MINUTES

REGULAR MEETING
OF THE
BOARD OF WATER SUPPLY

October 28, 2013

At 2:03 PM on October 28, 2013 in the Board Room of the Public Service Building at 630 South Beretania Street, Honolulu, Hawaii, Board Chair Miyashiro called to order the Regular Meeting.

Present:	Duane R. Miyashiro, Board Chair Mahealani Cypher, Vice Chair Adam C. Wong (arrived at 2:30 p.m.) David C. Hulihee Ross S. Sasamura Glenn M. Okimoto (left at 3:07 p.m.)
Also Present:	Ernest Lau, Manager and Chief Engineer Ellen Kitamura, Deputy Manager and Chief Engineer Tracy Burgo Alex Ubiadas Daryl Hiromoto Barry Usagawa Karen Tom Scot Muraoka Jason Takaki Paul Kikuchi Ron Wada Michael Cubas
Others Present:	Winston Wong, Deputy Corporation Counsel Marilyn Ushijima, Deputy Corporation Counsel Craig Von Bargen, CDM Smith Chris Cleveland, Brown and Caldwell Michael Hernandez-Soria, Hawaiian Cool Water LLC Gordon Pang, Honolulu Star-Advertiser Councilmember Kymberly Pine Matt Caires, City Council
Absent:	Theresia C. McMurdo

Chair Miyashiro welcomed and acknowledged Councilmember Pine in the audience.

APPROVAL OF MINUTES	Approval of the Minutes of the Regular Meeting held on September 23, 2013
MOTION TO APPROVE	David Hulihee and Mahealani Cypher motioned and seconded, respectively, to approve the Minutes of the Regular Session Meeting of September 23, 2013. The motion was unanimously carried.

"October 28, 2013

ADOPTION OF SIX-YEAR CIP PROGRAM

Chairman and Members
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii 96843

Chairman and Members:

Subject: Adoption of the Six-Year Capital Improvement Program for the Period July 1, 2013 to June 30, 2019

We submit and recommend your adoption of the Board of Water Supply's proposed Six-Year Capital Improvement Program (CIP) for the period beginning July 1, 2013 and ending June 30, 2019, with the understanding that it may, as needs dictate, be amended or modified by the Board.

The proposed Six-Year CIP has been reviewed by the City Department of Planning and Permitting in accordance with the provisions of Section 7-105(d) of the City Charter.

The Six-Year CIP includes projects that address system renewal and replacement and capacity expansion to accommodate planned growth, pipeline and facility improvements. It improves system capacity and reliability to ensure that we meet the challenges of providing a consistent and high-quality water supply for our customers.

Staff will present the Six-Year CIP highlights.

Respectfully submitted,

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

Attachment"

DISCUSSION:

Manager Lau informed the Board that Scot Muraoka from the Water Resources Division will give the presentation. Mr. Lau stated that the CIP was reviewed by the City Department of Planning and Permitting, in accordance with Section 7 of the City Charter.

Following Mr. Muraoka's presentation Board Member Okimoto asked why the renewal and replacement category decreased from $67.255 million in 2016 to $38.545 million in 2017 and $35.965 million in 2018. Mr. Okimoto expressed his concern that the decrease may affect the maintenance schedule which may increase the number of main breaks. Mr. Lau replied that there are some permitting issues anticipated for those two years, which may cause the amounts to drop. Mr. Muraoka explained that for Fiscal Year 2017 and 2018, about nine miles per year of pipeline replacement is scheduled, so the cutback will be more on pump replacements. Mr. Okimoto

commented that if 10 miles of pipeline are replaced each year and there are 2100 miles of pipeline, it would take 210 years to replace everything. Mr. Lau stated that if the pipeline replacement program was based purely on the age of the pipes, then more miles of pipeline would need to be replaced each year, however, age is not a good correlator for determining replacement of pipelines. There are other factors that will be discussed in the Water Master Plan Update.

Mr. Okimoto emphasized that he wants to be sure that enough pipeline replacement occurs so it limits the amount of main breaks. Mr. Lau stated that other factors besides pipeline replacement, such as managing pressure and corrosion, can also control breaks in the pipelines.

Mr. Muraoka replied to Mr. Okimoto's inquiry stating that the reason for the increase in capacity expansion from $19,547 million in 2017 to $45,255 million in 2018 is because of several costly pipeline upsizing projects. Some of them include the Ala Moana Water System Improvements Project Part 1 and 2 and the design of the Honolulu 42" main. Mr. Okimoto inquired if these projects are in response to the Kakaako development, and if they are, could the developer help pay for some of the costs. Mr. Lau replied that these projects are not necessarily in response to the Kakaako development and are being done to strengthen the Honolulu service system that moves water from the west to the east. Mr. Muraoka added that the biggest capacity expansion project for 2018 is the Kalakaua Avenue Water System Improvements Project, which will cost about $18 million.

Mr. Lau thanked Mr. Morioka for his presentation.

MOTION TO ADOPT THE SIX-YEAR CIP PROGRAM

Ross Sasamura motioned to adopt the Six-Year Capital Improvement Program for the Period July 1, 2013 to June 30, 2019. The motion was seconded by Mahealani Cypher and unanimously carried.

THE SIX-YEAR CAPITAL IMPROVEMENT PROGRAM FOR THE PERIOD JULY 1, 2013 TO JUNE 30, 2019 WAS ADOPTED AT THE OCTOBER 28, 2013 BOARD MEETING			
	AYE	NO	COMMENT
DUANE R. MIYASHIRO	X		
MAHEALANI CYPHER	X		
THERESIA C. MCMURDO			ABSENT
ADAM C. WONG	X		
DAVID C. HULIHEE	X		
ROSS S. SASAMURA	X		
GLENN M. OKIMOTO	X		

WATER FOR LIFE

Safe and dependable water now and into the future

Board of Water Supply
City and County of Honolulu

Board of Water Supply
City and County of Honolulu

FY 2014-2019
6-Year Capital Improvement Program
October 28, 2013

Capital Improvement Program Presentation

- Water System Overview
- City Charter Requirement
- CIP Basis
- CIP Project Highlights

Distribution System

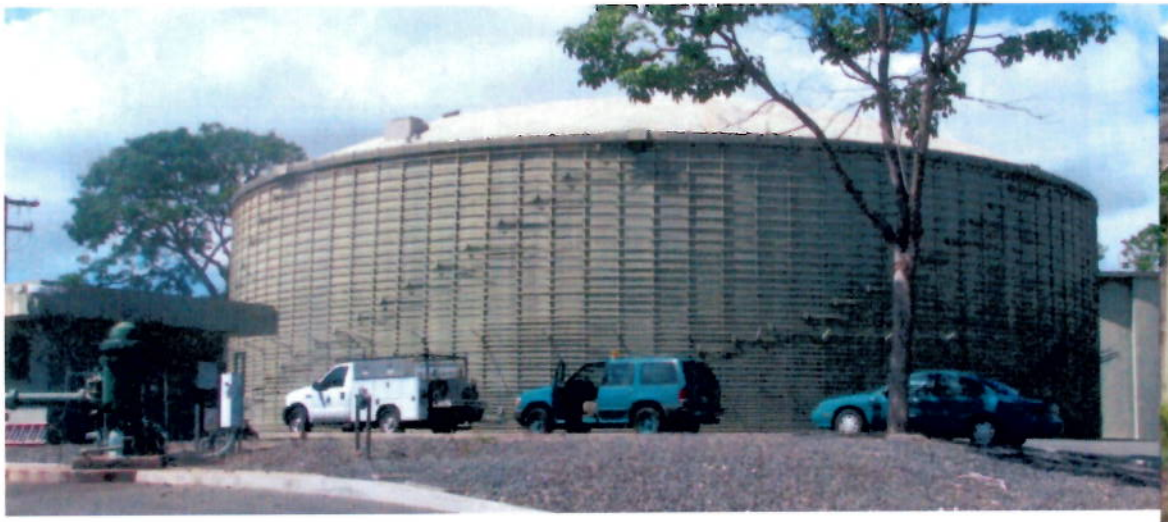
- **2,100** miles of pipeline
- **38,000** Valves
- **21,000** Fire hydrants
- **166,000** Customers

Pumps

- 94 water sources
  - 79 wells
  - 15 tunnels
- 190 source pumps
- 422 mgd total capacity

- 90 booster stations
- 191 booster pumps

Reservoirs



- 170 potable water reservoirs
- 2 brackish water reservoirs
- 4 recycled water reservoirs
- 5 dams

Water Treatment

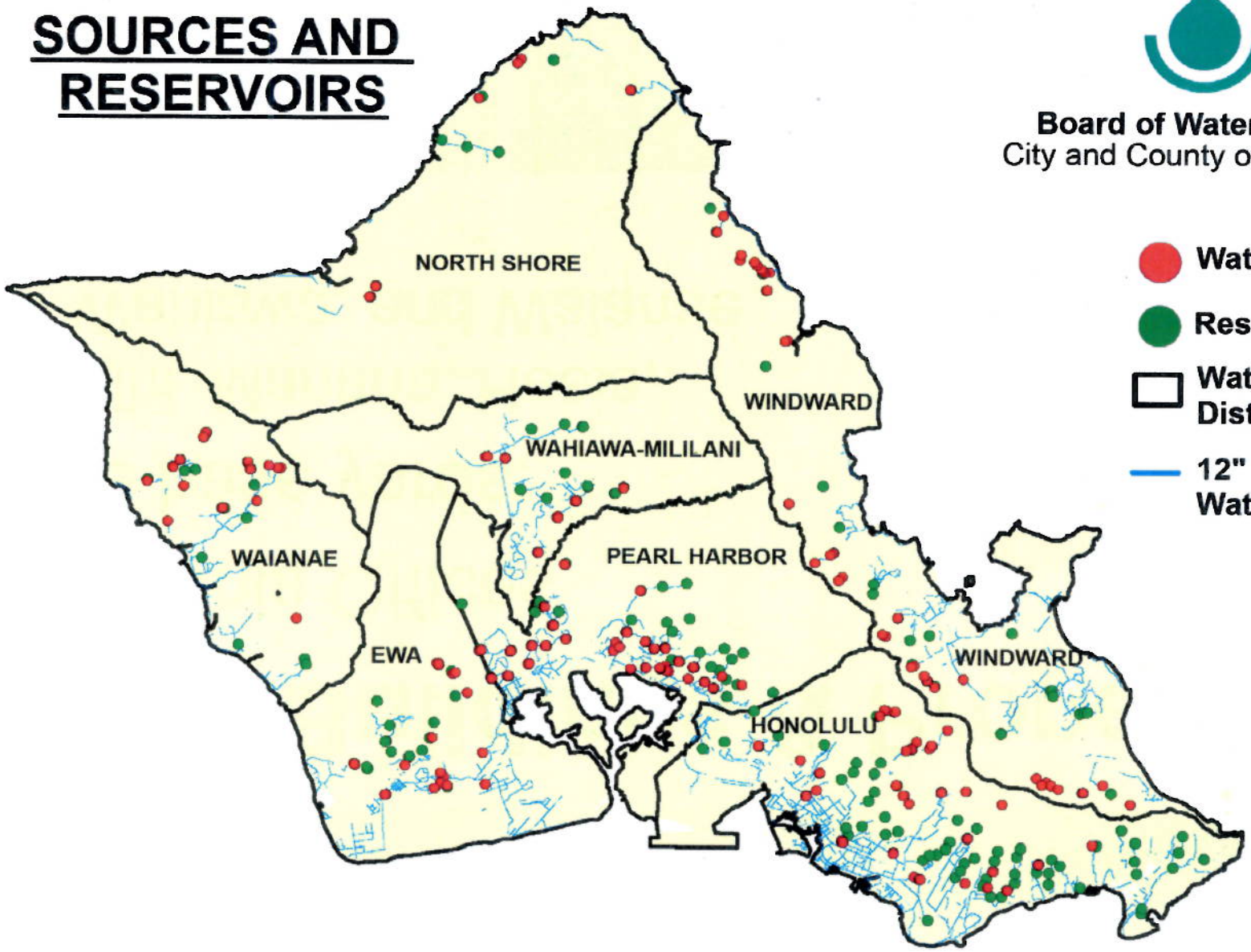
- 12 Granular Activated Carbon (GAC) treatment facilities
- More than 20 million gallons of potable water filtered per day

BWS Buildings & Properties

- Beretania Offices
- Five base yards:

  Kalihi, Manana, Heeia, Wahiawa, and Waianae

SOURCES AND RESERVOIRS



Board of Water Supply
City and County of Honolulu

- **Water Sources**
- **Reservoirs**
- **Water Use District Boundary**
- **12" and larger Water Mains**

Revised Charter of Honolulu

Section 7-105 (d), Powers, Duties & Functions of the BWS:

The Board of Water Supply shall:

"Determine the policy for construction, additions, extensions and improvements to the water systems of the city which shall include a long range capital improvement program covering a period of at least six years which shall be adopted after consultation with the director of planning and permitting and which may be amended or modified by the board from time to time."

