
30. KALIHI PUMP STATION LOW AND HIGH SERVICE RENOVATION											
Prepare plans and specifications	P&E	0	200	--	--	--	--	--	--		
Replace pumps, motors, discharge piping, valves, MCC, wiring and chlorinator	Const	4,500	--	--	--	4,500	--	--	--		
31. MILILANI WELLS I RENOVATION											
Prepare plans and specifications	P&E	250	--	--	--	250	--	--	--		
Repaint and renovate GAC's, replace two (2) pumps, redesign mute roofs and ventilation system to facilitate motor pulls	Const	0	--	-	--	--	--	--	--		
R&R PUMPS P&E SUBTOTAL	P&E	4,580	4,973	630	1,300	750	900	500	500		
R&R PUMPS Land SUBTOTAL	Land	0	0	0	0	0	0	0	0		
R&R PUMPS Const SUBTOTAL	Const	42,855	4,328	8,900	11,055	16,900	5,000	500	500		
R&R PUMPS SUBTOTAL		47,435	9,301	9,530	12,355	17,650	5,900	1,000	1,000		

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019	
<u>B. RESERVOIRS - R&R</u>										
1.	WILHELMINA RISE 811 RESERVOIR REPLACEMENT									
Prepare plans and specifications	P&E	0	247	--	--	--	--	--	--	
Replace existing 0.43 MG reservoir and appurtenances	Const	2,500	--	2,500	--	--	--	--	--	New capacity of 0.30 MG
<hr/>										
R&R RESERVOIRS P&E SUBTOTAL	P&E	0	247	0	0	0	0	0	0	
R&R RESERVOIRS Land SUBTOTAL	Land	0	0	0	0	0	0	0	0	
R&R RESERVOIRS Const SUBTOTAL	Const	2,500	0	2,500	0	0	0	0	0	
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R&R RESERVOIRS SUBTOTAL		2,500	247	2,500	0	0	0	0	0	
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BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019	
C. PIPELINES - R&R										
1. KALIHI WATER SYSTEM IMPROVEMENTS, PART III										Upsizing of mains and improvements to distribution grid to improve fire protection in Kalihi industrial area (1922, 1931)
Prepare plans and specifications	P&E	0	425	--	--	--	--	--	--	
Install 8-inch and 4-inch mains and appurtenances along Bannister Place from Bannister Street to dead end. Install 8-inch mains and appurtenances along Bannister Street from Laumaka Street to North King Street; along Gulick Avenue from Wilcox Lane to North King Street; along Kopke Street from Wilcox Lane to North King Street; along Factory Street from Stanley Street to North King Street; along Puuhale Road from Dillingham Boulevard to North King Street; along Wilcox Lane from Bannister Street to Puuhale Road; along Stanley Street from Bannister Street to Puuhale Road; along Waterhouse Street from Bannister Street to Puuhale Road; along Mokauea Street from Democrat Street to Kanakanui Street; and along Industrial Road from Waterhouse Street to Puuhale Road - approx. 9,650 lin. ft.	Const	5,300	--	5,300	--	--	--	--	--	
2. WATER MAIN REPLACEMENT AT VARIOUS STREETS										Main replacement in advance of Department of Design and Construction's (DDC) concrete pavement reconstruction project
Install 8-inch mains and appurtenances along Miller Street from Magellan Street to Prospect Street, along Frear Street from Magellan Street to end, along 13th and 14th Avenue from Waialae Avenue to Mahina Avenue, along Iholena Street from Lolena Street to end, along Iholena Place from Iholena Street to end, along Mikahala Way from Sierra Drive to Sierra Drive, along Komaia Place from Komaia Drive to end, along Hema Place from Hao Street to end and along Oswald Street from Saint Louis Drive to Saint Louis Drive - approx. 5,145 lin. ft.	Const	2,500	--	2,500	--	--	--	--	--	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019		
3.	KILAUEA AVENUE 8-INCH MAIN									Main replacement in advance of DDC's concrete pavement reconstruction project	
	Prepare plans and specifications	P&E	0	171	--	--	--	--	--		
	Install 8-inch mains and appurtenances along Kilauea Avenue from 15th Avenue to 18th Avenue - approx. 1,060 lin. ft.	Const	525	--	525	--	--	--	--		
4.	WOODLAWN WATER SYSTEM IMPROVEMENTS, PART II										
	Prepare plans and specifications	P&E	0	250	--	--	--	--	--		
	Install 8-inch mains and appurtenances along Woodlawn Drive from Woodlawn Terrace Place to Alani Drive and along Seaview Rise from Woodlawn Drive to Paty Drive - approx. 2,630 lin. ft.	Const	1,200	--	1,200	--	--	--	--	Replacement of failing mains (32 main breaks) due to corrosion. Five main breaks on Seaview within the last few years have caused property damage	
5.	EWA BEACH WATER SYSTEM IMPROVEMENTS, PART II									In-house design	
	Install 8-inch mains and appurtenances along Koalipecu Street from Paaloha Street to Aikanaka Road, along Aikanaka Road from Paaloha Street to Koalipecu Street, along Ihipehu Street from Aikanaka Road to Pohakupuna Road and along Peeone Place from Pohakupuna Road to end - approx. 2,700 lin. ft.	Const	1,040	--	1,040	--	--	--	--	Replacement of corroded mains (1959)	
	Install 4-inch mains and appurtenances along the two side streets on Ihipehu Street and along the side street on Koalipecu Street - approx. 235 lin. ft.										