CIP Budget Summary

	FY ($ 000)						
Category	Total	2014	2015	2016	2017	2018	2019
RESEARCH AND DEVELOPMENT	12,390	6,510	2,830	1,850	1,200	0	0
RENEWAL AND REPLACEMENT	319,402	51,472	63,055	67,255	38,545	35,965	63,110
CAPACITY EXPANSION	112,430	16,330	8,345	11,245	19,575	45,255	11,680
SUBTOTAL:	**444,222**	**74,312**	**74,230**	**80,350**	**59,320**	**81,220**	**74,790**
CONTRACT & CONSTRUCTION COST INDEX ADJUSTMENT	44,858	7,867	7,423	8,035	5,932	8,122	7,479
TOTAL:	**489,080**	**82,179**	**81,653**	**88,385**	**65,252**	**89,342**	**82,269**

Long Range Capital Plan

- Aligned with 2012-2016 Rate Increase
- Meets Mission of Providing Safe, Dependable & Affordable Water
- Provides multi-year program guidance for project implementation and financial planning for **fixed infrastructure assets**
  - Research & Development
  - Renewal & Replacement
  - Capacity Expansion
- Projects are formulated, prioritized and scheduled by divisional committee using multi-attribute criteria

Project Prioritization Criteria

System Reliability to consistently deliver water with minimum interruptions

System Adequacy is having adequate system capacity to meet existing & future demands, including fire protection

Regulatory Compliance with Federal, State & County water quality regulations and addresses legal compliance & risk management

Increased Efficiency in producing, delivering and using water and how efficient energy is used

Reduced Maintenance is the ability to reduce the frequency and extent of water system maintenance

Agency Coordination is the level of project coordination required with other agencies

CIP System Objectives

- To keep 90 percent of pumps always in service and meet all system demand conditions
- To keep main breaks less than 400/year and address single points of failure
- To meet water quality & water system standards
- To meet maximum day storage and emergency storage requirements
- Will be re-evaluated by BWS Water Master Plan

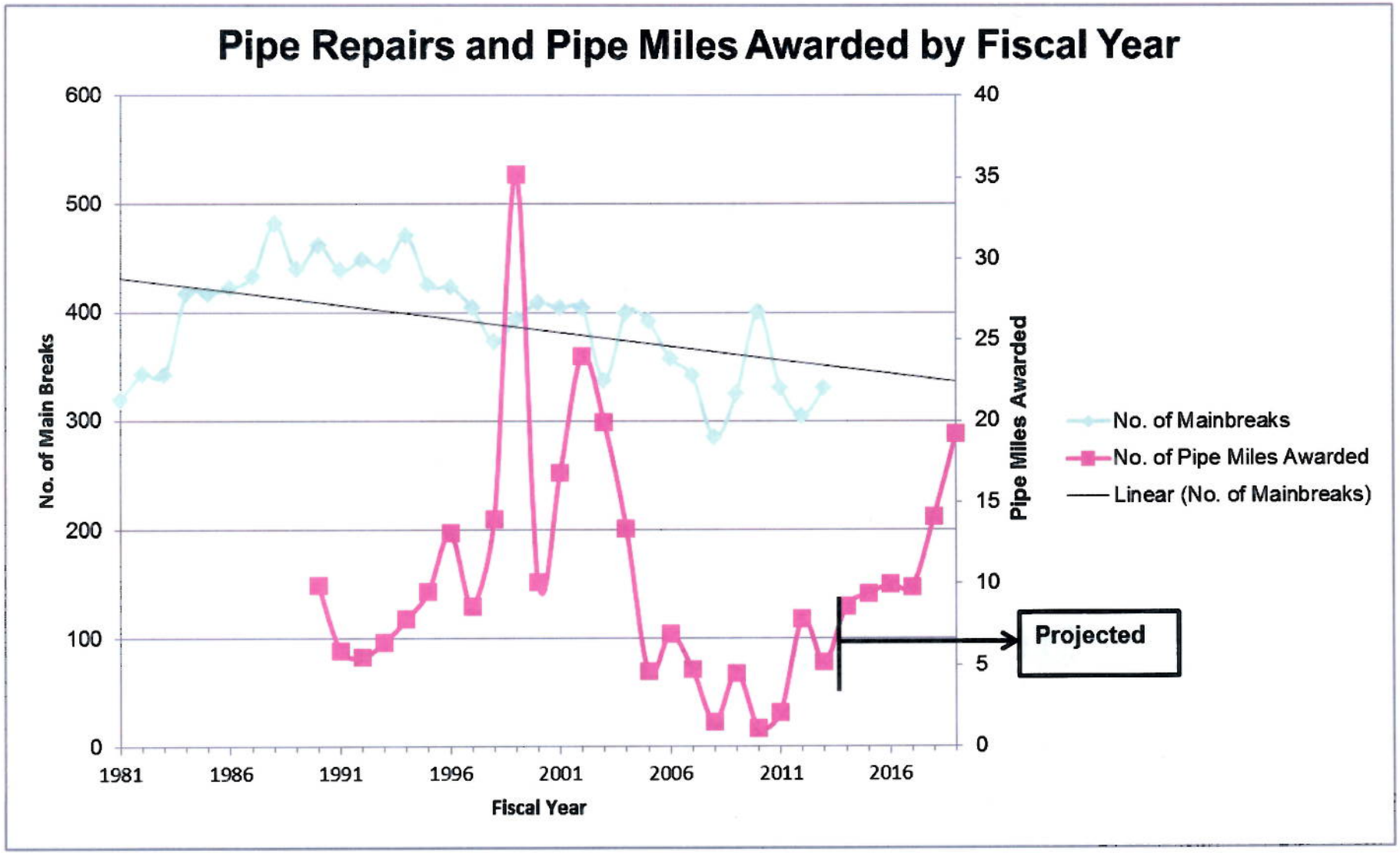
Renewal and Replacement Project Formulation

System Condition Assessment – Main breaks per pipe length, corrosion, pump condition, structural integrity

Fire protection improvement – Adding hydrants, increasing flow & pressures

Reduce public impact – replace pumps & pipes serving economic centers & critical facilities and along major traffic routes

Project coordination – Combine/Coordinate projects with other utilities/agencies, to reduce overall costs & minimize impacts on residents, businesses, and motorists


Pipe Repairs and Pipe Miles Awarded by Fiscal Year
No. of Main Breaks
Pipe Miles Awarded
Fiscal Year
600
500
400
300
200
100
0
40
35
30
25
20
15
10
5
0
1981
1986
1991
1996
2001
2006
2011
2016
No. of Mainbreaks
No. of Pipe Miles Awarded
Linear (No. of Mainbreaks)
Projected

Capacity Expansion Project Formulation

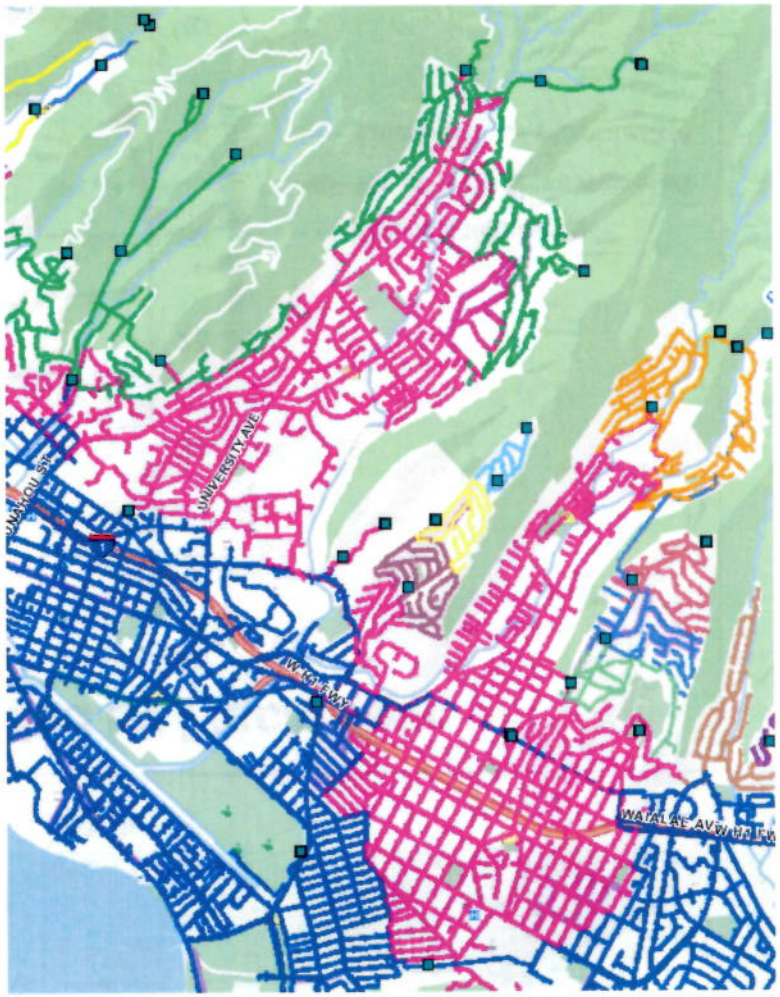
System Capacity Assessments

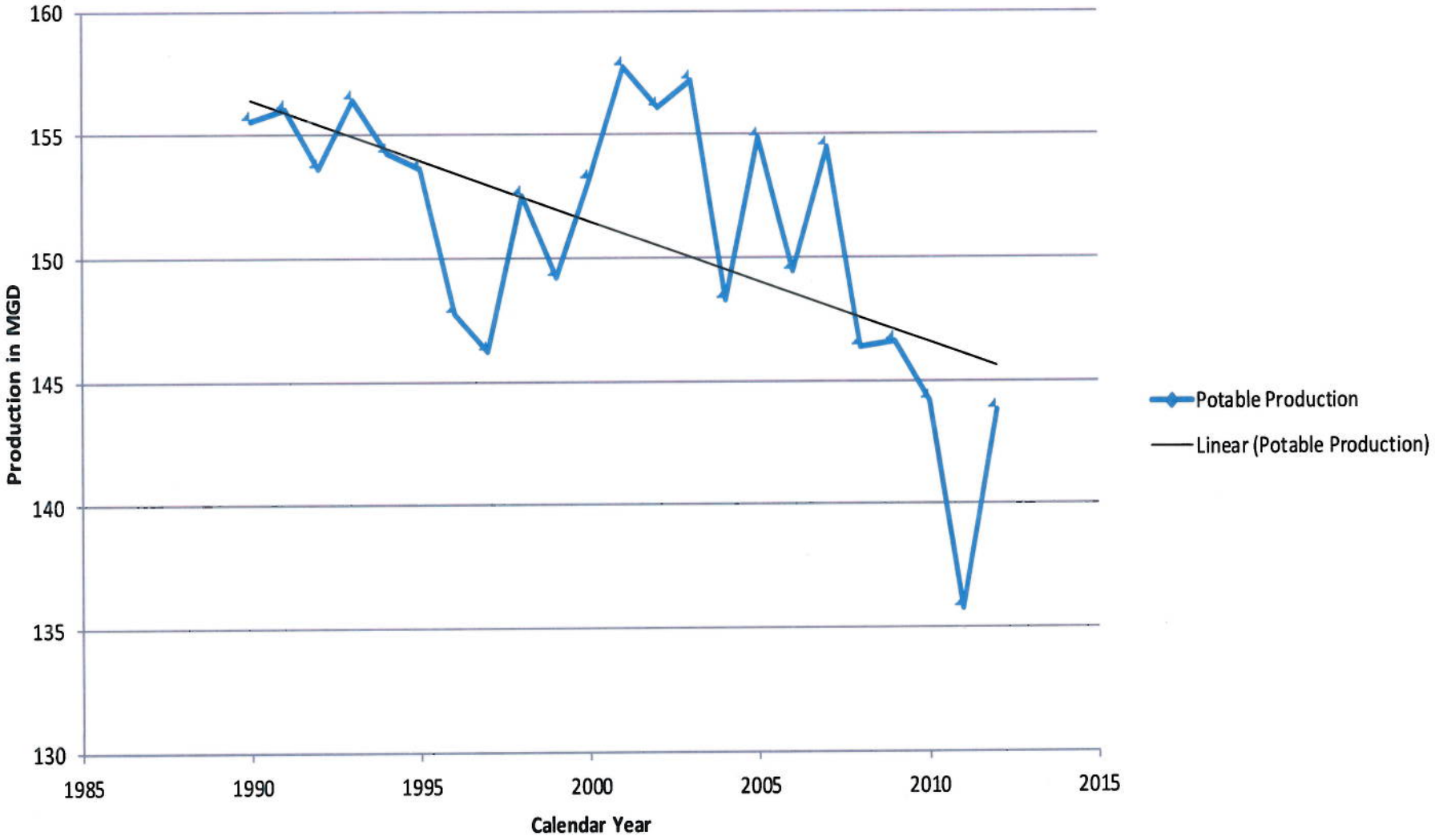
Trends of pumpage, metered consumption & water loss relative to system capacity

Monitor pace of development, water commitments & land use plans (i.e. Rail Transit Oriented Development)

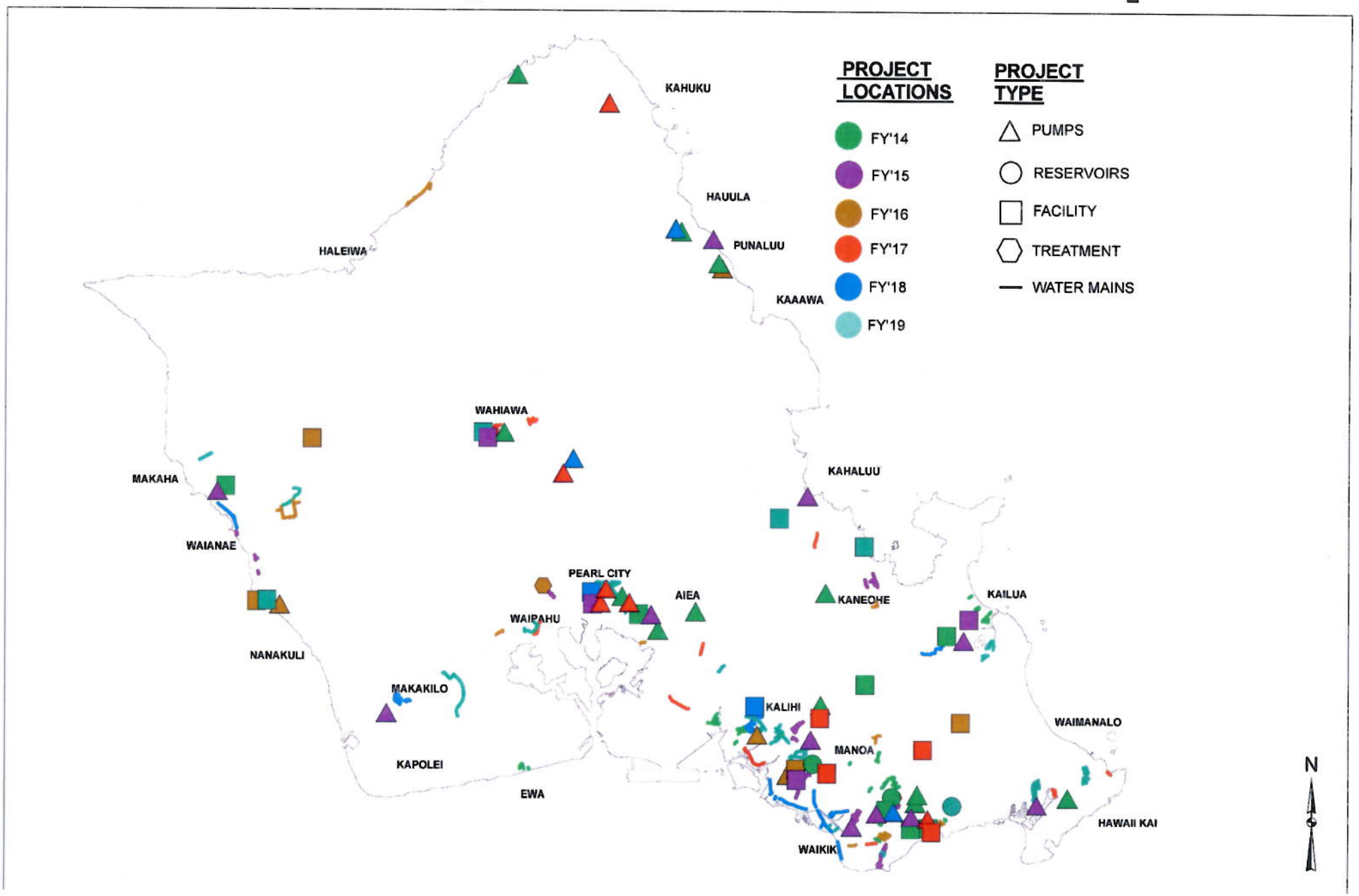
Evaluate and Formulate Projects

for system adequacy, reliability, efficiency, reduced maintenance, regulatory compliance, coordination & single points of failure



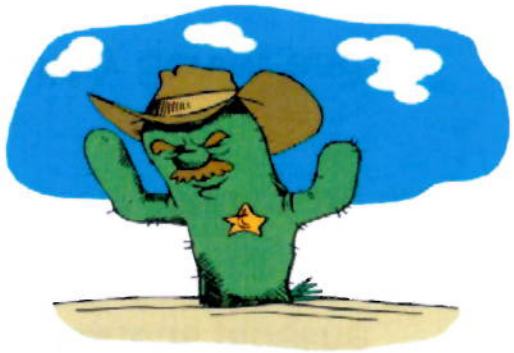

Islandwide Potable Production (MGD)
Production in MGD
160
155
150
145
140
135
130
1985
1990
1995
2000
2005
2010
2015
Calendar Year
Potable Production
Linear (Potable Production)

CIP Project Location Map



CIP Projects Summary

- 75 miles of pipeline (64 miles replacement, 11 miles capacity expansion)
- 93 Wells/Booster pump renewals
- 26 Reservoir rehabilitation projects
- 10 renovation/repair projects at Beretania Complex/Corporation Yards



- One New GAC Facility (Waipio Hts Wells/Wells I)
- 3 New Wells at existing facilities – Kahuku Well #3, Maakua Well #2, Waialae West Well
- 3 Reservoirs – Wilhelmina 811 (R/R), Kalawahine 180 (new), Aina Haina 170 (new)

CIP Projects of Note

- **Annual Pump Renewal and Replacement** - To address various pumping plant needs and keep pumps operational
- **Annual Water Main Installation and Replacement** - To address various pipeline replacement needs as quickly as possible
- **Annual Fire Hydrant Installations at various locations** - To address immediate fire protection needs.
- **Palolo Tunnel Portal Improvements** - To comply with DOH Sanitary Survey and Groundwater Rule requirements
- **Lualualei Line Booster Improvements** - To address partial building moratorium in Waianae
- **Kahuku Wells Pump No. 3** - To add capacity and reliability in the stand alone Kahuku system
- **Wireless Communication System** - To install and increase telemetry control over all BWS facilities
- **SCADA Replacement** – New system to provide improved supervisory control and data acquisition over all BWS facilities

CIP Projects of Note (cont'd)

- **BWS Water Master Plan Development -** Renewal, replacement, upgrade of BWS facilities, including condition assessments
- **Waiau Wells & Booster Renovation** - For renewal and replacement of an important pumping station
- **Auloa Road and Ulukahiki Street 12-Inch Main** - Replacement needed due to pipe deterioration
- **Kalakaua Avenue Water System Improvements** - Replacement needed due to pipe deterioration
- **Kalawahine 180' 2.0 MG Reservoir** - To add needed storage for the Honolulu Metro water system, which is short on capacity
- **Kalihi Water System Improvements, Part III** - Replacement needed due to pipe deterioration
- **Emergency Generator Installation** – Install permanent generators at critical pump stations
- **Honolulu District 42-Inch Mains** - To install a South trunk transmission main along Beretania and King Street for capacity & reliability

Water for Life:

Safe, dependable & affordable water now and into the future

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 2 8 2013
Date

Approved:

DUANE R. MIYASHIRO
Chairman

OCT 2 8 2013
Date

- SIGNATURES -

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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

ADAM C. WONG

DAVID C. HULIHEE

ROSS S. SASAMURA, Ex-Officio

GLENN M. OKIMOTO, Ex-Officio

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BOARD OF WATER SUPPLY SIX-YEAR CAPITAL IMPROVEMENT PROGRAM

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BOARD OF WATER SUPPLY SIX-YEAR CAPITAL IMPROVEMENT PROGRAM

FISCAL YEARS 2014 TO 2019

SUMMARY OF COST ESTIMATES

CATEGORY	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	2014	2015	2016	2017	2018	2019
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	18,078	16,330	8,345	11,245	19,575	45,255	11,680
SUB-TOTAL CATEGORIES I - III	**444,222**	**68,640**	**74,312**	**74,230**	**80,350**	**59,320**	**81,220**	**74,790**
Contract Adjustment Account Construction Cost Index Adjustment			2,100 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) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
I. RESEARCH AND DEVELOPMENT (R&D)										
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) 2014	2015	2016	2017	2018	2019	REMARKS
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) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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) 2014	2015	2016	2017	2018	2019	REMARKS
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	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) 2014	2015	2016	2017	2018	2019	REMARKS
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	--	--	--	--	

	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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	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 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 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

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PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
17. MAUNAWILI BOOSTER: REPLACE PUMPING UNITS										
Replace the existing four gate valves on the suction and discharge lines with four new non-rising stem, resilient seated gate valves, in place complete. Replace the existing two control valves located in the valve vault with straight sections of pipe. Replace existing metal grating on top of the existing valve vault with a new grating. Replace existing valve vault rungs with a 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 for 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

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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	--	--	--	--	

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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	--	--	

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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	

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PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
B. RESERVOIRS - R&R										
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
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	
R&R RESERVOIRS SUBTOTAL		2,500	247	**2,500**	0	0	0	0	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) 2014	2015	2016	2017	2018	2019	REMARKS
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**	--	--	--	--	--	

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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 Koalipehu Street from Paaloha Street to Aikanaka Road, along Aikanaka Road from Paaloha Street to Koalipehu Street, along Ihipehu Street from Aikanaka Road to Pohakupuna Road and along Peeone Place from Pohakupuna Road to end - approx. 2,700 lin. ft. Install 4-inch mains and appurtenances along the two side streets on Ihipehu Street and along the side street on Koalipehu Street - approx. 235 lin. ft.	Const	1,040	--	**1,040**	--	--	--	--	--	Replacement of corroded mains (1959)

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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	

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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**	--	--	--	--	--	

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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 Kilihau Street from Puuloa Road to end - approx. 2,585 lin. ft. Install 8-inch mains and appurtenances along Ahua Street from Mokumoa Street to Kilihau Street, and along Kakoi Street from Kilihau 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 Nihiwai Place and Hiwi Place - approx. 15,950 lin. ft.	Const	7,060	--	--	--	--	7,060	--	--	

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
14.	**WILHELMINA RISE WATER SYSTEM IMROVEMENTS, 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	--	--	--	

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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**										Replacement of failing mains along major thoroughfare for Kaneohe business district and Windward Mall shopping center (1954, 1958)
	Prepare plans and specifications	P&E	0	419	--	--	--	--	--	--	
	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	--	--	--	--	

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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)

PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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 IMROVEMENTS, 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	--	--	--	--	

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 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 Kalanianaole Highway and along Ulukahiki Street from Kalanianaole Highway to Kailua Road - approx. 7,635 lin. ft.	Const	4,200	--	--	--	--	--	4,200	--	

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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	4,600	--	--	--	--	--	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.										

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PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
34.	**MONSARRAT AVENUE WATER SYSTEM IMPROVEMENTS**										In-house design
	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	--	--	--	Replacement of failing mains along arterial Waikiki to East Honolulu (1928, 1931)
35.	**KIPOU STREET 8-INCH MAIN**										In-house design
	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	--	--	--	Replacement of mains (1968)
36.	**KAIMUKI WATER SYSTEM IMPROVEMENTS, PART I**										In-house design
	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	--	--	--	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	--	--	--	

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PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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) 2014	2015	2016	2017	2018	2019	REMARKS
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	

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
42.	**WAIAU 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 Waikoae Road, along Waikoae Road from Amelia Street to Martin Street, along Martin Street from North School Street to Waikoae 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	

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PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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	2,400	--	--	--	--	--	--	7,870	

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PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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 Nanialii 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	

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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 Panalaau 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 Kaakaaniu Street from Kaluanui Road to Kaumoku Street - approx. 4,425 lin. ft. 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.	Const	5,560	--	--	--	--	--	--	5,560	

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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	
51.	**KAHUAILANI STREET WATER SYSTEM IMPROVEMENTS**										In-house design
	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	--	--	
52.	**WAHIAWA WATER SYSTEM IMPROVEMENTS, PART III**										In-house design
	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)

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	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
53.	**HUI ULILI STREET: 12-INCH, 8-INCH AND 4-INCH MAINS**										In-house design. Replacement of mains installed in highly corrosive soils (1969)
	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	--	--	
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) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
D. TREATMENT - R&R										
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) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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 design reports	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) 2014	2015	2016	2017	2018	2019	REMARKS
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 Valley	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) 2014	2015	2016	2017	2018	2019	REMARKS
12.	**MAXIMO UPGRADE**										Upgrade Maximo/CMMS from current version (5.2) which is no longer supported by the vendor, to a recent supportable version (7.5)
	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	
13.	**NALU UPGRADE**										Upgrade JD Edwards system (NALU) from current version to 9.1 to address support and compatibility issues
	Upgrade financial accounting system software version to address support and compatibility issues	Const	4,045	637	**765**	1,640	1,640	--	--	--	
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) 2014	2015	2016	2017	2018	2019	REMARKS
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) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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) 2014	2015	2016	2017	2018	2019	REMARKS
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 Xeriscacpe	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) 2014	2015	2016	2017	2018	2019	REMARKS
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) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
III. CAPACITY EXPANSION										
A. PUMPS										
1. KAHUKU WELLS UNIT NO. 3										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
Prepare plans and specifications	P&E	170	--	--	170	--	--	--	--	
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										Second well unit provides standby capacity to single well station
Prepare plans and specifications	P&E	120	--	--	--	120	--	--	--	
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										To meet Ewa's ultimate water demand and provide drought proof water supply
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	--	--	--	--	
Prepare plans and specifications	P&E	0	3,730	--	--	--	--	--	--	
Construct desalination facility	Const	0	--	--	--	--	--	--	--	
4. LUALUALEI LINE BOOSTER IMPROVEMENTS										Increased booster pump capacity improves transmission to Waianae Coast
Prepare plans and specifications	P&E	0	237	--	--	--	--	--	--	
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) 2014	2015	2016	2017	2018	2019	REMARKS
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) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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	0	--	--	--	--	150	--	--	
	Prepare plans and specifications	P&E	0	--	--	--	--	--	--	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**										To alleviate storage deficiency in Metro 180 system. Existing 1.0 mgd reservoir was built in 1935
	Prepare Environmental Assessment	P&E	200	--	--	--	200	--	--	--	
	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 Waialae 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) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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) 2014	2015	2016	2017	2018	2019	REMARKS
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) 2014	2015	2016	2017	2018	2019	REMARKS
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 Lilikoi 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) 2014	2015	2016	2017	2018	2019	REMARKS
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	0	--	--	--	--	300	--		
	Install 16-inch transmission main from East Kapolei 215 recycled water reservoir to Mango Tree Road - approx. 10,750 lin. ft.	Const	0	--	--	--	--	--	--	3,300	
	PIPELINES P&E SUBTOTAL	P&E	7,100	4,074	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	4,074	**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) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
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										Treatment to meet water quality standards by removing TCP
Prepare plans and specifications	P&E	0	388	--	--	--	--	--	--	
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) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
E. FACILITIES										
1. WIRELESS COMMUNICATION SYSTEM										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
Wireless/Security Camera System Design: Design wireless and security camera systems	P&E	0	600	--	--	--	--	--	--	
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										Improve project information available throughout the department. Improve efficiency of construction inspection, and address concerns raised by financial audit on timely dissemmination of project information for better management decision-making
Formulate, install and implement a project information management system. Administer and operate project management program and training	P&E	1,000	443	**1,000**	--	--	--	--	--	
4. EMERGENCY GENERATOR INSTALLATION										Alternate Project Delivery Pilot for P&E
Prepare plans and specifications	P&E	1,500	--	--	150	150	300	450	450	
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	--	--	

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

	PROJECT	EXPEND TYPE	(FY14-19) TOTAL ($ 000)	PRIOR APPNS ($ 000)	Fiscal Year (FY) ($ 000) 2014	2015	2016	2017	2018	2019	REMARKS
6.	**DOCUMENT MANAGEMENT SYSTEM**										Implement a Document Management system based on Sharepoint, Hyland, or similar technology to increase document management and availability
	Implement comprehensive system to manage BWS documents and records retention	Const	1,845	--	--	--	--	--	--	1,845	
	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	10,718	**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	18,078	**16,330**	8,345	11,245	19,575	45,255	11,680	
	FY 2014-2019 **TOTAL**		**444,222**	68,640	**74,312**	**74,230**	**80,350**	**59,320**	**81,220**	**74,790**	
	Contract Adjustment Account				2100						
	Construction Cost Index Adjustment				5767	7,423	8,035	5,932	8,122	7,479	
	FY 2014-2019 TOTALS (with Adjustments)		489,080		**82,179**	**81,653**	**88,385**	**65,252**	**89,342**	**82,269**	

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"October 28, 2013

TOPICS FOR FUTURE BOARD MEETINGS

Chairman and Members
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii 96843

Chairman and Members:

Subject: Topics for Future Board Meetings

We would like to take this time to allow the members of the Board to inform us of any topic or concern pertaining to Board of Water Supply operations that the Board would want addressed at future Board Meetings.

The following is a list of pending topics requested by the Board with a tentative timetable of when the topics will be presented:

TOPIC	TENTATIVE TIMETABLE
1. Human Resources (HR) long-term strategy plan.	November 25, 2013
2. Upward evaluation process and training opportunities for division heads.	November 25, 2013 (This will be included with the HR long-term strategy plan.)
3. Hiring of consultants vs. utilizing in-house employees. Will the consultants train employees and is there a zero liability policy?	This topic will be discussed in today's agenda item for information no. 6, Capital Improvement Program Quarterly Update.
4. Effects of climate change and sea level rise to BWS's operations and is there any impact to the Beretania pump station.	A presentation on climate change was made at the June 24, 2013 Board meeting. A presentation on sea level rise will be done in January 2014.

Respectfully submitted,

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

DISCUSSION: Mr. Miyashiro asked if there was anyone from the public who wanted to testify on Item No. 3 requiring Board action. Councilmember Kymberly Pine responded yes, she would like to testify and apologized for not being familiar with the procedures. Mr. Miyashiro asked Ms. Pine to take the podium and state her name.

Councilmember Kymberly Pine was not registered to testify but was in attendance to provide verbal testimony. The following is Ms. Pine's verbal testimony:

"Aloha Board, it's so wonderful to be here and see your world and here to learn and understand why you make some of the decisions that you make, but I'm primarily also here. Oh my name is Kymberly Pine and I'm with the Honolulu City Council District 1."

Mr. Miyashiro interrupted Ms. Pine and informed her that the purpose of Action Item No. 3, Topics for Future Board Meetings is to make sure that the Board complies with the Sunshine Laws. He informed her that it occurred to the Board about 1-1/2 years ago that they did not have a proper forum for the Board members to liaise with one another, other than two at a time, which did not allow for decision making. Therefore, the intent of this item is to give the Board the forum to allow any of the Board members to speak publicly about a topic they request for future discussion by the BWS management.