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
6. FIRE HYDRANT INSTALLATION AT VARIOUS LOCATIONS IN KAILUA										In-house design
Install fire hydrants and appurtenances along Kaluamoo Street from Kainalu Drive to Kalaheo Avenue, along Makua Street from Kainalu Drive to Ohana Street, along Ohana Street to Kainalu Drive to Makua Street, along Kailua Road from Wanaao Road to Kalaheo Avenue, along Pouli Road from Wanaao Road to Aumoe Road, along Aumoe Road from Wanaao Road to Pouli Road and along Uluoa Street from Kailua Road to Manu Aloha Drive - approx. 12 fire hydrants	Const	150	--	150	--	--	--	--	--	
7. HIHIMANU STREET 20-INCH MAIN										
Install 20-inch mains and appurtenances along Hihimanu Street from Kakaina Street to approximately 100 feet north of FH W02046	Const	100	--	100	--	--	--	--	--	To be coordinated with Department of Hawaiian Home Lands (DHHL)
8. KUAHEA STREET 8-INCH MAIN										
Phase I - Install 8-inch mains and appurtenances along Kuahea Street from 2373 Kuahea Street to 2395 Kuahea Street - approx. 300 lin. ft.	Const	0	150	--	--	--	--	--	--	
Phase II - Install 8-inch mains and appurtenances along Kuahea Street from Waiomao Road to Kuahea Place - approx. 410 lin. ft.	Const	200	--	200	--	--	--	--	--	To be coordinated with DDC
9. WATER MAIN INSTALLATION & REPLACEMENT										
Prepare plans and specifications	P&E	600	400	100	100	100	100	100	100	
Install and replace water mains at various locations	Const	600	3,225	100	100	100	100	100	100	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS
		TOTAL	APPNS	(\$ 000)						
		(\$ 000)	(\$ 000)	2014	2015	2016	2017	2018	2019	
10. PALOLO WATER SYSTEM IMPROVEMENTS, PART III										
Install 12-inch mains and appurtenances along Palolo Avenue from Kiwila Street to Palolo Place and along 10th Avenue from Palolo Place to Ahe Street - approx. 5,220 lin. ft. Install 8-inch mains and appurtenances along Kaululoa Place from Palolo Avenue to end, along Palolo Avenue from Kauhana Street to Palolo Place, along 10th Avenue from Palolo Place to Ahe Street, and along Makanui Place from 10th Avenue to end - approx. 4,520 lin. ft. Install 4-inch mains and appurtenances along Holomua Place from Makanui Place to end - approx. 365 lin. ft.	Const	1,895	--	1895	--	--	--	--	--	
11. PALOLO WATER SYSTEM IMPROVEMENTS, PART IV										
Install 16-inch mains and appurtenances along Pakui Street from 10th Avenue to Wilhelmina Rise 405 Reservoir, along 10th Avenue from Maluhia Avenue to Pakui Street, along Pukele Avenue from 7th Avenue to Maluhia Avenue, along 7th Avenue from Kaau Street to Pukele Avenue, along Kaau Street from Palolo Avenue to 7th Avenue and along Palolo Avenue from Kaau Street to Waialae Avenue - approx. 4,150 lin. ft. Install 12-inch mains and appurtenances along Kalua Road from Mahana Street to 10th Avenue - approx. 985 lin. ft. Install 8-inch mains and appurtenances along 9th Avenue from Paalea Street to Kiwili Street - approx. 2,410 lin. ft.	Const	4,700	--	4,700	--	--	--	--	--	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
12. MAPUNAPUNA WATER SYSTEM IMPROVEMENTS, PART I										
Prepare plans and specifications	P&E	0	258	--	--	--	--	--	--	
Install 12-inch and 8-inch mains and appurtenances along Kili Hau Street from Puuloa Road to end - approx. 2,585 lin. ft. Install 8-inch mains and appurtenances along Ahua Street from Mokumoa Street to Kili Hau Street, and along Kakoi Street from Kili Hau Street to end - approx. 3,275 lin. ft.	Const	2,093	--	2,093	--	--	--	--	--	
13. WAHIAWA WATER SYSTEM IMPROVEMENTS - PART I										Fire protection upgrade and replacement of failing mains within residential Wahiawa (1959, 1960)
Prepare plans and specifications	P&E	500	746	500	--	--	--	--	--	
Install 12-inch mains and appurtenances along California Avenue from Maalo Street to Mahele Street - approx. 2,100 lin. ft. Install 8-inch mains and appurtenances along California Avenue from Maalo Street to Auhili Place, Kaalalo Place, Lei Awapuhi Place, Lei Aloalo Place, Longley Place, Kukui Street, Olive Street from Kamehameha Highway to Cypress Avenue, Ohai Street, Ohai Place, Milikana Place, Koele Way, Kilani Avenue from Lehua Street to Holoku Place, Kamehameha Highway from California Avenue to Avocado Street, and along Niihau Place and Hiwi Place - approx. 15,950 lin. ft.	Const	7,060	--	--	--	--	7,060	--	--	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
14. WILHELMINA RISE WATER SYSTEM IMPROVEMENTS, PART V										
Prepare plans and specifications	P&E	280	--	280	--	--	--	--	--	
Install 12-inch mains and appurtenances along Wilhelmina Rise from Sierra Drive to Sierra Drive, along Sierra Drive from 110 feet west of FH M04010 to Maunalani Circle, along Maunalani Circle from Sierra Drive to Sierra Drive, and within the Wilhelmina Rise 811 and 1100 Reservoir sites - approx. 4,610 lin. ft. Install 8-inch mains and appurtenances along Halehoola Place from Sierra Drive to end and along Mana Place from Maunalani Circle to end - approx. 965 lin. ft.	Const	2,500	--	--	--	--	2,500	--	--	
15. PACIFIC HEIGHTS WATER SYSTEM IMPROVEMENTS, PART II										Replacement of mains along major thoroughfare for area residents. Eliminates cross-country mains that are difficult to maintain (1930's)
Redesign plans and specifications	P&E	250	244	250	--	--	--	--	--	
Install 12-inch main and appurtenances along Pacific Heights Road from Haili Road to Ahekolo Street, along Ahekolo Street from Pacific Heights Road to Booth Road, along Booth Road from Ahekolo Street to Kekuanoni Street - approx. 4,800 lin. ft. Install 8-inch main and appurtenances along Laniloa Road from Pacific Heights Road to end, along Pacific Heights Place from Pacific Heights Road to end, along Hiolani Street from Booth Road to end and along various side streets - approx. 2,055 lin. ft.	Const	2,540	--	--	--	--	2,540	--	--	
16. AIEA KAI PLACE AND WAY 8-INCH MAINS										
Prepare plans and specifications	P&E	90	--	90	--	--	--	--	--	
Install 8-inch mains and appurtenances along Aiea Kai Place from Kamehameha Highway to end and along Aiea Kai Way from Aiea Kai Place to end - approx. 1,260 lin. ft.	Const	570	--	--	--	570	--	--	--	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019		
17. NIUMALU LOOP AND KUKII STREET 8-INCH MAIN											
Prepare plans and specifications	P&E	140	--	140	--	--	--	--	--		
Install 8-inch mains and appurtenances along Niumalu Loop from Kamilo Street to Kamilo Street and along Kukii Street from Kamilo Street to Niumalu Loop - approx. 2,755 lin. ft.	Const	1,300	--	--	--	--	1,300	--	--		
18. MANOA ESTATES WATER SYSTEM IMPROVEMENTS											
Prepare plans and specifications	P&E	140	--	140	--	--	--	--	--		
Install 12-inch mains and appurtenances along Waaloa Way from Waaloa Place to Manoa Chlorinator - approx. 1,630 lin. ft. Install 8-inch mains and appurtenances along Manoa Estates Road from Pinoa Street to Waaloa Way - approx. 1,290 lin. ft.	Const	1,310	--	--	--	1,310	--	--	--		
19. FIRE HYDRANT INSTALLATION AT VARIOUS LOCATIONS											
Fire hydrant installation at various locations	P&E	600	100	100	100	100	100	100	100		
	Const	1,500	--	--	300	300	300	300	300		
20. ANOI ROAD WATER SYSTEM IMPROVEMENTS											
Prepare plans and specifications	P&E	0	419	--	--	--	--	--	--	Replacement of failing mains along major thoroughfare for Kaneohe business district and Windward Mall shopping center (1954, 1958)	
Install 8-inch main and appurtenances along Anoi Road from end to end; along Keaahala Road from Kamehameha Highway to Keaahala Place; along Kamehameha Highway from Kahuhipa Street to Keole Street and along Luana Place from Paleka Road to end - approx. 5,850 lin. ft.	Const	6,560	--	--	6,560	--	--	--	--		

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	2014	2015	Fiscal Year (FY)		2018	2019	REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)			2016	2017				
21.	LILIHA WATER SYSTEM IMPROVEMENTS, PART V										In-house design
	Install 8-inch mains and appurtenances along Liliha Street from Wyllie Street to end, along Puunui Avenue from Wyllie Street to Hawaii Street, along Kauai Street from Liliha Street to Puunui Avenue, along Lanai Street from Wyllie Street to Liliha Street and along Hawaii Street from Liliha Street to Puunui Avenue - approx. 5,600 lin.ft.	Const	2,160	--	--	2,160	--	--	--	--	Replacement of failing mains (over 20 main breaks) within this residential community (1920's, 1930's)
22.	DIAMOND HEAD WATER SYSTEM IMPROVEMENTS, PART II										Replacement of aging mains in Diamond Head residential area will eliminate easement mains (1930)
	Prepare plans and specifications	P&E	0	317	--	--	--	--	--	--	
	Install 12-inch mains and appurtenances along 22nd Avenue from Kilauea Avenue to Diamond Head Road, along Diamond Head Road from 22nd Avenue to Kahala Avenue, and along Kulamanu Street from Kahala Avenue to Kulamanu Place - approx. 5,235 lin. ft. Install 8-inch mains and appurtenances along Kulamanu Place from Kulamanu Street to end, along Malapua Place from 22nd Avenue to end, along Ulupua Place from 22nd Avenue to end, along Huanui Street from 22nd Avenue to Huanui Place, along Kaalawai Place from Diamond Head Road to easement, and along Kuine Place from Kulamanu Street to end - approx. 2,270 lin. ft.	Const	3,180	--	--	3,180	--	--	--	--	
23.	KULAAUPUNI AND ALTA STREETS WATER SYSTEM IMPROVEMENTS										In-house design
	Install 8-inch mains and appurtenances along Kulaaupuni Street from 90 feet south of FH L03646 to St. Johns Road, from Apakee Street to FH L02925, from Kaukamana Street to Ohiohi Place; along Ohiohi Place from Kulaaupuni Street to End and along Alta Street from Glenmonger Street to Pokai Bay Street - approx. 2,455 lin. ft.	Const	950	--	--	950	--	--	--	--	Replacement of failing mains (1975)

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019	
24. PENSACOLA STREET WATER SYSTEM IMPROVEMENTS										
Prepare plans and specifications	P&E	0	396	--	--	--	--	--	--	
Install 12-inch main and appurtenances along Pensacola Street from Kapiolani Boulevard to Young Street - approx. 2,550 lin. ft. Install 8-inch main and appurtenances along Pensacola Street from Young Street to existing 8-inch main (TMK 2-4-033:028) - approx. 3,540 lin. ft. Install 8-inch and 4-inch mains and appurtenances along Piikoi Street from Pensacola Street to Lewalani Drive - approx. 430 lin. ft.	Const	5,160	--	--	5,160	--	--	--	--	
25. WILHELMINA RISE WATER SYSTEM IMPROVEMENTS, PART IV										
Prepare plans and specifications	P&E	0	636	--	--	--	--	--	--	
Install 8-inch mains and appurtenances along Sierra Drive from Wilhelmina Rise to 125 feet east of FH M01653; along Nihipali Place from Sierra Drive to end; along Hilo Place, and Lilinoe Place from Wilhelmina Rise to end; along Lanihale Place from Sierra Drive to end; along Mariposa Drive from Sierra Drive to Monterey Drive; along Paula Drive from Mariposa Drive to FH M02338; along Iwi Way from Paula Drive to end of existing water main; along Niele Place from Iwi Way to end; along Nioi Place from Niele Place to end; and along Pakahi place from Paula Drive to end - approx. 11,340 lin. ft. Install 4-inch mains and appurtenances along Palua Place from Paula Drive to end - approx. 170 lin. ft.	Const	5,200	--	--	5,200	--	--	--	--	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

		(FY14-19)	PRIOR	Fiscal Year (FY)							
		EXPEND	TOTAL	APPNS	(\$ 000)						
PROJECT	TYPE	(\$ 000)	(\$ 000)	2014	2015	2016	2017	2018	2019	REMARKS	
26.	KAPAHULU WATER SYSTEM IMPROVEMENTS, PART I									Project to address service pressure complaints from residential customers (1935)	
	Prepare plans and specifications	P&E	0	401	--	--	--	--	--		
	Install 8-inch mains and appurtenances along Paliuli Street, Mokihana Street, and Olu Street, along Kaimuki Avenue from 4th Avenue to Kapahulu Avenue; along Lincoln Avenue from 4th Avenue to Kapahulu Avenue; along Pahoa Avenue from 4th Avenue to 3rd Avenue; along 3rd Avenue from Kaimuki Avenue to H-1 and from H-1 to Waialae Avenue; along Belser Street from Kaimuki Avenue to H-1 and from H-1 to Harding Avenue; along 2nd Avenue from Lincoln Avenue to FH M01349 and from H-1 to Waialae Avenue; and along Aloalo Place from Harding Avenue to end - approx. 8,400 lin. ft.	Const	3,230	--	--	3,230	--	--	--		
27.	KAWANANAKOA PLACE 8-INCH MAIN									In house design	
	Install 8-inch and 4-inch mains and appurtenances along Kawananakoa Place from Nuuanu Avenue to end - approx. 1,600 lin. ft.	Const	700	--	--	700	--	--	--	Fire protection upgrades (1931)	
28.	PIPELINE TUNNEL RENOVATION AT VARIOUS LOCATIONS										
	Prepare plans and specifications	P&E	200	--	--	200	--	--	--		
	Renovate pipeline and tunnel at Keanu, Halawa, Makapuu and Ruger Tunnels	Const	1,000	--	--	--	--	1,000	--		
29.	AULOA ROAD AND ULUKAHIKI STREET: 12-INCH MAIN										
	Prepare plans and specifications	P&E	650	--	--	650	--	--	--		
	Install 12-inch mains and appurtenances along Auloa Road from FH W03044 to Kalaniana'ole Highway and along Ulukahiki Street from Kalaniana'ole Highway to Kailua Road - approx. 7,635 lin. ft.	Const	4,200	--	--	--	--	4,200	--		

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019	
30. WAIANAE WATER SYSTEM IMPROVEMENTS, PART III										
Prepare plans and specifications	P&E	400	--	--	400	--	--	--	--	
Install 16-inch mains and appurtenances along Farrington Highway from Kaulawaha Road to Lualualei Homestead Road - approx. 6,470 lin. ft. Install 8-inch mains and appurtenances along Old Government Road from Farrington Highway to Plantation Road - approx. 1,200 lin. ft.	Const	4,600	--	--	--	--	--	4,600	--	
31. KALIHI WATER SYSTEM IMPROVEMENTS, PART VI										
Prepare plans and specifications	P&E	690	--	--	690	--	--	--	--	
Install 12-inch mains and appurtenances along Gulick Avenue from King Street to School Street - approx. 2,940 lin. ft. Install 8-inch mains and appurtenances along Gulick Avenue from North School Street to 66 feet southwest of Puaala Lane, along Ulana Street from Owawa Street to 78 feet southeast of FH M07178, along Uhu Street from Gulick Avenue to end, along Kealoha Street from Gulick Avenue to Nakuina Street, along Pahukui Street from Gulick Avenue to Nakuina Street, along Nakuina Street from Kealoha Street to Beckley Street, along Beckley Street from Gulick Avenue to Kalihi Street, along Kalihi Street from King Street to end of 6-inch near FH M02379, along Kaili Street from King Street to Beckley Street, along Kopke Street from King Street to Pacheco Street and along Pacheco Street from Kopke Street to Gulick Avenue - approx. 7,480 lin. ft.	Const	5,400	--	--	--	--	--	5,400	--	
Install 4-inch mains and appurtenances along Beckley Place from Beckley Street to end, along Day Place from Kalihi Street to end and along Ulana Place from Ulana Street to end - approx. 575 lin. ft. Install 2-inch mains and appurtenances along Gertz Lane from Gulick Avenue to end, along Harvey Lane from King Street to end, along Hanu Lane from Kopke Street to end and along Lukela Lane from Kopke Street to end - approx. 1,060 lin. ft.										

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019		
32. MAKAKILO WATER SYSTEM IMPROVEMENTS, PART III											
Prepare plans and specifications	P&E	560	--	--	560	--	--	--	--		
Install 8-inch mains and appurtenances along Nohopono Street, Nohopaa Street, Nohona Street and Nenelea Street from Lihau Street to Palailai Street, along Newa Street from Makakilo Drive to Palailai Street, along Newa Place from Newa Street to end, along Lihau Street from Palailai Street to Newa Street, along Palailai Street from Nohona Street to Nohohale Street, along Nohohale Street from Palailai Street to Makakilo Drive, along Mehani Street from Akaula Street to Auwaea Street, along Mehani Place from Mehani Street to end, and along Makakilo Drive from 65 feet West of FH L02483 to 80 feet East FH L01850 - approx. 10,890 lin. ft. Install 4-inch mains and appurtenances along Nonohale Street from Makakilo Drive to Palailai Place - approx. 845 lin. ft.	Const	5,300	--	--	--	--	--	5,300	--		
33. MOILIILI WATER SYSTEM IMPROVEMENTS, PART IV											
Prepare plans and specifications	P&E	430	--	--	430	--	--	--	--		
Install 12-inch mains and appurtenances along Kapiolani Boulevard from Date Street to Kaimuki Avenue - approx. 2,400 lin. ft. Install 8-inch mains and appurtenances along University Avenue from Kapiolani Boulevard to Hihiwai Street, along Hihiwai Street from University Avenue to Kamoku Street, along Lauiki Street from Hihiwai Street to Kamoku Street and along Kamoku Street from Hihiwai Street to Kapiolani Boulevard - approx. 3,535 lin. ft.	Const	3,300	--	--	--	--	--	3,300	--		

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019		
34. MONSARRAT AVENUE WATER SYSTEM IMPROVEMENTS											
Install 16-inch and 8-inch mains and appurtenances along Monsarrat Avenue from Paki Avenue to Campbell Avenue - approx. 3,200 lin. ft.	Const	1,670	--	--	--	1,670	--	--	--	In-house design Replacement of failing mains along arterial Waikiki to East Honolulu (1928, 1931)	
35. KIPOU STREET 8-INCH MAIN											
Install 8-inch and 4-inch mains and appurtenances along Kipou Street from Hene Street to Hulahe Street and along Kenola Place from Kipou Street to end - approx. 1,850 lin. ft.	Const	710	--	--	--	710	--	--	--	In-house design Replacement of mains (1968)	
36. KAIMUKI WATER SYSTEM IMPROVEMENTS, PART I											
Install 8-inch mains and appurtenances along Maunaloa Avenue from 16th Avenue to 20th Avenue; along Kaimuki Avenue from 16th Avenue to 21st Avenue; along Pahoa Avenue from 18th Avenue to 150 feet beyond FH M03591; along 17th Avenue from Kilauea Avenue to Kaimuki Avenue and along 18th Avenue from Kaimuki Avenue to Pahoa Avenue; along 19th and 20th Avenue from Maunaloa Avenue to Pahoa Avenue - approx. 9,850 lin. ft.	Const	2,930	--	--	--	2,930	--	--	--	In-house design Replacement of failing mains and main upsizing for improved fire protection (1935, 1938)	
37. LULUKU ROAD WATER SYSTEM IMPROVEMENTS											
Prepare plans and specifications	P&E	0	138	--	--	--	--	--	--		
Install 12-inch and 6-inch mains and appurtenances along Luluku Road and Kamehameha Highway - approx. 1,800 lin. ft. Transfer service laterals along Apapane Street from Luluku Road to near FH W01009 - approx. 600 lin. ft.	Const	1,100	--	--	--	1,100	--	--	--		

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
38. KAMEHAMEHA HIGHWAY - HALEIWA WATER SYSTEM IMPROVEMENTS, PART I & II										Replacement of aging main through a heavily traveled stretch of Kamehameha Highway (1938, 1961)
Prepare plans and specifications	P&E	0	874	--	--	--	--	--	--	
Part I: Install 8-inch mains and appurtenances along Kamehameha Highway from 625 feet northeast of FH C00049 to 10 feet northeast of FH C00041 and along Pohaku Loa Way from Kamehameha Highway to Kamehameha Highway - approx. 6,600 lin. ft. Install 8-inch and 4-inch mains and appurtenances along a private road (TMK: 6-1-012:040) from Kamehameha Highway to end of road across of FH C00501, along Punalau Place from Kamehameha Highway to end, along Ikuwai Place from Kamehameha Highway to end, along Ikuwai Way from Kamehameha Highway to end, and along various side streets - approx. 2,700 lin. ft. Install 2-inch mains along TMK 6-1-011:010, TMK 6-1-011:001, TMK 6-1-011:002, and TMK 6-1-011:015 - approx. 1,150 lin. ft.	Const	11,900	--	--	--	11,900	--	--	--	
Part II: Install 12-inch main along Kamehameha Highway from Papailoa Road to approximately 300 feet northwest of Kawailoa Drive - approx. 2,400 lin. ft. Install 8-inch main along Kamehameha Highway from 16-inch main interconnection near FH C00059 to approximately 550 feet northeast of FH C00056 - approx. 4,900 lin. ft.										