Ms. Pine asked Mr. Miyashiro if the public was allowed to recommend or suggest future action. Mr. Miyashiro replied that it is not the intent of this item, but the Board appreciates Ms. Pine's presence. He added that the Board wants to be transparent, but also wants to comply with the Sunshine Laws and that he would exercise his discretion. Mr. Miyashiro informed Ms. Pine that she is entitled to tell the Board her thoughts, informed her that they allow the public three minutes to testify, and reopened Item No. 3 to discuss if the Board would agree to place Ms. Pine's suggestion on a future agenda.

The following is a continuation of Ms. Pine's verbal testimony:

"Well, I would love the Board to be aware of a resolution that I introduced, Resolution 13-217, 216, which relates to the back billing process at the Board of Water Supply. And I know there's a charter amendment, and so I'm here to urge the members to possibly consider in the future or near future reviewing your back billing process and how it affects the public. I arrived here today and I gave Mr. Hulihee a nice hug and a kiss and he called me you trouble maker. And really I'm just Filipino and Irish and I'm just, a passion about everything that I do. But I really, I don't want to assume that you understand or know some of the stories of how some of the public has been affected, and so I want to share some stories with you. My most recent phone call was from a 90 year old man who normally has a $200 water bill and he got a $7,000 bill just this month. And he was back billed or given bill estimates for many, many months and it was discovered that throughout those bill estimate months that he and his family had a leak in his home system; it's actually under his home. So you couldn't even tell if there was gushing water or anything like that. And so he is on a limited income. A 76 year old woman called me from Mililani, that other previous person was from Kalihi, from Mililani and she is living on paycheck to paycheck and social security. She's been a faithful Board of Water Supply customer, has never been late, always paid her bill in

full. She received a back bill in estimate going back six months for $600, and I understand you do have a rule where you do work with people as long as they pay within a year, I think she was told. But unfortunately, her income was so limited that she wanted to pay $25 a month, and I guess when you spread it out over many months, she'd have to pay $55 a month. And there are many more stories like that. I do want to commend Mr. Lau and Ms. Kitamura for handling so many difficult situations. We definitely respect them in the City Council. Other states and other jurisdictions have put in, boards, have put in their own rules that prohibits large amounts of months of back billing, understanding that many people in our society are just kind of getting by. And I think the saddest stories are the ones that I told you of the elderly who want to pay their share. They don't want to cheat the system and so they want to pay their bills, but when we back bill people for so many months where they can't even fix the problem themselves if there was a leak that caused their high bill, it's very difficult for them to even plan. I talked to another family in my own district who received a $1400 back bill for six months, and they discovered that there was a leak many months back. And they would have loved to have learned more about how they could've discovered the leak themselves or maybe part of the processes more, but also a public relations campaign to educate people that you are in charge of reading your own meter, cause I think in the old days as a child I remember the water guy. We all knew who the water guy was and he'd go up to my grandma and say oh Mrs. Marcos we think you have a leak cause your water use is so much more. So you have to understand that's people's view of how their water is checked and so now that it's changed to a different system, maybe there needs to be some education where the public can be more involved in solving some of the problems that are in their own homes. And so that's really what I'm hoping, is to share the stories with you and thank you for working with the water rate constituents and helping them with their problems. But I would much rather prefer this Board to take up the issue than to put it on a, to vote, cause then of course that would cause a lot of public relations issues. But really the Council doesn't really have any other oversight except for going in that route, so I apologize if it offended anyone. Thank you."

Mr. Miyashiro thanked Ms. Pine, and asked the Board if they would like to request an update on the billing charges and policies. Vice Chair Cypher stated that she would like to get an update. Mr. Lau informed the Board that they would be glad to update them at a future Board meeting.
Mr. Miyashiro thanked Mr. Lau and Ms. Pine. He informed Ms. Pine that she is a great advocate for her constituents and the water rate payers and the Board appreciates her comments.

ITEM FOR INFORMATION NO. 1

BOARD OF WATER SUPPLY MASTER PLAN UPDATE

DISCUSSION:

Mr. Lau thanked the Board for the opportunity to provide them an update. He stated that Barry Usagawa, Program Administrator of the Water Resources Division, would provide the update. Mr. Lau informed the Board that he asked Mr. Usagawa to be the leader and facilitator of the Water Master Plan (WMP), and Mr. Usagawa agreed. Mr. Usagawa thanked Mr. Lau for this opportunity.

Following Mr. Usagawa's presentation, Mr. Lau informed the Board that their approval of the WMP will be very important because based on the original creation of the BWS, the Board was created to be able to do long-term planning based on the needs of the water system. This WMP will provide that vehicle for the Department to move forward. It will be updated periodically as conditions necessitate, but it's very important that the Board have an active role in approving and supporting the WMP because it is the Department's future.

Ms. Cypher suggested that in the Communications implementation, the phrase "Community Relations" be included because public outreach involves a healthy working relationship with the customers and the community that the Department affects. Community Relations is more of a holistic approach. Mr. Usagawa thanked Ms. Cypher for that suggestion because the objectives of an overall communications plan is to develop trust and confidence in the BWS as a provider of high quality, safe and reliable water; develop an understanding of the complexities of water service; and to establish the BWS as a source of that information on Oahu. Ms. Cypher added that Ms. Pine's testimony was about relationships with the customers, and it's not just BWS telling them something, it's also BWS hearing their concerns and possibly changing the Department's ways at times based on their concerns.

Board Member Wong commented that any plan is only as good as its implementation and to implement organizational changes can be very difficult. It's only possible through really strong leadership. Mr. Wong inquired if there was thought to include leadership management training on skills like motivation, coaching, disciplining, and meeting facilitation, to educate the leaders on how to institute organizational change. Mr. Lau thanked and agreed with Mr. Wong's suggestion and asked him and the rest of the Board Members for suggestions on training resources.

Mr. Miyashiro inquired about succession planning. He stated that the leaders here today will not be here 30 years from now. He also stated that the best technical expert may not necessarily be the best leader, so he suggested that the Department draw on outside resources to help identify leadership skills on different levels within the organization. Ms. Cypher recommended Jim Bagnola who provided training to BWS in the past.

Mr. Lau stated that the WMP is important to succession planning because it defines policies and procedures in the long-term, and it gets passed on to the next generation to make them familiar with the organization and where it's headed and why. Mr. Lau added that there are more mid-management levels in the organization and asked Mr. Usagawa to share with the Board who are involved in the WMP. Mr. Usagawa explained that the Technical Review Committee is led by the division heads: Daryl Hiromoto of the Field Operations Division, Kevin Ihu of the Water System Operations Division (WSO), Jason Takaki of the Capital Projects Division (CP), and Barry Usagawa of the Water Resources Division (WR). Mr. Usagawa continued to explain that there are content experts in various disciplines: the CIP lead is Scot Muraoka of WR, the Condition

Assessment lead is Mike Domion of CP, the Water System Analysis leads are Tom Otaguro of WR and Lyann Okada of the Information Technology Division, the Water Sources leads are Glenn Oyama of WR and someone from WSO, the Water Quality and Treatment lead is someone from the Water Quality Division, the Financial Plan and Rate Study lead is Paul Kikuchi of the Finance Division, and the Communications Plan lead is Tracy Burgo of the Communications Office.
Mr. Usagawa informed the Board that the Technical Review Committee started off as two separate committees; one consisting of the division heads and the other consisting of the middle managers. They have since joined the two into one committee so that the middle managers can experience how and why the division heads make their decisions by taking every aspect into consideration.

WATER FOR LIFE
Ka Wai Ola

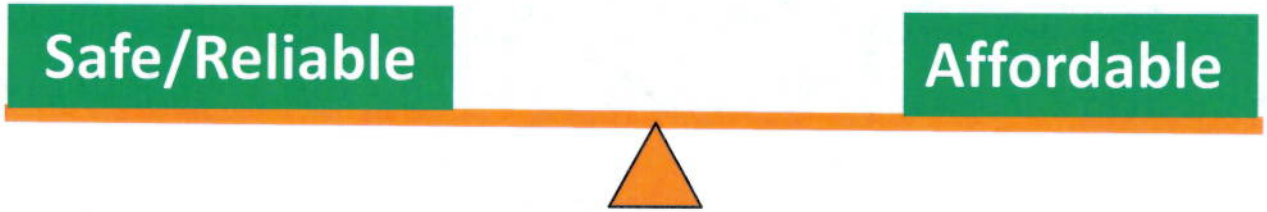
Board of Water Supply
City and County of Honolulu

Honolulu Board of Water Supply
Water Master Plan
Quarterly Status Update

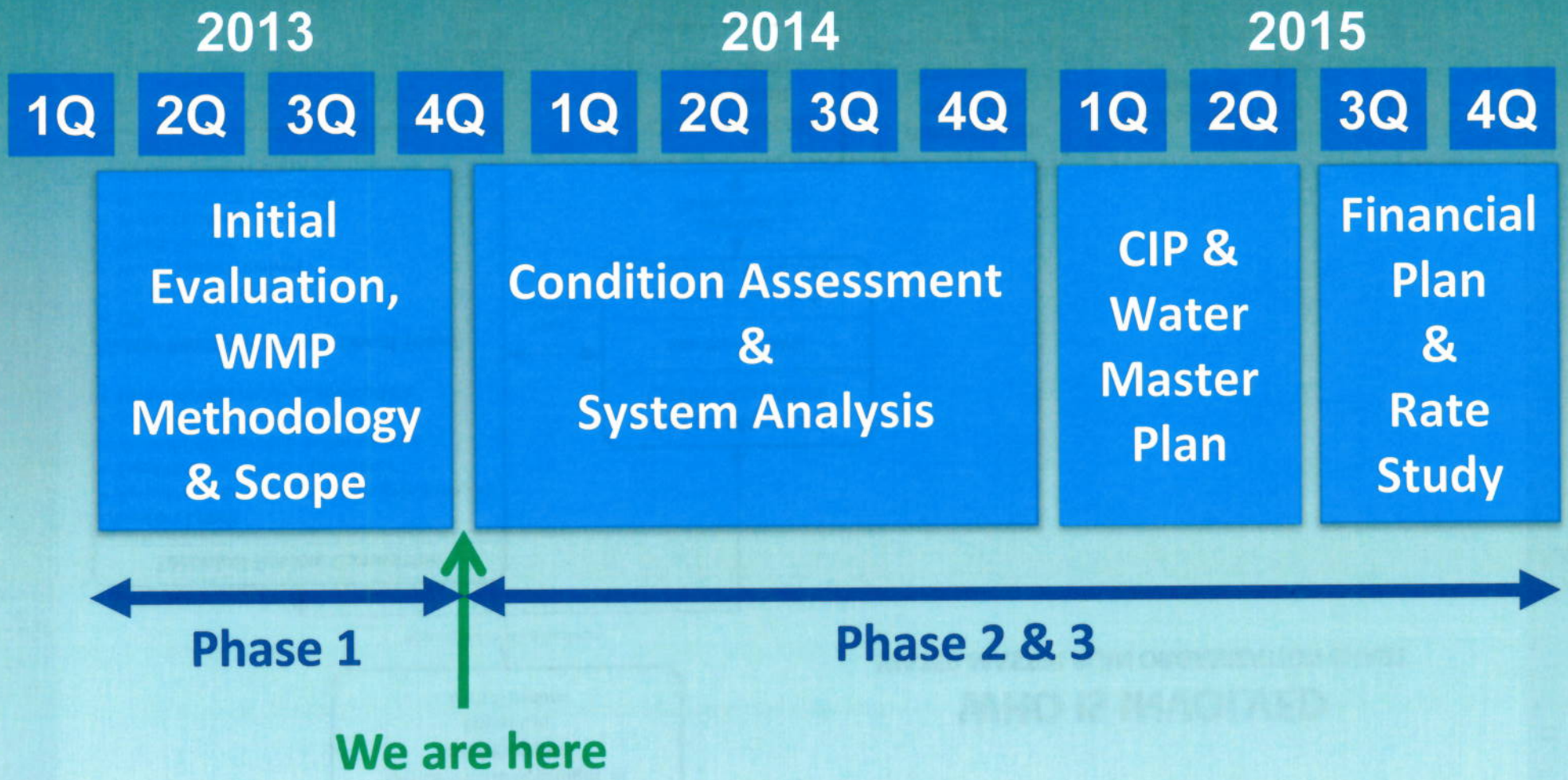
October 28, 2013

What is the Water Master Plan?

A program to ensure a safe, reliable and affordable water supply for now and generations to come

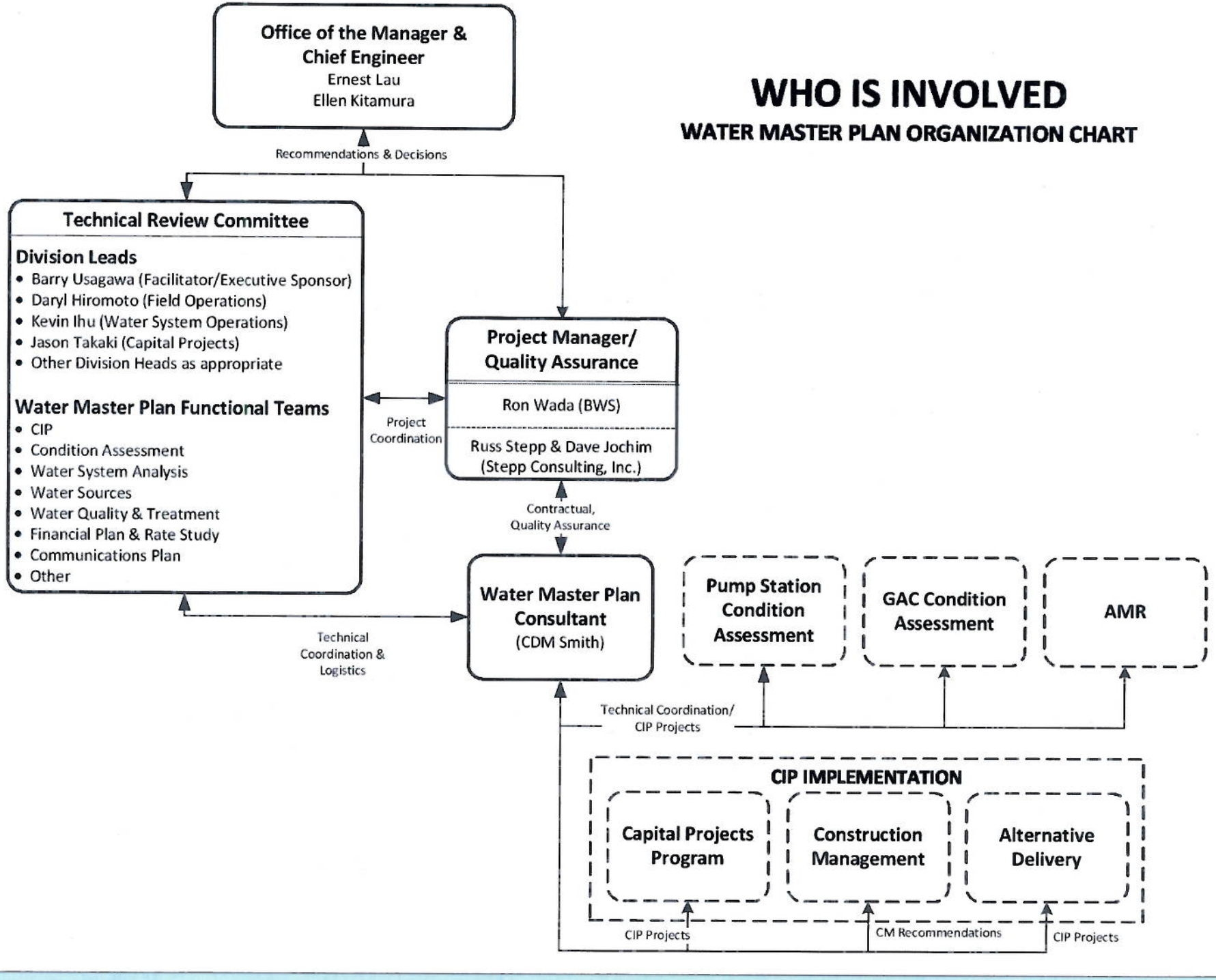


What is the Schedule & Where are we now?