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
39. PUHAWAI ROAD, KUWALE ROAD AND PUUHULU ROAD WATER SYSTEM IMPROVEMENTS										In-house design
Install 8-inch mains and appurtenances along Puhawai Road from Puuhulu Road to Paheehee Road, along Wikolia Place from Puhawai Road to end, along Puuhulu Road from Puhawai Road to Kuwale Road, along Kuwale Road from Puuhulu Road to Paheehee Road, along Haama Place from Puuhulu Road to end, along Puululu Place from Puuhulu Road to end, and along the side street from Kuwale Road to end – approx. 10,780 lin. ft.	Const	4,200	--	--	--	4,200	--	--	--	Replacement of failing mains due to corrosion (1925, 1935, 1960, 1961)
40. POOLA STREET 8-INCH MAIN										In-house design
Install 8-inch mains and appurtenances along Poola Street from 165 feet south of FH M06045 to Panalea Place and along Palaole Place from Poola Street to end - approx. 2325 lin. ft. Install 4-inch mains and appurtenances along Panalea Place from Poola Street to end - approx. 160 lin. ft.	Const	950	--	--	--	950	--	--	--	Replacement of failing mains (1968)
41. HALEAHI AND PAHEEHEE ROAD 12-INCH AND 8-INCH MAINS										
Prepare plans and specifications	P&E	270	--	--	--	270	--	--	--	
Install 12-inch mains and appurtenances along Haleahi Road from Paheehee Road to the existing check valves - approx. 1,135 lin. ft. Install 8-inch mains and appurtenances along Paheehee Road from Puhawai Street to Haleahi Road - approx. 4,210 lin. ft.	Const	2,400	--	--	--	--	--	--	2,400	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
42. WAI'AU WATER SYSTEM IMPROVEMENTS, PART II										
Prepare plans and specifications	P&E	160	--	--	--	160	--	--	--	
Install 12-inch mains and appurtenances along the private lanes within Hillside Subdivisions I and II - approx. 1,900 lin. ft. Install 8-inch mains and appurtenances along the private lanes within Hillside Subdivisions I to IV - approx. 1,235 lin. ft.	Const	1,400	--	--	--	--	--	--	1,400	
43. NORTH SCHOOL STREET WATER SYSTEM IMPROVEMENTS										
Prepare plans and specifications	P&E	880	--	--	--	880	--	--	--	
Install 16-inch mains and appurtenances along North School Street from Kam IV Road to Houghtailing Street - approx. 4,510 lin. ft. Install 8-inch mains and appurtenances along Ahonui Street from North School Street to Linapuni Street, along Hulali Place from Ahonui Street to end, along North School Street from Amelia Street to Leilani Street, along North School Street from Likelike Highway to Houghtailing Street, along Amelia Street from North School Street to Waikoa Road, along Waikoa Road from Amelia Street to Martin Street, along Martin Street from North School Street to Waikoa Road, along Kapalama Avenue from North School Street to Peter Buck Street and along Brigham Street from Kapalama Avenue to Kapalama Avenue - approx. 8,330 lin. ft. Install 4-inch mains and appurtenances along Palapala Place from Kapalama Avenue to end - approx. 205 lin. ft.	Const	7,200	--	--	--	--	--	--	7,200	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019		
44. PEARL CITY WATER SYSTEM IMPROVEMENTS, PART IV											
Prepare plans and specifications	P&E	940	--	--	--	940	--	--	--		
Install 8-inch mains and appurtenances along Palamoi Street from Kuahaka Street to end of 8" main near FH L02004, along Panee Street from Palamoi Street to Kaweloka Street, along Kaweloka Street from Panee Street to Palamoi Street, along Kalauipo Street from Kaweloka Street to Palamoi Street, along Kalauipo Place from Kalauipo Street to end, along Kalai Place from Kalauipo Street to end, along Maiha Circle from Waimano Home Road to end, along Maiha Place from Maiha Circle to end, along Hoohoihoi Street from Hoomoana Street to end, along Hoohoihoi Place from Hoohoihoi Street to end, along Hoowae Street from Hoohoihoi Street to Hoolele Street, along Hoomalolo Street from Hoomoana Street to Hoolaulea Street, along Hoolele Street from Hoolaulea Street to Hoomalolo Street, along Hoomoana Street from Komo Mai Drive to Hookeikei Street, along Komo Mai Drive from Hoolehua Street to Hoolaulea Street and along Hoolehua Street from Komo Mai Drive to end of CI pipe - approx. 16,420 lin. ft. Install 4-inch mains and appurtenance along Maiki Place from Maiha Circle to End - approx. 125 lin. ft. Install 12-inch mains and appurtenances along Huikahi Street from Hoolehua Street to Hoolaulea Street - approx. 940 lin. ft.	Const	7,870	--	--	--	--	--	--	7,870		

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019	
45. KEOLU HILLS WATER SYSTEM IMPROVEMENTS, PART II										
Prepare plans and specifications	P&E	380	--	--	--	380	--	--	--	
Install 12-inch mains and appurtenances along Keolu Drive from Akumu Street to Naniiali Street, along Akumu Street from Keolu Drive to Alahaki Street, along Iana Street from Keolu Drive to FH W00766, and along Keolu Drive from Kanapuu Drive to Akalani Loop - approx. 3,580 lin. ft. Install 8-inch mains and appurtenances along Akumu Street from Alahaki Street to Holoholo Street, along Keolu Drive from Akalani Loop to Akahai Street, along Akahai Street from Keolu Drive to Akamai Street, along Akaiki Street from Akahai Street to Akamai Street and along Halula Place from Akumu Street to end - approx. 4,265 lin. ft. Install 4-inch mains and appurtenances along Akumu Place from Akumu Street to end, along Akiu Place from Akumu Street to end and along Akalei Place from Akumu Street to end - approx. 540 lin. ft.	Const	3,770	--	--	--	--	--	--	3,770	
46. KALAMA VALLEY WATER SYSTEM IMPROVEMENTS, PART II										
Prepare plans and specifications	P&E	390	--	--	--	390	--	--	--	
Install 12-inch mains and appurtenances along Kealahou Street from 661 Kealahou Street to Papalalo Place - approx. 2,305 lin. ft. Install 8-inch mains and appurtenances along Wawau Street from Honokahua Street to Kaeleku Street, along Honokahua Street from Kaeleku Street to end, along Kealahou Street from Papalalo Place to end, along Nakalele Street from Kealahou Street to Pihana Street, along Pihana Street from approx. 45 feet north of FH M06514 to end and along Ipuai Street from Kealahou Street to Honokahua Street - approx. 4,185 lin. ft. Install 8- and 4-inch mains and appurtenance along Kalina Place from Kealahou Street to end, along Maloo Place from Honokahua Street to end, along Ohina Place from Honokahua Street to end, along Honokahua Place from Honokahua Street to end, along Kiaala Place from Kealahou Street to end and along Papalalo Place from Kealahou Street to end - approx. 2,040 lin. ft.	Const	3,840	--	--	--	--	--	--	3,840	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
47. KILI DRIVE 16-INCH MAIN, PART II										
Prepare plans and specifications	P&E	150	--	--	--	150	--	--	--	
Install 16-inch mains and appurtenances along Kili Drive from Huipu Drive to Makaha 242 Access Road - approx. 2,850 lin. ft.	Const	1,570	--	--	--	--	--	--	1,570	
48. LANAKILA WATER SYSTEM IMPROVEMENTS										
Prepare plans and specifications	P&E	320	--	--	--	320	--	--	--	
Install 8-inch mains and appurtenances along Palama Street from Panalaa Street to North School Street, along Alaneo Street from Alaneo Street to Kuakini Street, along Lanakila Avenue from North School Street to Kunawai Lane, along North Judd Street from Kunawai Lane to Apio Lane, and along Kamaka Lane from Lanakila Avenue to Kunawai Lane - approx. 7,100 lin. ft.	Const	3,200	--	--	--	--	--	--	3,200	
49. MARINER'S RIDGE WATER SYSTEM IMPROVEMENTS, PART II										
Prepare plans and specifications	P&E	550	--	--	--	550	--	--	--	
Install 12-inch mains and appurtenances along Kaluanui Road from Kaahue Street to Kalihiwai Place, along Kaumoku Street from Kaakaanui Street to end and along Kaakaanui Street from Kaluanui Road to Kaumoku Street - approx. 4,425 lin. ft.	Const	5,560	--	--	--	--	--	--	5,560	
Install 8-inch and 4-inch mains and appurtenances along Kapa Place, Kanakou Place, Kalahu Place, Kailiu Place, Kaalula Place, Kamookoa Place, Kaupaku Place, Kalihiwai Place and Kaoopulu Place from Kaluanui Road to end, along Kaluaa Place from Kaumoku Street to end and along Kaoopulu Way from Kaoopulu Place to end - approx. 7,940 lin. ft.										

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019		
50. KAMEHAMEHA HEIGHTS WATER SYSTEM IMPROVEMENTS, PART V											
Prepare plans and specifications	P&E	230	--	--	--	230	--	--	--		
Install 8-inch mains and appurtenances along Kula Street from Lolena Street to end, along Aulii Street from Makanani Drive to Kealakai Street, along Skyline Drive from Hillcrest Street to Puna Street, along Puna Street from Aulii Street to end and along Lolena Street from Makanani Drive to Kealakai Street - approx. 4,995 lin. ft.	Const	2,250	--	--	--	--	--	--	2,250		
										In-house design	
51. KAHUAILANI STREET WATER SYSTEM IMPROVEMENTS											
Install 12-inch mains and appurtenances along Mokuola Street from Waipahu Street to 70 feet beyond Nalii Street - approx. 500 lin. ft. Install 8-inch mains and appurtenances along Kahuailani Street from Hikimoe Street to end, along Puamano Place from Waipahu Street to end, along Kahiki Place from Puamano Place to end and along Hikimoe Street from Waipahu Depot Street to FH L04002 - approx. 4,020 lin. ft. Install 4-inch mains and appurtenances along the side street from Hikimoe Street to end - approx. 115 lin. ft.	Const	1,810	--	--	--	--	1,810	--	--		
										In-house design	
52. WAHIAWA WATER SYSTEM IMPROVEMENTS, PART III											
Install 8-inch mains and appurtenances along Uluwehi Street from California Avenue to Walea Street, along Uluwehi Place from Walea Street to end, along Hoolulu Road from Uluwehi Street to Hoomaha Street, along Walea Street from Uluwehi Street to Walea Uka Place, along Hoomaha Street from California Avenue to Walea Street and along Walea Uka Place from Walea Street to end - approx. 4,720 lin. ft. Install 4-inch mains and appurtenances along the side street from Hoomaha Street to end - approx. 135 lin. ft.	Const	1,870	--	--	--	--	1,870	--	--	Fire improvements in residential area (1950)	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019		
53. HUI ULILI STREET: 12-INCH, 8-INCH AND 4-INCH MAINS											
Install 12-inch, 8-inch and 4-inch mains and appurtenances along Hui Ulili Street from Hui Kelu Street to Hui Oi Street - approx. 2,825 lin. ft.	Const	1,240	--	--	--	--	1,240	--	--	In-house design. Replacement of mains installed in highly corrosive soils (1969)	
54. SEASIDE AND KAIULANI AVENUE 12-INCH MAINS											
Prepare plans and specifications	P&E	110	--	--	--	--	110	--	--		
Install 12-inch mains and appurtenances along Kaiulani Avenue from Kuhio Avenue to Ala Wai Boulevard and along Seaside Avenue from Kalakaua Avenue to Kuhio Avenue - approx. 1,560 lin. ft.	Const	860	--	--	--	--	--	--	860		
55. DIAMOND HEAD WATER SYSTEM IMPROVEMENTS, PART III											
Prepare plans and specifications	P&E	110	--	--	--	--	110	--	--		
Install 12-inch mains and appurtenances along Puu Panini Avenue from 22nd Avenue to Palekaua Street, and along Palekaua Street from Puu Panini Avenue to Hakaka Street - approx. 1,100 lin. ft.	Const	500	--	--	--	--	--	--	500		
56. WAIPAHU 36-INCH MAIN RELOCATION											
Prepare plans and specifications	P&E	280	--	--	--	--	280	--	--		
Install 36-inch mains and appurtenances along Waipahu Street from 280 feet northwest of Awamoi Street to Paiwa Street and along Paiwa Street from Waipahu Street to FH L02966, north of Koaki Street - approx. 5,170 lin. ft.	Const	3,620	--	--	--	--	--	--	3,620		

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019	
57. PAUOA WATER SYSTEM IMPROVEMENTS										
Prepare plans and specifications	P&E	500	--	--	--	--	500	--	--	
Install 8-inch mains and appurtenances along Lusitana Street from Pauoa Road to Concordia Street, along Auwaiolimu Street from Lusitana Street to Tantalus Drive, along Kanealii Avenue from Pauoa Road to Kapalu Street, along Boyd Lane from Lusitana Street to end, along Kapaloala Place from FH M06992 to Pauoa Road and along Ohelo Lane from Lusitana Street to end - approx. 8,100 lin. ft.	Const	3,650	--	--	--	--	--	--	3,650	
58. BARBERS POINT 215 WATER SYSTEM IMPROVEMENTS										
Prepare plans and specifications	P&E	150	--	--	--	--	150	--	--	
Install 30-Inch main and appurtenances along the Barbers Point 215 facility from Old Farrington Highway to Reservoir No. 1 - approx. 300 lin. ft. Install new drainline along the flowage easement to facilitate the draining of the reservoirs	Const	500	--	--	--	--	--	--	500	
59. ALA AOLANI 12-INCH MAIN										
Prepare plans and specifications	P&E	150	--	--	--	--	150	--	--	
Install 12-inch mains and appurtenances along Ala Aolani Street from the 16-inch cross country main to Ala Aoloa Loop - approx. 1,800 lin. ft.	Const	810	--	--	--	--	--	--	810	
							--	--		
R&R PIPELINES P&E SUBTOTAL	P&E	11,100	5,350	1,600	3,130	4,470	1,500	200	200	
R&R PIPELINES Land SUBTOTAL	Land	0	0	0	0	0	0	0	0	
R&R PIPELINES Const SUBTOTAL	Const	165,403	3,375	19,803	27,540	25,740	19,720	23,200	49,400	
R&R PIPELINES SUBTOTAL		176,503	8,725	21,403	30,670	30,210	21,220	23,400	49,600	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS
		TOTAL	APPNS	(\$ 000)						
		(\$ 000)	(\$ 000)	2014	2015	2016	2017	2018	2019	
<u>D. TREATMENT - R&R</u>										
No Project Scheduled				--	--	--	--	--	--	
R&R TREATMENT P&E SUBTOTAL	P&E	0	0	0	0	0	0	0	0	
R&R TREATMENT Land SUBTOTAL	Land	0	0	0	0	0	0	0	0	
R&R TREATMENT Const SUBTOTAL	Const	0	0	0	0	0	0	0	0	
R&R TREATMENT SUBTOTAL		0	0	0	0	0	0	0	0	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019		
E. FACILITIES - R&R											
1. SLOPE STABILIZATION AT VARIOUS FACILITIES										Projects to mitigate potential for rockfall from BWS lands that may impact BWS facilities and neighboring properties	
Prepare plans and specifications	P&E	0	200	--	--	--	--	--	--		
Slope stabilization at Keanu Tunnel, Waialae 180 and Waialae Iki 180 Reservoirs	Const	4,800	--	2,700	2,100	--	--	--	--		
2. FACILITY RENEWAL AND RENOVATION											
Prepare plans and specifications	P&E	2,500	2,650	400	500	400	400	400	400		
Renewal, renovation, reroofing, fencing and repainting of select BWS facilities	Const	18,000	14,500	3,000	3,000	3,000	3,000	3,000	3,000		
3. NUUANU RESERVOIR NO. 4 DAM IMPROVEMENTS											
Prepare plans and specifications for improvements to Nuuanu Reservoir No. 4 (TMK: 2-2-54:01)	P&E	0	350	--	--	--	--	--	--		
Topographic survey, subdivision mapping, geotechnical exploration and analysis and supplemental engineering	P&E	0	600	--	--	--	--	--	--		
Rehabilitate dam face, intake and outlet works, suspension bridge, and access road; and install seepage measurement weirs on downstream face of dam	Const	1,500	--	1,500	--	--	--	--	--		
4. KAILUA PRESSURE REDUCING VALVE REPLACEMENT											
Prepare plans and specifications	P&E	0	150	--	--	--	--	--	--		
Replace Kailua PRV by Castle Medical Center	Const	400	--	400	--	--	--	--	--		
5. KAMAILE PLANTATION WELLS SEALING										Seal adjacent unused wells to prevent potential contamination to Kamaile Wells Station	
Conduct archaeological and topographic surveys to seal up to thirteen (13) unused plantation wells around Kamaile Wells Station	P&E	0	70	--	--	--	--	--	--		
	Const	325	--	325	--	--	--	--	--		