WHO IS INVOLVED

WATER MASTER PLAN ORGANIZATION CHART



What We've Found & Done

Initial Evaluation

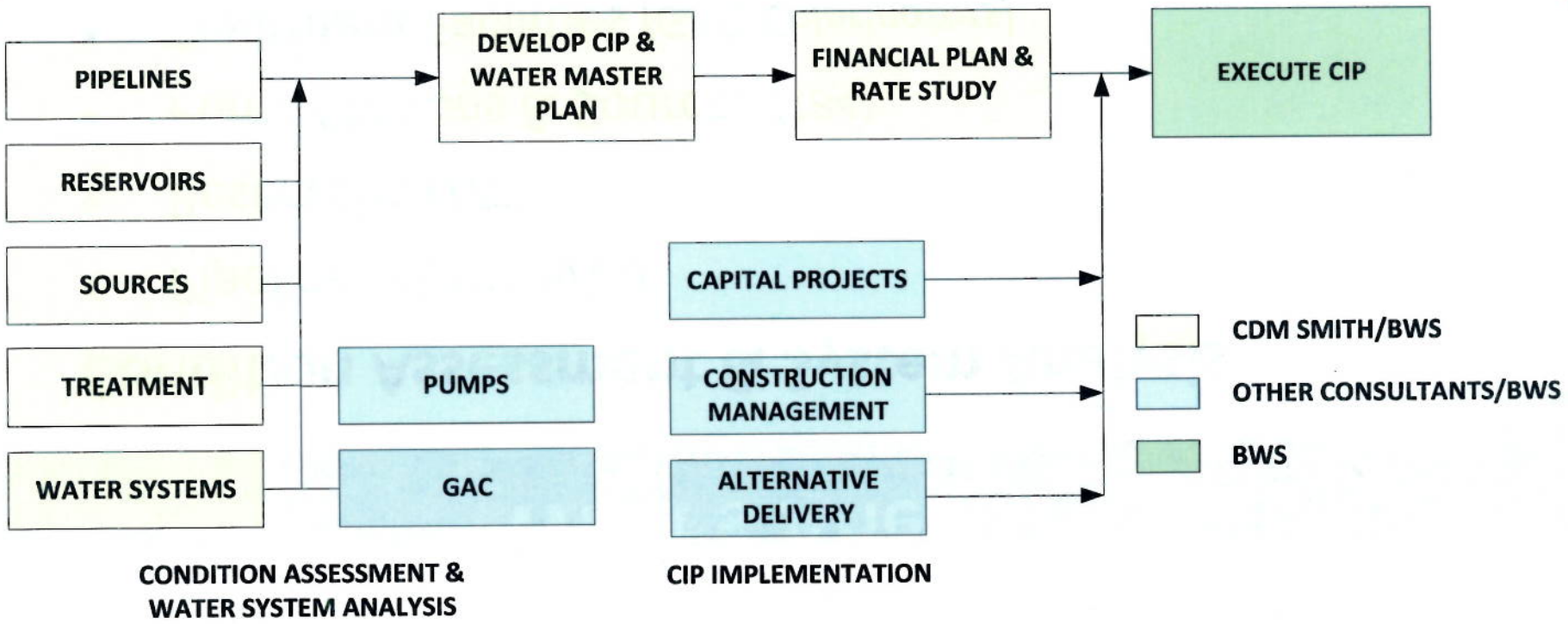
- **Cause of Main Breaks:** *Corrosion, pressure, construction problems*
- **Pipeline:** *Evaluated and tested technology, and developed methodology for condition assessment*
- **Reservoirs:** *Visited selected sites, analyzed designs and developed methodology for condition assessment*
- **Water System:** *Reviewed BWS GIS and Hydraulic Model and developed water system analysis plan. Conducted transient analyses*

What We've Found & Done

Work Done

- **Developed Methodology and Scope**
- **Standby Generators**: *Developing fixed generator plan and design/build/maintain project for 3 generators*
- **CIP Implementation:** *Contracted with Brown & Caldwell to review process and organization*
- **Construction Management**: *Contracted with Bowers & Kubota to review process and organization*
- **Communications**: *Developed communications plan*

What's Ahead?


PIPELINES
RESERVOIRS
SOURCES
TREATMENT
WATER SYSTEMS
PUMPS
GAC
CONDITION ASSESSMENT & WATER SYSTEM ANALYSIS
DEVELOP CIP & WATER MASTER PLAN
FINANCIAL PLAN & RATE STUDY
EXECUTE CIP
CAPITAL PROJECTS
CONSTRUCTION MANAGEMENT
ALTERNATIVE DELIVERY
CIP IMPLEMENTATION
CDM SMITH/BWS
OTHER CONSULTANTS/BWS
BWS

What's Ahead?

Condition Assessment & System Analysis

- Pipelines *(2,100 miles)*
- Reservoirs *(172)*
- Pump Stations & Sources *(184)*
- Treatment Facilities *(GAC, Chlorinators)*
- Water System Analysis
  - *Computer Hydraulic Modeling Construction & Calibration*
  - *Single Points of Failure, Fire Protection, High/Low Pressures, Cross-Country Pipes, Transient Analyses*
  - *System Adequacy, Reliability & Efficiency*

What's Ahead?

Capital Improvement Program

- Define projects
- Prioritize projects
- Estimate cost & schedule
- Develop 30 year CIP

What's Ahead?

Financial Plan and Rate Study

- Develop revenue requirements
- Financial Plan development
- Rate Study and Impact Fees
- Public Outreach

What's Ahead?

Implementation

- Evaluate BWS processes and organization
- Develop and implement Best Practices
- Implement organizational changes

What's Ahead?

Communications Implementation

- Develop Stakeholder Involvement & Support
- Proactive Messaging
- Develop Communications Plan Metrics
- Develop Informational Material

What's Ahead?

Water Master Plan

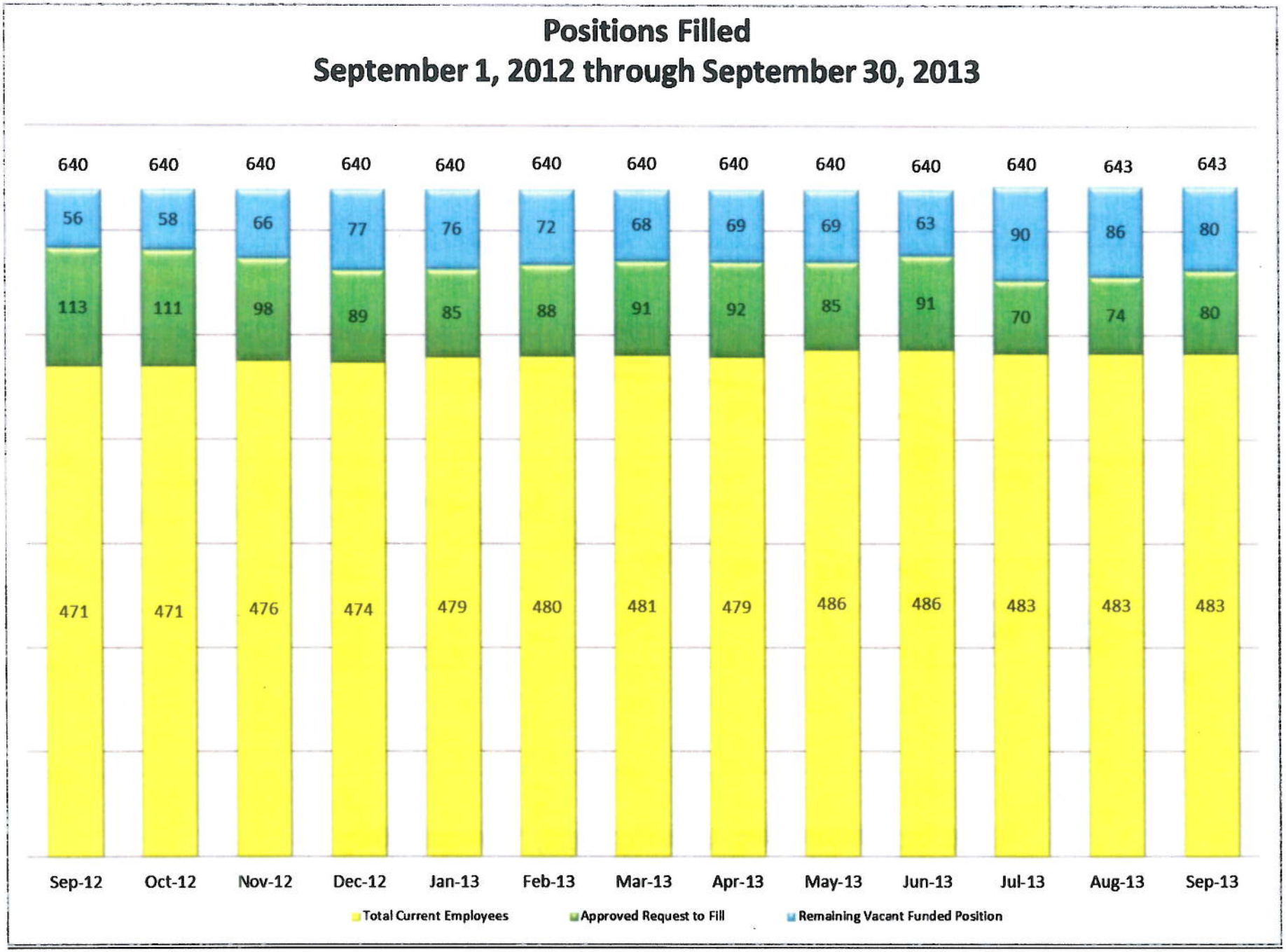
- **Description of Water Systems:** *Current & Projected Water Demands, Water Conservation*
- **Findings from Other Projects:** *Operation & Maintenance, Capital Projects Program, Construction Management*
- **Planning Approach and Methodology:** *Policies, Level of Service, Evaluation Criteria*
- **Water System Analysis:** *Modeling, Adequacy, Reliability, Efficiency Recommendations*
- **CIP:** *Identification & Evaluation of Projects; Prioritization, Ranking and Scheduling of Capital Projects*
- **Financial Plan and Water Rate Study:** *Revenues, Cost of Service and Rate Design*

How Will the Board Be Involved?

- Quarterly Updates
- Workshops
- Water Master Plan Approval
- CIP and Rate Approvals

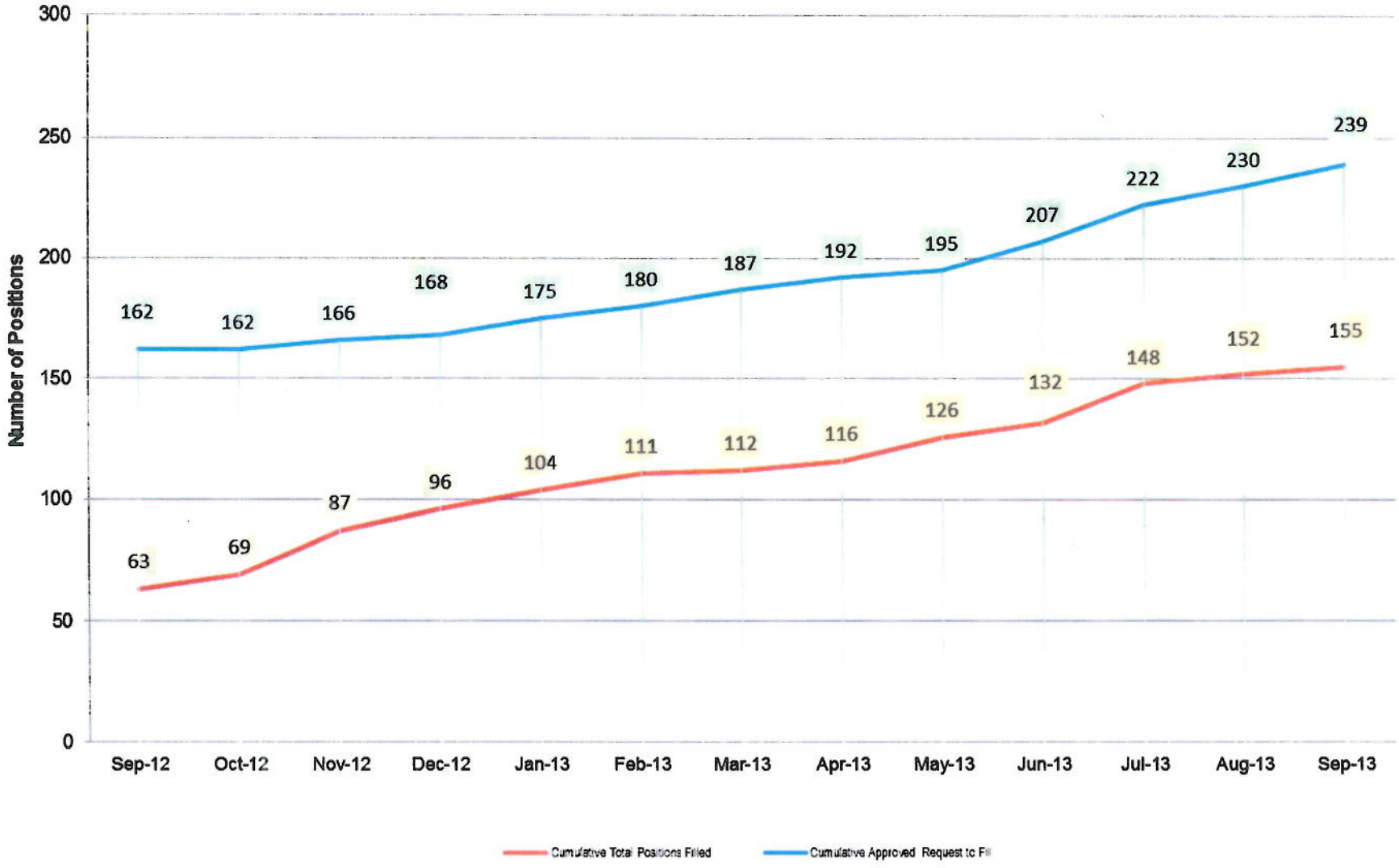
Questions?