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
6. WAIMALU WELLS I DRAINAGE IMPROVEMENTS										Drainage improvements to direct on-site drainage to existing drainage system
Prepare plans and specifications	P&E	0	200	--	--	--	--	--	--	
Install drainage improvements within BWS property	Const	800	--	800	--	--	--	--	--	
7. SECURITY FENCING AT VARIOUS LOCATIONS										
Project planning, design and management services	P&E	900	--	100	100	100	200	200	200	
Install expanded metal fencing at selected BWS facilities	Const	7,400	600	600	600	600	600	2,500	2,500	
8. CONSTRUCTION MANAGEMENT FOR VARIOUS BWS CONSTRUCTION PROJECTS										Investigate and implement process and procedure improvements for construction inspection and contract administration, incorporating new tools, resources and training to improve project management and oversight, workforce efficiency, and quality assurance/quality control. Provide construction management for selected construction projects to demonstrate and reinforce the recommended improvements
Provide construction management and training services for selected BWS construction projects	Const	1,600	--	1,600	--	--	--	--	--	
9. BWS FACILITIES MASTER PLAN										
Prepare a master plan to maximize the use of BWS facilities	P&E	400	--	400	--	--	--	--	--	
10. KAMILOIKI AND KALAMA VALLEY PRESSURE REDUCING VALVES										
PRV Feasibility and Site Study to reduce high pressures in the Kamehame 500 system in Kamiloiki and Kalama Valleys	P&E	150	--	150	--	--	--	--	--	
11. CUSTOMER INFORMATION SYSTEM										Phased implementation of CC&B features, services, and enhancements
Customer Information System Phased Implementation	Const	9,459	4,300	909	3,550	2,000	1,000	1,000	1,000	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
12. MAXIMO UPGRADE										
Upgrade computerized maintenance management system software version and implement features to improve system performance and adhere to operational best practices	Const	11,715	1,350	2,190	2,375	2,375	2,375	1,200	1,200	Upgrade Maximo/CMMS from current version (5.2) which is no longer supported by the vendor, to a recent supportable version (7.5)
13. NALU UPGRADE										
Upgrade financial accounting system software version to address support and compatibility issues	Const	4,045	637	765	1,640	1,640	--	--	--	Upgrade JD Edwards system (NALU) from current version to 9.1 to address support and compatibility issues
14. IT PROJECT MANAGEMENT										
Project management services for IT applications	P&E	7,600	800	1,400	1,400	1,400	1,400	1,000	1,000	
15. PROFESSIONAL SERVICES FOR BWS PROJECTS										
Obtain services of archaeologists, botanists, environmental engineers, water quality labs, planners, government agencies and others	P&E	2,120	1,515	800	210	210	300	300	300	
16. 2-WAY RADIO UPGRADES										
Convert analog to digital for security and extended coverage	Const	1,500	--	--	750	750	--	--	--	
17. MICROBIOLOGICAL LABORATORY AIR CONDITIONING UPGRADE										
Prepare plans and specifications for microbiological lab air conditioning improvements	P&E	0	100	--	--	--	--	--	--	
Install microbiological lab air conditioning improvements	Const	230	--	--	230	--	--	--	--	No relocation of staff required at this time

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
18. RTU UPGRADES										
Project planning, design and management services	P&E	400	--	--	200	200	--	--	--	
Replace obsolete RTUs. Existing RTUs do not support wireless system communications	Const	3,000	--	--	1,500	1,500	--	--	--	Replacement at approximately 150 facilities
19. STORM WATER MANAGEMENT PLAN IMPROVEMENTS										Improvements needed at corporation yards to ensure compliance with Stormwater Management Plan and NPDES regulations for stormwater discharge
Prepare plans and specifications	P&E	0	470	--	--	--	--	--	--	
Install improvements to eliminate pollutant runoff from BWS corporation yards	Const	1,000	--	--	500	500	--	--	--	
20. KAILUA IWI KUPUNA REINTERMENT										
Construct site improvements for reinterment	Const	120	--	--	120	--	--	--	--	
21. INTERNET MIGRATION										
Redesign internal and external website for additional features and functions and to leverage mainstream development tools to ensure future supportability	P&E	455	--	--	455	--	--	--	--	
22. SCADA REPLACEMENT										Existing system experiencing failures that are difficult to fix
Project planning, design and management services	P&E	500	--	--	500	--	--	--	--	
Install new SCADA system to provide enhanced user interface and additional functionality	Const	2,870	--	--	--	2,870	--	--	--	
23. RENOVATE / REPLACE RESERVOIR ALTITUDE VALVE ASSEMBLIES - MAKIKI & WAIALAE IKI 180 RESERVOIRS										
Prepare plans and specifications	P&E	100	--	--	100	--	--	--	--	
Install improvements at Makiki 180 and Waialae Iki 180 Reservoir sites	Const	750	--	--	--	--	750	--	--	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019		
24. NUUANU RESERVOIR NO. 1 DAM IMPROVEMENTS											
Prepare environmental assessment, plans, specifications and permits for improvements to Nuuanu Reservoir No. 1 (TMK 1-9-001:001)	P&E	200	--	--	200	--	--	--	--	State DLNR will be classifying Nuuanu Reservoir No. 1 as a regulated dam and will require improvements in compliance with their dam safety standards	
Rehabilitate dam, spillway and outlet works; prepare Emergency Action and Operations & Management plans	Const	1,000	--	--	--	--	1,000	--	--		
25. FUTURE METER READING TECHNOLOGY											
Install improvements to meter reading system	Const	1,000	--	--	--	1,000	--	--	--	FY13 Automated Meter Reading Informational Study to determine improvements	
26. WAIMANALO TUNNEL III AND WAIANAE PLANTATION TUNNEL III (NO. 19) RENOVATION											
Waimanalo Tunnel III and Waianae Tunnel III: Preliminary Engineering Study (PES): Part 1: Develop plans and specifications to allow access into tunnels for inspection, mobilization of equipment due to remote site location and any construction related permits. Part 2: Feasibility analysis of improvements to reactivate tunnels	P&E	300	--	--	--	300	--	--	--		
Construct improvements identified in the PES-Part 1 to stabilize entrance for assessment	Const	200	--	--	--	200	--	--	--		
Prepare plans and specifications for Waimanalo and Waianae Tunnels III and transmission main improvements	P&E	200	--	--	--	--	--	200	--		
Waimanalo Tunnel III: Install required tunnel improvements identified in the PES	Const	0	--	--	--	--	--	--	--		
Waianae Tunnel III: Install required tunnel improvements identified in the PES	Const	0	--	--	--	--	--	--	--		

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
27. SECURITY ENHANCEMENTS FOR ALL BWS CORPORATION YARDS										
Prepare plans and specifications, life cycle cost analysis to install fencing and card access for Kalihi, Manana, Waianae, Wahiawa, Heeia Corporation Yards; Halawa Xeriscape Garden and Beretania Complex	P&E	200	--	--	--	200	--	--	--	
Kalihi Yard	Const	570	--	--	--	--	--	570	--	
Manana Yard	Const	430	--	--	--	--	--	430	--	
Waianae Yard	Const	300	--	--	--	--	--	--	300	
Wahiawa Yard	Const	350	--	--	--	--	--	--	350	
Heeia Yard	Const	300	--	--	--	--	--	--	300	
Halawa Xeriscape	Const	0	--	--	--	--	--	--	--	
Beretania Complex	Const	0	--	--	--	--	--	--	--	
28. WAIPIO ACRES CONTROL VALVE IMPROVEMENTS										
Prepare plans and specifications	P&E	150	--	--	--	150	--	--	--	
Install isolation valves for system operations and emergency pumping connection to allow 808 system to supply 1075 system	Const	0	--	--	--	--	--	--	--	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
29. PALOLO TUNNEL PORTAL IMPROVEMENTS										
Prepare plans and specifications	P&E	0	217	--	--	--	--	--	--	
Install Palolo Tunnel portal improvements, stabilize portal entrance, extend inlet piping 60 feet, install pipe supports and concrete dam, clean lower 6,000 feet of the pipeline to the chlorinator and install temporary booster pump	Const	400	--	--	--	--	400	--	--	
30. KRONOS UPGRADE										Existing software no longer supported
Software installation and testing services for new version with enhanced features and performance	Const	765	--	--	--	--	--	765	--	
31. BUSINESS INTELLIGENCE / DIGITAL DASHBOARD										
Software installation and testing services for new version with enhanced features and performance	Const	1,930	--	--	--	--	--	--	1,930	
32. WAIHEE WELLS CAPPING										
Remove pumping equipment and appurtenances and cap 2 wells	Const	30	--	--	--	--	--	--	30	Cap inactive wells
R&R FACILITIES P&E SUBTOTAL	P&E	16,175	7,322	3,250	3,665	2,960	2,300	2,100	1,900	
R&R FACILITIES Land SUBTOTAL	Land	0	0	0	0	0	0	0	0	
R&R FACILITIES Const SUBTOTAL	Const	76,789	21,387	14,789	16,365	16,435	9,125	9,465	10,610	
R&R FACILITIES SUBTOTAL		92,964	28,709	18,039.0	20,030.0	19,395.0	11,425.0	11,565.0	12,510.0	
P&E R&R TOTAL	P&E	31,855	17,891	5,480	8,095	8,180	4,700	2,800	2,600	
Land R&R TOTAL	Land	0	0	0	0	0	0	0	0	
Const R&R TOTAL	Const	287,547	29,090	45,992	54,960	59,075	33,845	33,165	60,510	
FY 2014-2019 RENEWAL AND REPLACEMENT (R&R) TOTAL		319,402	46,981	51,472	63,055	67,255	38,545	35,965	63,110	

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CATEGORY III

CAPACITY EXPANSION

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BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019	
III. CAPACITY EXPANSION										
A. PUMPS										
1.	KAHUKU WELLS UNIT NO. 3									
	Prepare plans and specifications	P&E	170	--	--	170	--	--	--	Third well unit provides additional capacity in accordance with BWS standards to accommodate growth, water commitments and system reliability for the stand-alone Kahuku system
	Install one (1) 1.0 MGD pump, connections, emergency generator and pump building improvements at existing Kahuku Wells Station (TMK: 5-6-008:005)	Const	2,100	--	--	--	--	2,100	--	
2.	MAAKUA WELL UNIT NO. 2									
	Prepare plans and specifications	P&E	120	--	--	--	120	--	--	Second well unit provides standby capacity to single well station
	Install one (1) 1.0 MGD pump, connections and pump building improvements at existing Maakua Wells Station (TMK: 5-4-005:001)	Const	1,200	--	--	--	--	--	1,200	
3.	KALAELOA DESALINATION FACILITY									
	Post-Treatment and Renewable Energy Study to address potential water quality changes in the distribution system and evaluate renewable energy for the facility (TMK: 9-1-031:028)	P&E	300	--	--	300	--	--	--	To meet Ewa's ultimate water demand and provide drought proof water supply
	Prepare plans and specifications	P&E	0	3,730	--	--	--	--	--	
	Construct desalination facility	Const	0	--	--	--	--	--	--	
4.	LUALUALEI LINE BOOSTER IMPROVEMENTS									
	Prepare plans and specifications	P&E	0	237	--	--	--	--	--	Increased booster pump capacity improves transmission to Waianae Coast
	Install booster station improvements to increase pumping capacity	Const	3,000	--	--	--	3,000	--	--	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
5. MILILANI 994 BOOSTER STATION										Provides supply to upper Mililani 1150 system
Prepare plans and specifications	P&E	350	--	--	--	350	--	--	--	
Install booster station at the Mililani 994 Reservoir to boost to 1150 system	Const	3,500	--	--	--	--	--	3,500	--	
6. WAIALAE WEST WELL										Re-design to update plans and permits. Replaces Waialae Shaft source and provides additional source to Metro 405 water system
Prepare plans and specifications	P&E	200	175	--	--	200	--	--	--	
Install one (1) 0.5 MGD pump, control building, pipeline, landscaping, irrigation system, accoustical facilities, electrical equipment, and appurtenances (TMK: 3-3-014:016)	Const	2,500	--	--	--	--	--	2,500	--	
PUMPS P&E SUBTOTAL	P&E	1,140	4,142	0	470	670	0	0	0	
PUMPS Land SUBTOTAL	Land	0	0	0	0	0	0	0	0	
PUMPS Const SUBTOTAL	Const	12,300	0	0	0	3,000	2,100	7,200	0	
CAPACITY EXPANSION PUMPS SUBTOTAL		13,440	4,142	0	470	3,670	2,100	7,200	0	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019		
B. RESERVOIRS											
1. KALAWAHINE 180 2.0 MG RESERVOIR											To alleviate storage deficiency in Metro 180 system
Prepare plans and specifications	P&E	0	822	--	--	--	--	--	--		
Install 2.0 MG reservoir and appurtenances (TMK: 2-4-043:082) and 24-inch main - approx. 6,000 lin. ft.	Const	8,000	--	8,000	--	--	--	--	--		
2. AINA HAINA 170 0.5 MG RESERVOIR NO. 2											New reservoir to meet storage needs in the 170 system from Aina Haina to Kuliouou
Prepare Preliminary Engineering Study for second 0.5 MG reservoir, including land requirements at existing Aina Haina 170 Reservoir site	P&E	0	100	--	--	--	--	--	--		
Prepare Environmental Assessment	P&E	150	--	150	--	--	--	--	--		
Prepare plans and specifications	P&E	250	--	--	--	--	250	--	--		
Install 0.5 MG reservoir and appurtenances at existing Aina Haina 170 Reservoir site (TMK: 3-6-016:040)	Const	2,500	--	--	--	--	--	--	2,500		
3. NUUANU 900 SYSTEM RESERVOIR											Higher lift reservoir replaces Nuuanu 822 and allows removal of pneumatic pump system and fire protection from Nuuanu Reservoir No. 3
Prepare Environmental Assessment and CDUP	P&E	150	--	--	150	--	--	--	--		
Prepare plans and specifications	P&E	0	--	--	--	--	--	--	--		
Land	Land	0	--	--	--	--	--	--	--		
Install reservoir, landscaping, irrigation system, access road, appurtenances and transmission main	Const	0	--	--	--	--	--	--	--		

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019		
4. EAST KAPOLEI 215 2.0 MG RECYCLED WATER RESERVOIR											
Preliminary Engineering Study	P&E	100	--	--	100	--	--	--	--	Recycled water reservoir next to existing 4.0 MG East Kapolei 215 Reservoir	
Prepare Environmental Assessment	P&E	150	--	--	--	--	150	--	--		
Prepare plans and specifications	P&E	800	--	--	--	--	--	--	800		
Install 2.0 MG reservoir, landscaping, irrigation system and appurtenances (TMK: 9-1-018:008)	Const	0	--	--	--	--	--	--	--	Connect reservoir to future main on Farrington Highway	
5. WAIALAE 180 3.0 MG RESERVOIR REPLACEMENT											
Prepare Environmental Assessment	P&E	200	--	--	--	200	--	--	--	To alleviate storage deficiency in Metro 180 system. Existing 1.0 mgd reservoir was built in 1935	
Prepare plans and specifications	P&E	800	--	--	--	--	--	800	--		
Land	Land	0	--	--	--	--	--	--	--		
Demolish existing 1.0 MG reservoir and construct 3.0 MG reservoir, influent-effluent main, retaining wall, rock slide barricade, access road improvements, landscaping, irrigation system and appurtenances at existing Waiialae 180 Reservoir site (TMK: 3-5-020:011)	Const	0	--	--	--	--	--	--	--		
RESERVOIRS P&E SUBTOTAL	P&E	2,600	922	150	250	200	400	800	800		
RESERVOIRS Land SUBTOTAL	Land	0	0	0	0	0	0	0	0		
RESERVOIRS Const SUBTOTAL	Const	10,500	0	8,000	0	0	0	0	2,500		
CAPACITY EXPANSION RESERVOIRS SUBTOTAL		13,100	922	8,150.0	250.0	200.0	400.0	800.0	3,300.0		

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	2014	2015	Fiscal Year (FY)		2018	2019	REMARKS
		TOTAL (\$ 000)	APPNS (\$ 000)			2016	2017			
C. PIPELINES										
1. KAMEHAMEHA HIGHWAY: 16-INCH WATER MAIN, PART I										
Prepare plans and specifications (Part I & IV)	P&E	0	555	--	--	--	--	--	--	
Part I: Install 16-inch main and appurtenances along Kamehameha Highway from FH C00006 (300 feet north of Kaunala Street) to 600 feet south of Paumalu Stream (Sunset Beach 206 Reservoir access road) - approx. 5,300 lin. ft.	Const	3,500	--	3,500	--	--	--	--	--	Increases operational flexibility/efficiency across North Shore and completes upgrade to transmission capacity for fire protection
2. KALAKAUA AVENUE WATER SYSTEM IMPROVEMENTS										
Environmental Assessment and Feasibility Study to determine the appropriate installation method(s) for the installation of 16-inch mains and appurtenances along Kalakaua Avenue from Beretania Street to Kapiolani Boulevard, from Ala Wai Bridge to Kaiulani Avenue, and from Monsarrat Avenue to Dillingham fountain - approx. 11,960 lin. ft.; and the installation of 12-inch mains and appurtenances along Saratoga Road from Kalakaua Avenue to Kalia Road - approx. 1,200 lin. ft.	P&E	200	--	200	--	--	--	--	--	Kalakaua Avenue main serves heavily-gridded Waikiki resort and business district (1929)
Prepare plans and specifications (Phase II, III & IV)	P&E	1,000	1,500	--	--	1,000	--	--	--	
Phase III: Install 16-inch mains and appurtenances along Kalakaua Avenue from Beretania Street to Kapiolani Boulevard - approx. 3,200 lin. ft.	Const	3,600	--	--	--	--	--	3,600	--	
Phase II: Install 12-inch mains and appurtenances along Kalakaua Avenue from Monsarrat Avenue to Dillingham fountain - approx. 3,500 lin. ft. Phase IV: Install 16-inch mains and appurtenances along Kalakaua Avenue from Ala Wai Bridge to Kaiulani Avenue - approx. 5,260 lin. ft. Install 12-inch main along entire length of Saratoga Road - approx. 1,200 lin. ft.	Const	14,000	--	--	--	--	--	14,000	--	Major traffic impacts would result from breaks within the project limits. Kalakaua Avenue main serves heavily-gridded Waikiki resort and business district (1925)