ITEM FOR INFORMATION NO. 2



Actions: 1 New Hire, 2 Promotions, 1 Separation, 9 New approvals to fill

Cumulative Totals
September 1, 2012 through September 30, 2013



DISCUSSION: Karen Tom from the Human Resources Office informed the Board that a footnote was added on the first graph to show the activity for the month. Ms. Tom reported that recruitment activity in September involved: nine requests for lists of candidates that are pending at the Department of Human Resources (DHR) to fill 19 positions; six internal recruitments were conducted to fill 10 positions; divisions interviewed for 22 positions; and interview questions for seven different jobs were worked on.

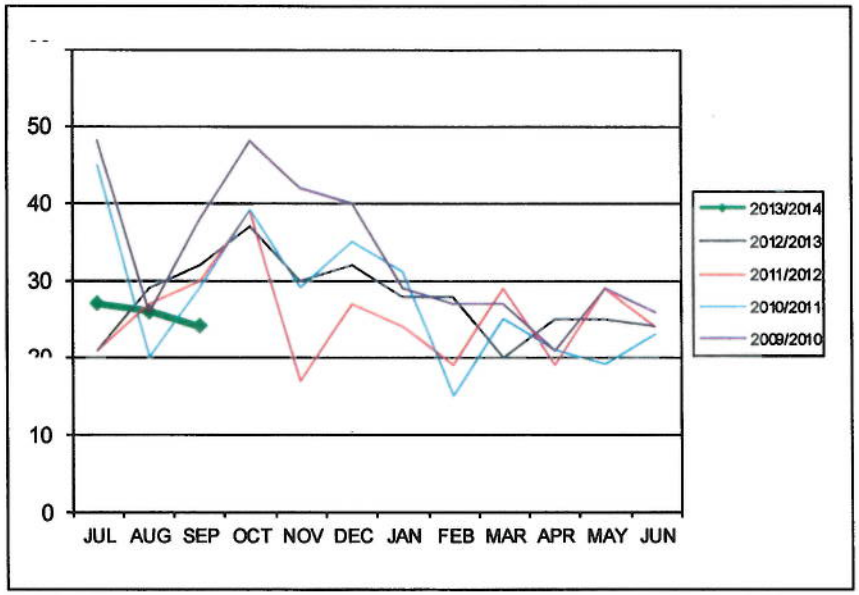
There were no comments or discussion.

WATER MAIN REPAIR REPORT

for September 2013

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	Total
2013/2014	**27**	**26**	**24**										**77**
2012/2013	21	29	32	37	30	32	28	28	20	25	25	24	331
2011/2012	21	27	30	39	17	27	24	19	29	19	29	24	305
2010/2011	45	20	29	39	29	35	31	15	25	21	19	23	331
2009/2010	48	26	38	48	42	40	29	27	27	21	29	26	401

Date	Address	Size	Cause
9/1	99-1723 Hoapono Pl.	6" C.I.	settlement
9/2	Paakea Rd. & Iliili Rd.	12" P.V.C.	unknown
9/4	95-223 Auhaele Lp.	6" A.C.	corrosion
9/4	3664 Waaloa Wy.	12" C.I.	corrosion
9/7	539 N. Kainalu Dr.	6" C.I.	corrosion
9/8	87-115 Kipaoa Pl.	4" D.I.	corrosion
9/14	92-898 Palailai St.	4" C.I.	corrosion
9/14	2340 Kamehameha Hwy.	6" C.I.	unknown
9/18	264 Ilihau St.	12" A.C.	corrosion
9/19	47-886 Kamehameha Hwy.	6" D.I.	corrosion
9/20	44-706 Nanamoana Pl.	8" C.I.	corrosion
9/20	95-263 Waimakua Dr.	8" A.C.	unknown
9/20	1059 9th Ave.	6" C.I.	corrosion
9/21	Kamehameha Hwy.	36" C.C.	unknown
9/22	85-648 Piliuka Pl.	12" P.V.C.	bear on rock
9/24	94-201 Mahapili St.	8" A.C.	settlement
9/25	437 Namahana St.	6" C.I.	unknown
9/26	45-434 Lupo St.	8" C.I.	unknown
9/26	2112 Mott-Smith Dr.	6" C.I.	unknown
9/27	1414 Olino St.	8" C.I.	unknown
9/27	5125 Poola St.	4" C.I.	unknown
9/27	94-203 Mahapili St.	8" A.C.	corrosion
9/28	5122 Poola St.	4" C.I.	corrosion
9/29	735 Bishop St.	6" C.I.	unknown



Bold * - Pro-active Leak Repair

15.5 miles of pipelines were surveyed by the Leak Detection Team in the month of September

DISCUSSION:

Program Administrator Daryl Hiromoto pointed out that for the month of September, the main break trend was on the low side. He stated that this is a good indicator of the efforts put in by Tom Otaguro, the City Employee of the Year, and others who have made significant adjustments to the system. The lower trending equates to system reliability and better service to the customers. Significant efficiencies were gained on the Metro 180 System, and they hope to use the same methodology of the hydraulic modeling in order to gain the same efficiencies on more systems and further reduce breaks.

Ms. Cypher commented that she has noticed the reduction of the big breaks and commended the Department for all their efforts. Mr. Lau also commended the staff for the cooperation and collaboration between divisions to solve problems and take on challenges. Mr. Miyashiro added that with this comes a certain level of risk taking, and Mr. Hiromoto agreed that there's always risk involved, but they ensure that their contingencies are in place. Mr. Miyashiro thanked Mr. Hiromoto.

ITEM FOR INFORMATION NO. 4

"October 28, 2013

GROUNDWATER LEVELS

Chairman and Members
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii 96843

Chairman and Members:

Subject: Status Update of Groundwater Levels at All Index Stations

There are four aquifer index wells within low groundwater status for the production week that ended on October 5, 2013. Punaluu, Kaluanui, and Waihee Tunnel are in caution status, and Kaimuki is under an alert status. The weekly production average for the period was 139.17 million gallons per day.

The Board of Water Supply rainfall index for the month of September was 79 percent of normal, with a 5-month moving average of 100 percent. The U. S. Drought Monitor site is unavailable due to the government budget impasse. The National Weather Service site, however, is forecasting normal precipitation through February 2014, but below average rainfall thereafter to the end of August 2014. Aquifer levels are still in transition into the wet season.

Respectfully submitted,

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

Attachments"

The foregoing was for information only.

DISCUSSION:

Mr. Usagawa explained that for the Waihee Tunnel as of October 5, 2013, the water pressure was based on the water level above the bulkhead taken when the pumps were running, which dropped the water pressure. When the pumps are not running, the water pressure is approximately 30 psi. It is currently the transitional period of the dry season (summer) to the beginning of the wet season (fall). The water resources are in fairly good shape since typically the water level trend will start to increase into the wet season.

There were no comments or discussion.

PUMPAGE, HEAD, AND RAINFALL REPORT

Week of 9/29/13 to 10/05/13

STATION	MGD	HEAD	STATION	MGD	HEAD	STATION	MGD	HEAD		MGD	HEAD
METRO			WINDWARD			EWA-WAIANAE (CONT)			PH (CONT)		
KULIOUOU	0.00					MAKAHA IV	0.00		PEARL CITY II	1.02	
WAILUPE	0.00		WAIMANALO II	0.28		MAKAHA V	0.00		PEARL CITY III	0.43	
WAIALAE-IKI	0.00		WAIMANALO III	0.54		MAKAHA VI	0.24		WAIAU	0.95	
AINA KOA	0.48		KUOU I	0.11		MAKAHA SHAFT	0.00	9.28	NEWTOWN	1.11	
AINA KOA II	0.65		KUOU II	0.07		KAMAILE	0.85		KAONOHI I	0.84	
WAIALAE SHAFT	0.00		KUOU III	0.74		WAIANAE I	0.17		WAIMALU I	0.00	
MANOA II	0.00		LULUKU	1.07		WAIANAE II	0.15		AIEA	0.00	
PALOLO	1.01		HAIKU	0.31		WAIANAE III	0.00		AIEA GULCH 497	0.39	
KAIMUKI HIGH	2.98	21.59	IOLEKAA	0.16		MAKAKILO	0.17		AIEA GULCH 550	0.24	
KAIMUKI LOW	0.72		KAHALUU	0.49		HONOULIULI I	0.58		HALAWA 277	0.78	
WILDER	9.85		WAIHEE	0.00		HONOULIULI II	6.90		HALAWA 550	0.00	
BERETANIA HIGH	3.72	21.64	KAHANA	0.54		SUBTOTAL:	10.69		KAAHUMANU MTR(-)	0.00	
BERETANIA LOW	2.31		PUNALUU I	0.00	16.33	IMPORT FROM PH			KAAMILO FLO MTR (-)	0.00	
KALIHI HIGH	1.10	21.43	PUNALUU II	1.07		KAPOLEI LINE BSTR	15.31		KUNIA I	5.24	18.29
KALIHI LOW	1.99		PUNALUU III	1.16		HONOULIULI LB FLOW	0.67		KUNIA II	2.03	
KAPALAMA	1.55		KALUANUI	1.28		EWA BEACH FLOW	0.17		KUNIA III	1.33	
KALIHI SHAFT	8.33		MAAKUA	0.38		HONOULIULI I (-)	-0.58		HOAEAE	6.71	
MOANALUA	1.55	18.62	HAUULA	0.03		HONOULIULI II (-)	-6.90		EWA SHAFT	0.00	
SUBTOTAL:	36.25					SUBTOTAL:	8.67		WAIPAHU INTCON. (-)	-2.37	
			KAHUKU	0.89					EWA-WAIANAE (-)	-8.67	
IMPORT FROM PH			OPANA	0.43		PEARL HARBOR			PH LOCAL USE:	30.09	
HALAWA SHAFT	7.00	16.28	WAIALEE I	0.48		WAHIAWA	1.56		TOTAL SUBURBAN:	61.72	
KAAMILO	0.00		WAIALEE II	0.54		WAHIAWA II	1.70				
KALAUAO	8.72	16.77	SUNSET BEACH	0.00		MILILANI I	2.41		KALAUAO SPRINGS	0.39	
PUNANANI	11.05		SUBTOTAL:	10.55		MILILANI II	0.00		BARBERS POINT (NP)	0.00	
KAONOHI II	0.00					MILILANI III	0.75		GLOVER TUNNEL (NP)	0.51	
WAIMALU II	0.00	14.77	WIND. EXPORT	0.50		MILILANI IV	1.89				
KAAHUMANU	0.85					WAIPIO HTS.	0.25		HEAD CONDITION		
HECO WAIAU	2.71		HALEIWA-WAIALUA			WAIPIO HTS. I	0.12		CAUTION / ALERT / CRITICAL		
MANANA	0.49		HALEIWA	0.00		WAIPIO HTS. II	0.25		Punaluu / Kaimuki		
KAAHUMANU FLOW MT	0.00		WAIALUA	2.23		WAIPIO HTS. III	0.98				
KAAMILO FLOW MTR	0.00		SUBTOTAL:	2.23		WAIPAHU	2.37	17.96	Waihee		
TOTAL IMP/EXP WAIP. INT:	2.37					WAIPAHU II	0.32		Tunnel		
IMPORT FRM WIND:	0.50		EWA-WAIANAE			WAIPAHU III	3.25				
SUBTOTAL:	33.68		MAKAHA I	0.61		WAIPAHU IV	2.91				
			MAKAHA II	0.17		PEARL CITY SHAFT	0.96	14.44			
TOTAL METRO:	69.93		MAKAHA III	0.84		PEARL CITY I	0.35				

CWRM PERMITTED USE FOR BWS POTABLE SOURCES						PUMPAGE	2013	2012	GRAVITY	2013	2012
	A	B	C	D	E	SUBURB.	61.72	67.20	SUBURB.	7.15	8.84
WATER DISTRICTS	PERMITTED USE	2013	DIFF. B-A	YEAR/ DATE	DIFF. D-A	METRO	69.93	68.39	METRO	0.36	0.37
						TOTAL:	131.65	135.59	TOTAL:	7.51	9.21
HONOLULU	45.27	36.61	-8.66						Manoa	0.17	
WINDWARD	25.21	13.86	-11.35			NUUANU #5			Palolo	0.19	
NORTH SHORE	4.08	4.57	0.49			(rainfall)	2.57"	0.95"	Waim. I&II	0.19	
WAHIAWA	4.27	3.27	-1.00						Waim. III&IV	0.19	
WAIANAE	4.34	3.68	-0.66						Waihee incl.	0.97	
EWA-KUNIA	15.88	7.65	-8.23						Waihee tun.	2.45	
PEARL HARBOR	92.66	68.67	-23.99						Luluku	0.14	
TOTAL:	191.71	138.30	-53.41						Haiku	0.00	
									Kahaluu	1.73	
									Waia. C&C	1.37	
									Waia plant.	0.11	

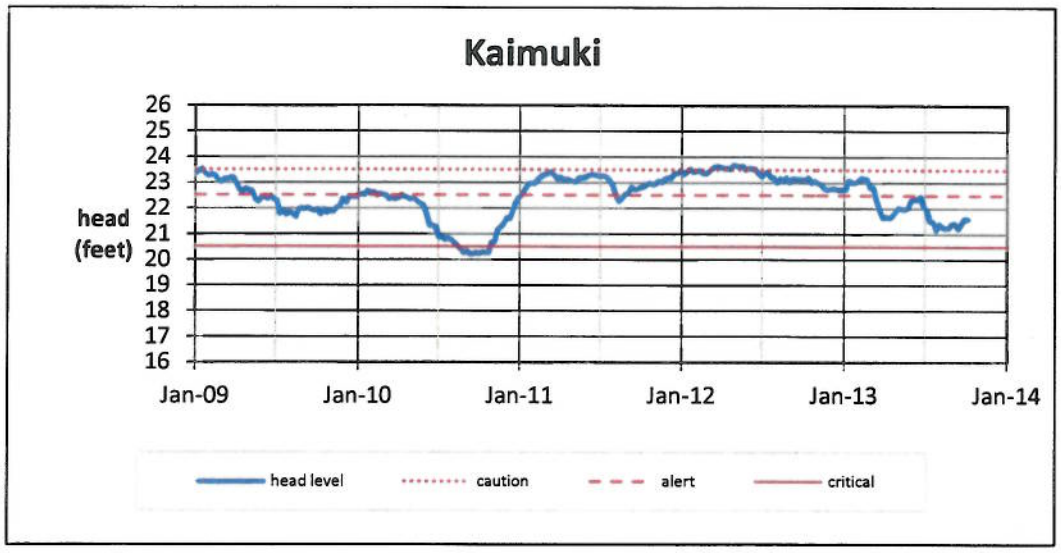
DROUGHT STATUS REPORT
DRAFT IN MGD

WATER USE DISTRICT	AUTHORIZED USE	2012	9/08-9/14 2013	2012	9/15-9/21 2013	2012	9/22-9/28 2013	2012	9/29-10/05 2013
HONOLULU	45.27	32.49	38.25	31.88	36.78	31.55	37.68	31.78	37.11
WINDWARD	25.21	18.81	14.93	16.44	14.95	18.23	12.57	16.24	13.39
NORTH SHORE	4.08	3.30	4.24	3.63	4.24	3.22	4.20	3.54	4.57
WAHIAWA	4.27	2.58	3.49	2.65	3.42	2.56	3.11	2.73	3.27
EWA-WAIANAE	20.22	24.07	23.19	24.30	23.27	25.02	22.78	25.21	20.83
PEARL HARBOR	92.66	62.58	61.84	63.90	61.28	62.55	58.99	64.54	60.01
TOTAL	191.71	143.83	145.93	142.80	143.93	143.14	139.33	144.05	139.17