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
3. ALA MOANA BOULEVARD 16-INCH										Replace and upsize 12-inch main along major thoroughfare for visitor traffic from the airport and downtown to Waikiki. Existing main has been failing periodically with last break requiring over 24 hours to repair due to location and deteriorated condition of main (1934)
Environmental Assessment	P&E	350	--	350	--	--	--	--	--	
Prepare plans and specifications	P&E	600	265	--	--	600	--	--	--	
Install 16-inch main and appurtenances along Ala Moana Boulevard from Ward Avenue to Atkinson Drive - approx. 6,200 lin. ft.	Const	6,820	--	--	--	--	--	6,820	--	
4. HONOLULU DISTRICT 42-INCH MAINS - LILIHA TO MOILIILI										Extends South trunk transmission pipeline for increased capacity and reliability in the Metro Low System
Prepare Route Feasibility Study	P&E	0	140	--	--	--	--	--	--	
Prepare Environmental Assessment for selected transmission main routes and booster station site	P&E	0	88	--	--	--	--	--	--	
Feasibility study to determine the appropriate installation method(s) for Phase I and Phase II	P&E	400	--	--	400	--	--	--	--	
Phase I - Install 42-inch main along Beretania Street from Liliha Street to Richard Street, along Richard Street from Beretania Street to King Street, along King Street to Victoria Street, and along Victoria Street to Kinau Street 42-inch main - approx. 11,000 lin. ft.	P&E	2,000	350	--	--	--	2,000	--	--	
	Const	0	--	--	--	--	--	--	--	
Phase II - Install 42-inch main along King Street from Victoria Street to Isenberg Street - approx. 9,000 lin. ft.	P&E	1,700	--	--	--	--	--	1,700	--	
	Const	0	--	--	--	--	--	--	--	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
5. ALA MOANA WATER SYSTEM IMPROVEMENTS										Replacement of corroded, failing main within resort area (1930's, 1940's)
Prepare plans and specifications	P&E	350	191	--	--	350	--	--	--	
Install 16-inch mains and appurtenances along Ala Moana Boulevard from Ala Wai Boulevard to Kalakaua Avenue - approx. 2,780 lin. ft. Install 8-inch mains and appurtenances along Ala Moana Boulevard from the Ala Wai Canal to Kalia Road, along Ena Road from Kalakaua Avenue to Ala Moana Boulevard, and along Kalia Road from Ala Moana Boulevard to 65 feet before FH M01026 - approx. 4,110 lin. ft.	Const	5,900	--	--	--	--	--	5,900	--	
6. ALA MOANA WATER SYSTEM IMPROVEMENTS, PART II										
Prepare plans and specifications	P&E	200	--	--	--	200	--	--	--	
Install 16-inch mains and appurtenances along Aloha Tower Drive from Richards Street to S. Nimitz Highway and along Ala Moana Boulevard from S. Nimitz Highway to Keawe Street - approx. 2,500 lin. ft. Install 8-inch mains and appurtenances along Keawe Street and Koula Street from Ala Moana Boulevard to Ilalo Street - approx. 810 lin. ft.	Const	2,000	--	--	--	--	--	2,000	--	
7. SALT LAKE BOULEVARD 36-INCH MAIN - FOSTER VILLAGE TO ALIAMANU										Coordinated with City Department of Design and Construction's Salt Lake Boulevard Improvements. Addresses a bottleneck in the Metro West transmission system into Honolulu
Prepare Environmental Assessment, plans and specifications	P&E	0	185	--	--	--	--	--	--	
Re-design	P&E	0	340	--	--	--	--	--	--	
Install 36-inch main along Salt Lake Boulevard (525 feet south of Maluna Street to Ala Liliko'i Street) - approx. 4,275 lin. ft.	Const	4,300	--	--	--	--	4,300	--	--	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
8. NIMITZ HIGHWAY 16-INCH MAIN										Main replacement along major arterial street (1942)
Prepare plans and specifications	P&E	0	651	--	--	--	--	--	--	
Install 16-inch mains and appurtenances along Nimitz Highway from Waiakamilo Road to Sumner Street and along Waiakamilo Road from Nimitz Highway to Hart Street - approx. 6,200 lin. ft.	Const	6,100	--	--	--	--	6,100	--	--	
9. KUALAKAI PARKWAY 16-INCH RECYCLED WATER MAIN										Transmission main to future East Kapolei 215 recycled water reservoir
Prepare plans and specifications	P&E	300	--	--	--	--	300	--	--	
Install 16-inch transmission main from East Kapolei 215 recycled water reservoir to Mango Tree Road - approx. 10,750 lin. ft.	Const	3,300	--	--	--	--	--	--	3,300	
PIPELINES P&E SUBTOTAL	P&E	7,100	4,265	550	400	2,150	2,300	1,700	0	
PIPELINES Land SUBTOTAL	Land	0	0	0	0	0	0	0	0	
PIPELINES Const SUBTOTAL	Const	49,520	0	3,500	0	0	10,400	32,320	3,300	
CAPACITY EXPANSION PIPELINES SUBTOTAL		56,620	4,265	4,050	400	2,150	12,700	34,020	3,300	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	2014	2015	Fiscal Year (FY)		2018	2019	REMARKS
		TOTAL (\$ 000)	APPNS (\$ 000)			2016	2017			
D. TREATMENT										
1. GAC FACILITY IMPROVEMENTS										
Prepare plans and specifications	P&E	500	150	--	100	100	100	100	100	
Install improvements at select GAC facilities to extend use of existing systems	Const	2,500	--	--	500	500	500	500	500	
2. GAC TREATMENT FOR WAIPIO HEIGHTS WELLS AND WAIPIO HEIGHTS WELLS I										
Prepare plans and specifications	P&E	0	388	--	--	--	--	--	--	Treatment to meet water quality standards by removing TCP
Part A - Install 16-inch mains and appurtenances along Lumihoahu Street from Waipio Heights Wells and Wells I to Lumiaina Street, along Lumiaina Street from Lumihoahu Street to Kamehameha Highway, along Kamehameha Highway from Lumiaina Street to Waipahu Wells III - approx. 4,000 lin. ft.	Const	4,500	--	--	4,500	--	--	--	--	
Part B - Install two (2) GAC units at Waipahu Wells III, appurtenances and piping to connect to main	Const	1,000	--	--	--	1,000	--	--	--	
TREATMENT P&E SUBTOTAL	P&E	500	538	0	100	100	100	100	100	
TREATMENT Land SUBTOTAL	Land	0	0	0	0	0	0	0	0	
TREATMENT Const SUBTOTAL	Const	8,000	0	0	5,000	1,500	500	500	500	
CAPACITY EXPANSION TREATMENT SUBTOTAL		8,500	538	0	5,100	1,600	600	600	600	

BOARD OF WATER SUPPLY CAPITAL IMPROVEMENT PROGRAM (FY 2014 - 2019)

PROJECT	EXPEND TYPE	(FY14-19)	PRIOR	Fiscal Year (FY)						REMARKS	
		TOTAL (\$ 000)	APPNS (\$ 000)	2014	2015	2016	2017	2018	2019		
E. FACILITIES											
1. WIRELESS COMMUNICATION SYSTEM											
Wireless/Security Camera System Design: Design wireless and security camera systems	P&E	0	600	--	--	--	--	--	--	Provide wireless communications to BWS pump stations, reservoirs and facilities for security camera systems and future SCADA communications. Provide security camera systems at each wireless site	
Install wireless and security camera systems at BWS pump stations, reservoirs and facilities	Const	2,830	6,260	2,830	--	--	--	--	--		
2. SECURITY CAMERA SYSTEMS											
Install computer network-based security camera systems (camera, lights, speakers and motion detectors) at critical pump stations, reservoirs	Const	2,595	1,100	300	375	375	375	585	585		
3. PROJECT INFORMATION MANAGEMENT SYSTEM											
Formulate, install and implement a project information management system. Administer and operate project management program and training	P&E	1,000	443	1,000	--	--	--	--	--	Improve project information available throughout the department. Improve efficiency of construction inspection, and address concerns raised by financial audit on timely dissemination of project information for better management decision-making	
4. EMERGENCY GENERATOR INSTALLATION											
Prepare plans and specifications	P&E	1,500	--	--	150	150	300	450	450	Alternate Project Delivery Pilot for P&E	
Install permanent emergency generators at critical pump stations	Const	8,000	--	--	1,600	1,600	1,600	1,600	1,600		
5. BACKUP POWER SYSTEMS FOR WIRELESS SYSTEMS											
Provide backup power for wireless, RTU and security camera systems at BWS facilities	Const	3,000	--	--	--	1,500	1,500	--	--		

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PROJECT	EXPEND TYPE	(FY14-19) TOTAL (\$ 000)	PRIOR APPNS (\$ 000)	Fiscal Year (FY) (\$ 000)						REMARKS
				2014	2015	2016	2017	2018	2019	
6. DOCUMENT MANAGEMENT SYSTEM										
Implement comprehensive system to manage BWS documents and records retention	Const	1,845	--	--	--	--	--	--	1,845	Implement a Document Management system based on Sharepoint, Hyland, or similar technology to increase document management and availability
FACILITIES P&E SUBTOTAL	P&E	2,500	1,043	1,000	150	150	300	450	450	
FACILITIES Land SUBTOTAL	Land	0	0	0	0	0	0	0	0	
FACILITIES Const SUBTOTAL	Const	18,270	7,360	3,130	1,975	3,475	3,475	2,185	4,030	
CAPACITY EXPANSION FACILITIES SUBTOTAL		20,770	8,403	4,130	2,125	3,625	3,775	2,635	4,480	
P&E CAPACITY EXPANSION TOTAL	P&E	13,840	10,909	1,700	1,370	3,270	3,100	3,050	1,350	
Land CAPACITY EXPANSION TOTAL	Land	0	0	0	0	0	0	0	0	
Const CAPACITY EXPANSION TOTAL	Const	98,590	7,360	14,630	6,975	7,975	16,475	42,205	10,330	
FY 2014-2019 CAPACITY EXPANSION TOTAL		112,430	18,269	16,330	8,345	11,245	19,575	45,255	11,680	
FY 2014-2019 TOTAL		444,222	68,831	74,312	74,230	80,350	59,320	81,220	74,790	
Contract Adjustment Account				2100	7,423	8,035	5,932	8,122	7,479	
Construction Cost Index Adjustment				5767						
FY 2014-2019 TOTALS (with Adjustments)		489,080		82,179	81,653	88,385	65,252	89,342	82,269	

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