Accounts for in-district pumpage and transfers

HEAD IN FEET

		2012	9/08-9/14 2013	2012	9/15-9/21 2013	2012	9/22-9/28 2013	2012	9/29-10/05 2013
HONOLULU									
KAIMUKI		23.15	21.21	23.14	21.40	23.12	21.60	23.11	21.59
BERETANIA		23.54	21.64	23.60	21.64	23.62	21.59	23.69	21.64
KALIHI		22.62	21.40	22.67	21.41	22.70	21.42	22.74	21.43
MOANALUA		19.02	18.49	19.11	18.54	19.15	18.53	19.14	18.62
PEARL HARBOR									
HALAWA		16.33	16.12	16.37	16.18	16.43	13.19	16.47	16.28
KALAUAO		16.96	16.72	16.98	16.76	16.99	16.78	17.01	16.77
PEARL CITY		14.72	14.38	14.72	14.42	14.71	14.44	14.74	14.44
WAIPAHU		18.29	17.83	18.25	17.85	18.31	17.86	18.26	17.96
KUNIA		18.59	18.15	18.54	18.12	18.58	18.10	18.50	18.29
EWA-WAIANAE									
MAKAHA		11.65	7.88	11.98	8.41	12.24	8.86	12.51	9.28
WINDWARD									
PUNALUU		15.69	16.33	15.63	15.88	15.62	16.20	15.64	16.33
KALUANUI		15.54	15.73	15.49	15.75	15.50	15.92	15.54	16.06
NORTH SHORE									
WAIALUA		11.25	11.26	11.28	11.28	11.27	11.34	11.33	11.33


Kaimuki
head (feet)
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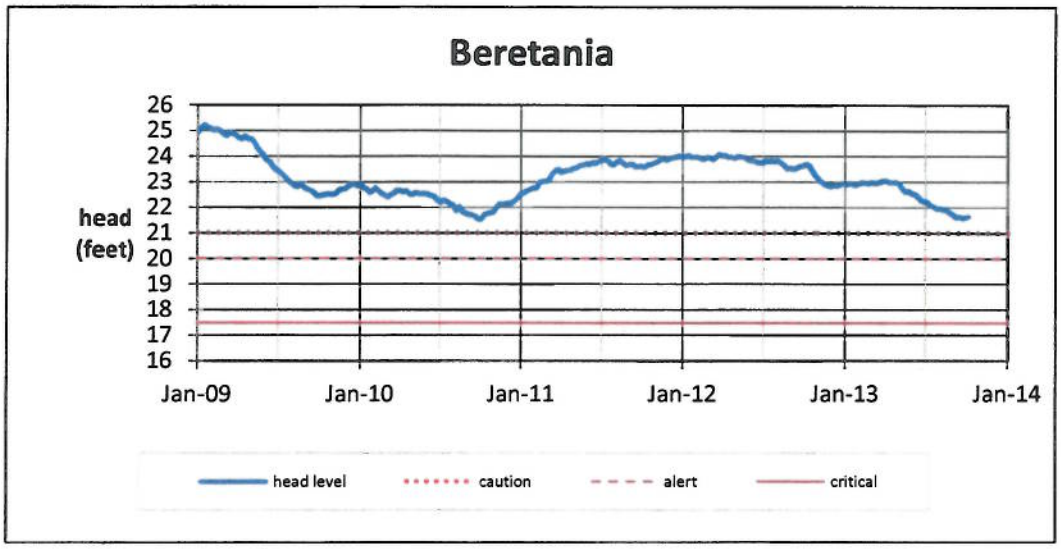
head level
caution
alert
critical


Beretania
head (feet)
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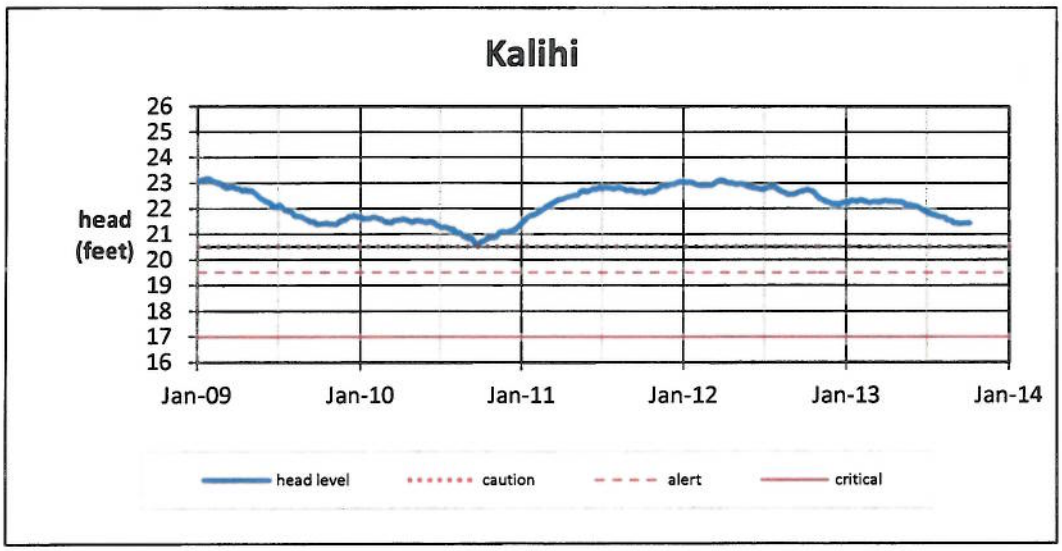
head level
caution
alert
critical


Kalihi
head (feet)
26
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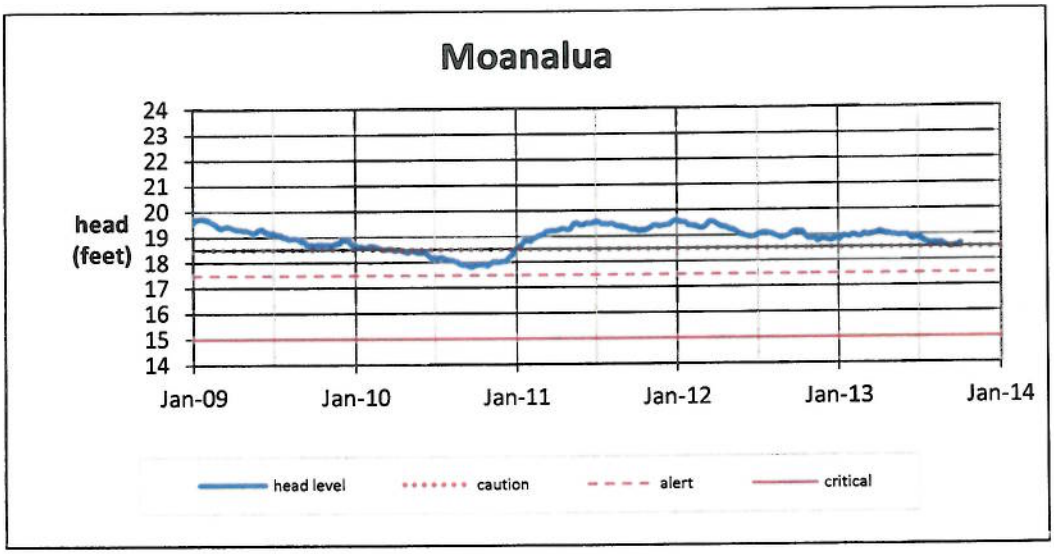
Jan-13
Jan-14
head level
caution
alert
critical


Moanalua
head (feet)
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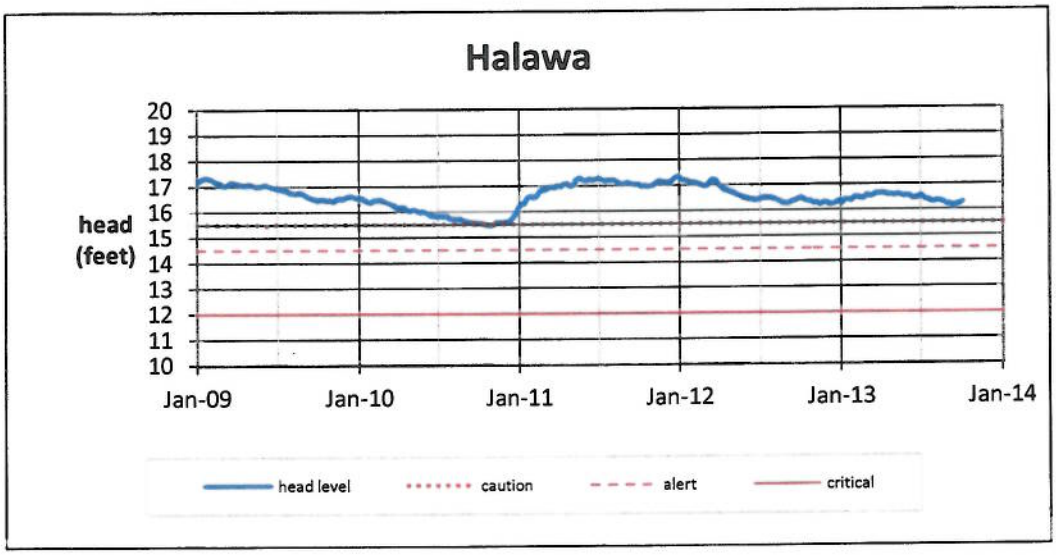
head level
caution
alert
critical


Halawa
head (feet)
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head level
caution
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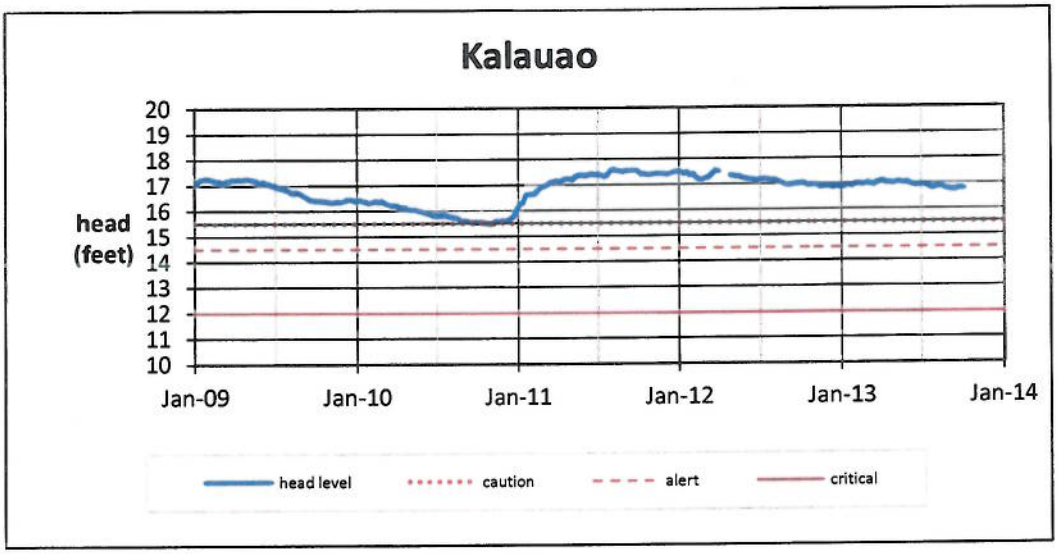
critical


Kalauao
head (feet)
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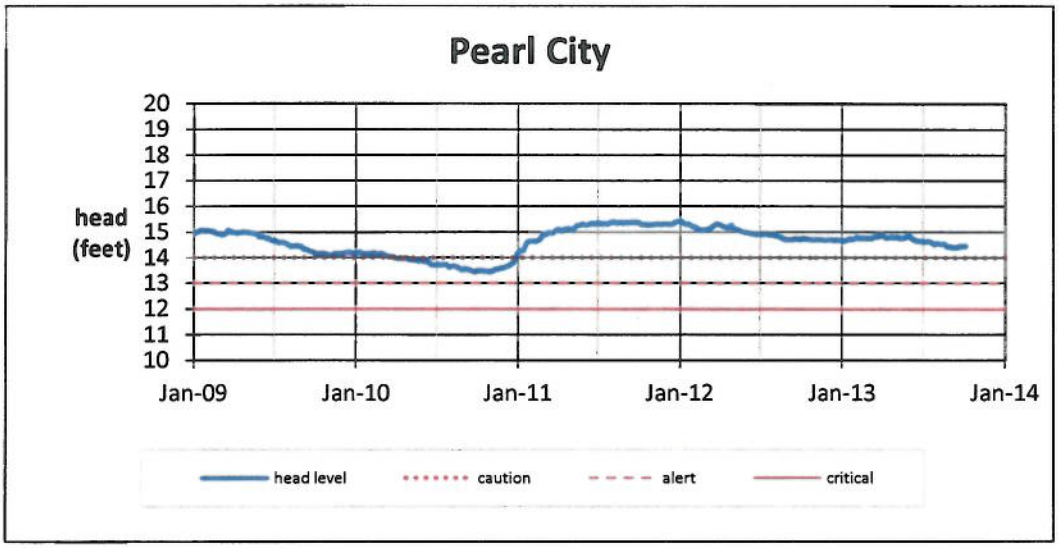
Jan-11
Jan-12
Jan-13
Jan-14
head level
caution
alert
critical


Pearl City
head (feet)
20
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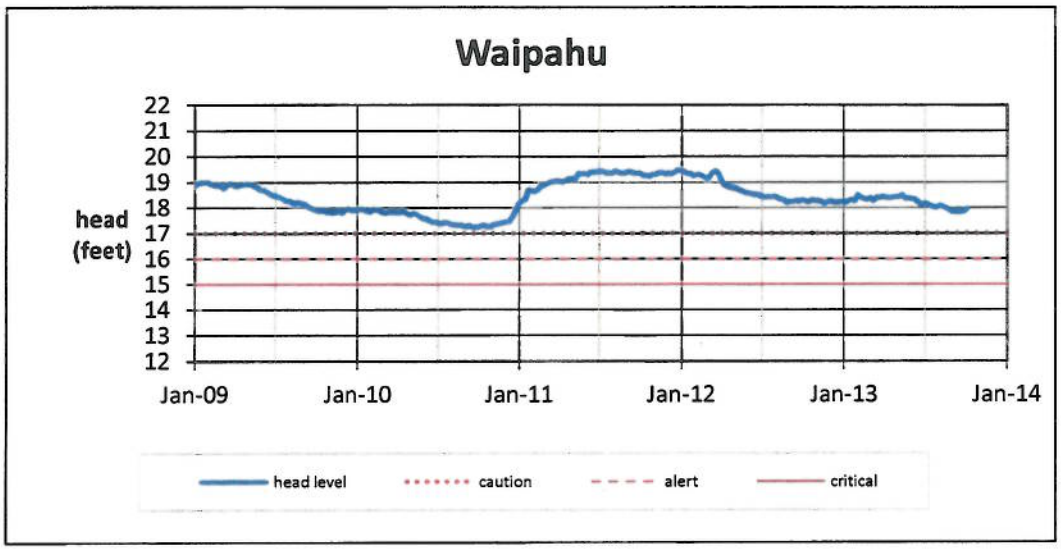
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
head level
caution
alert
critical


Waipahu
head (feet)
22
21
20
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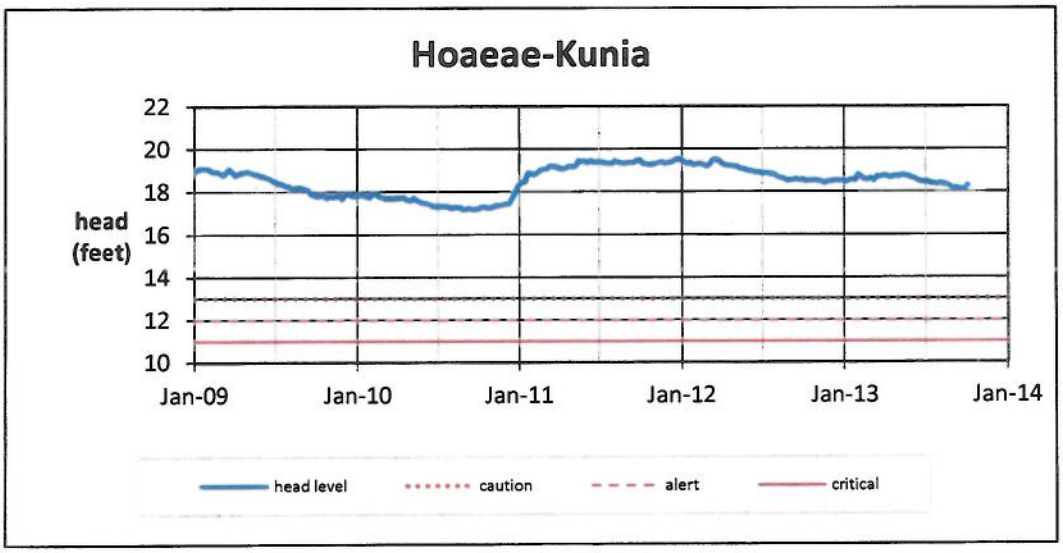
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
head level
caution
alert
critical


Hoaeae-Kunia
head (feet)
22
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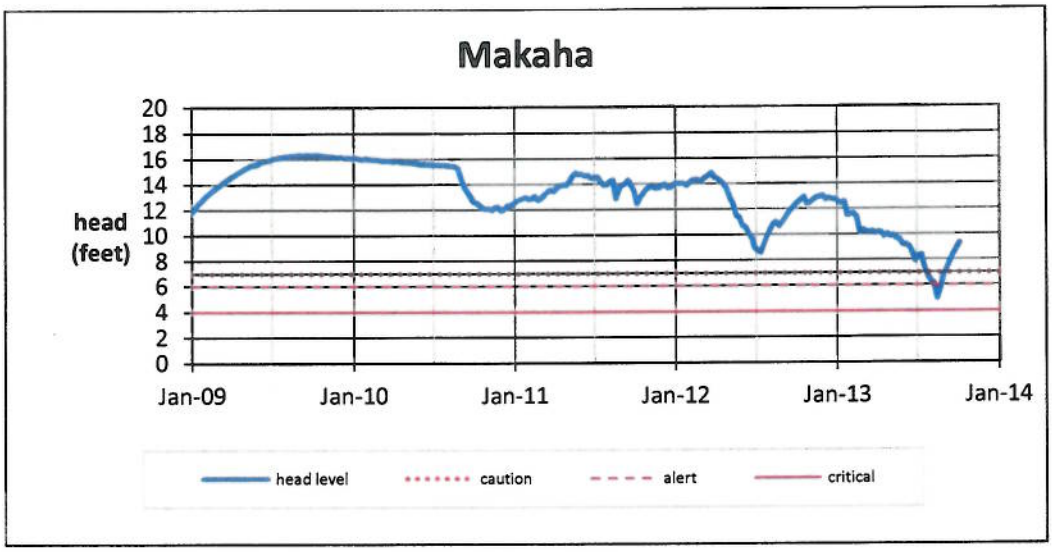
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
head level
caution
alert
critical


Makaha
head (feet)
20
18
16
14
12
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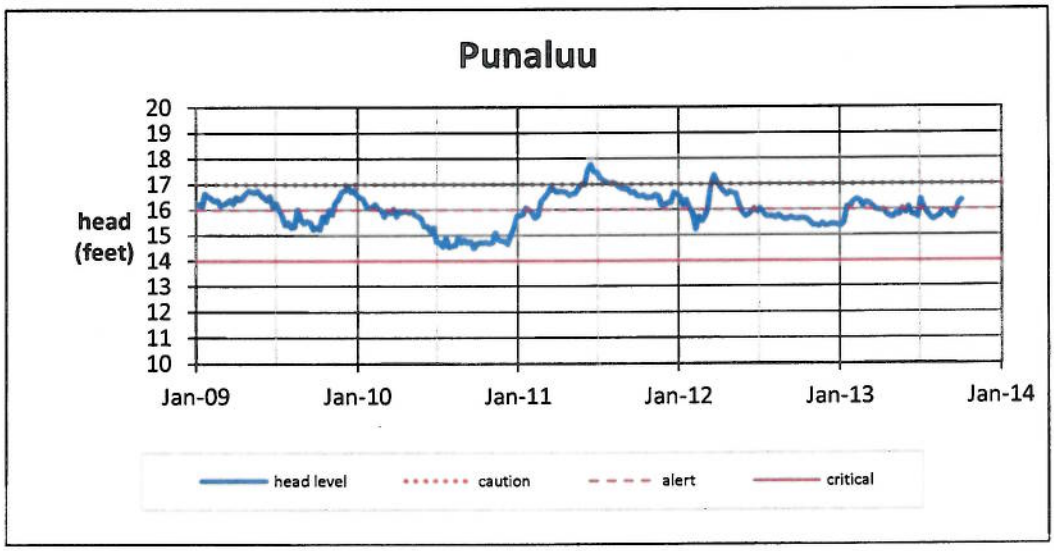
2
0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
head level
caution
alert
critical


Punaluu
head (feet)
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19
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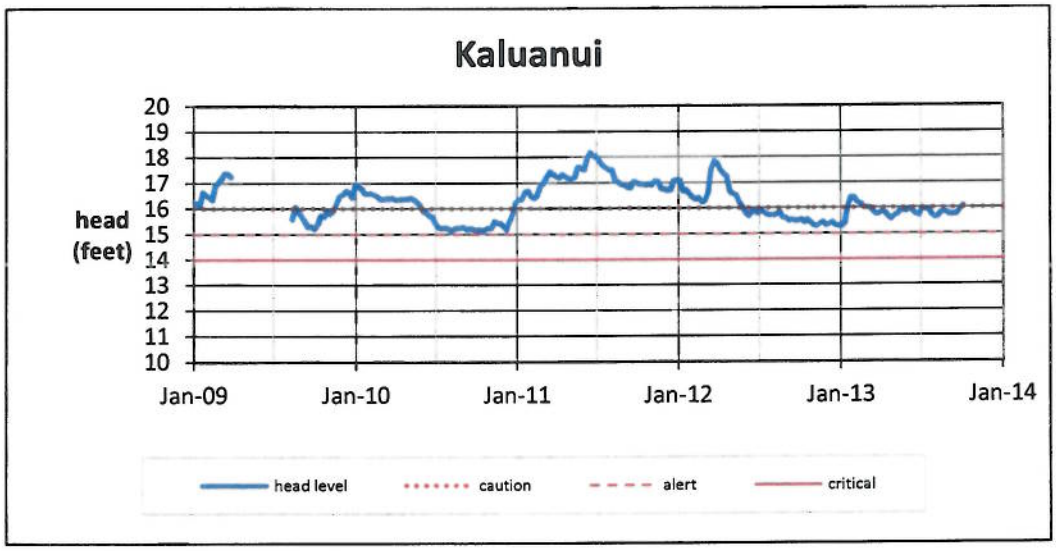
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
head level
caution
alert
critical


Kaluanui
head (feet)
20
19
18
17
16
15
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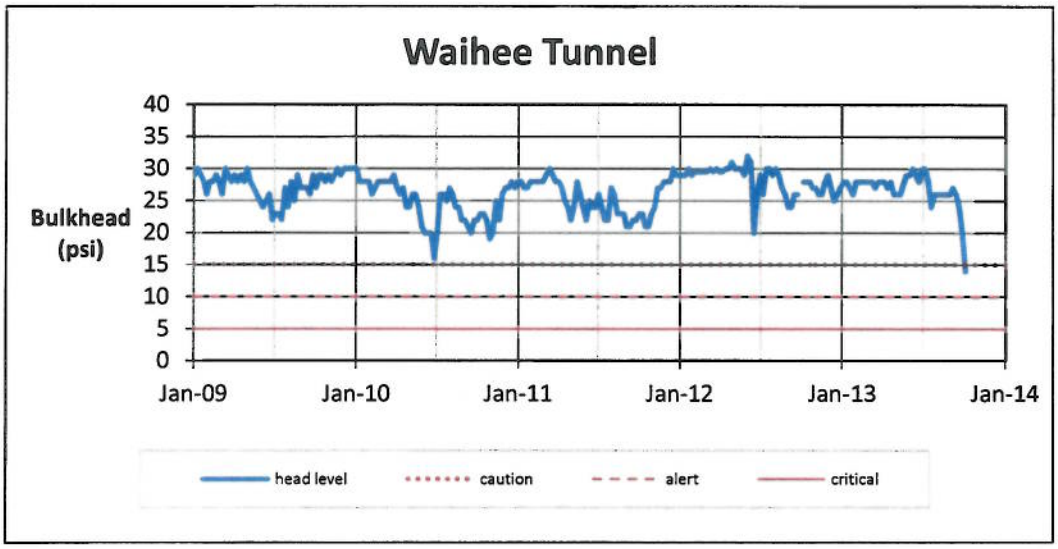
11
10
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
head level
caution
alert
critical


Waihee Tunnel
Bulkhead (psi)
40
35
30
25
20
15
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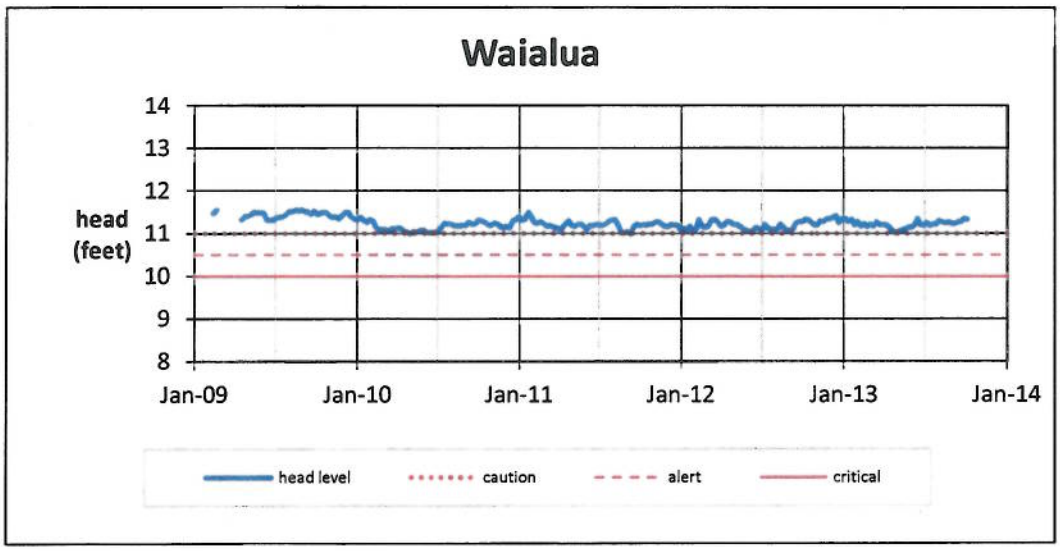
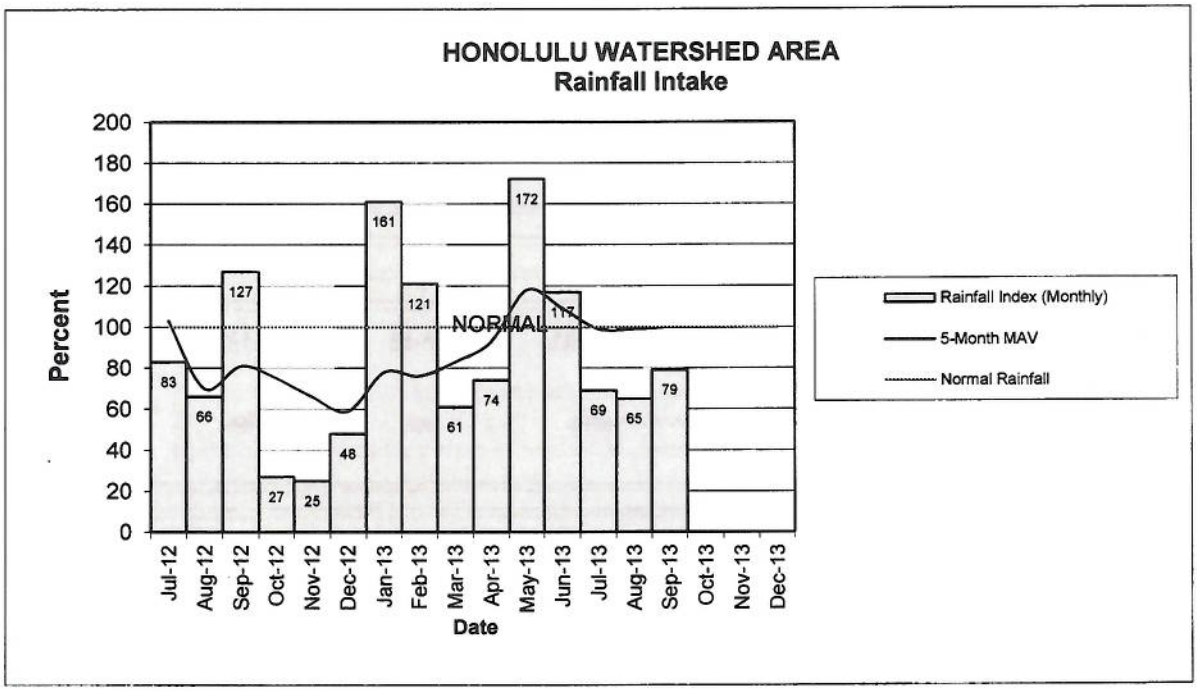
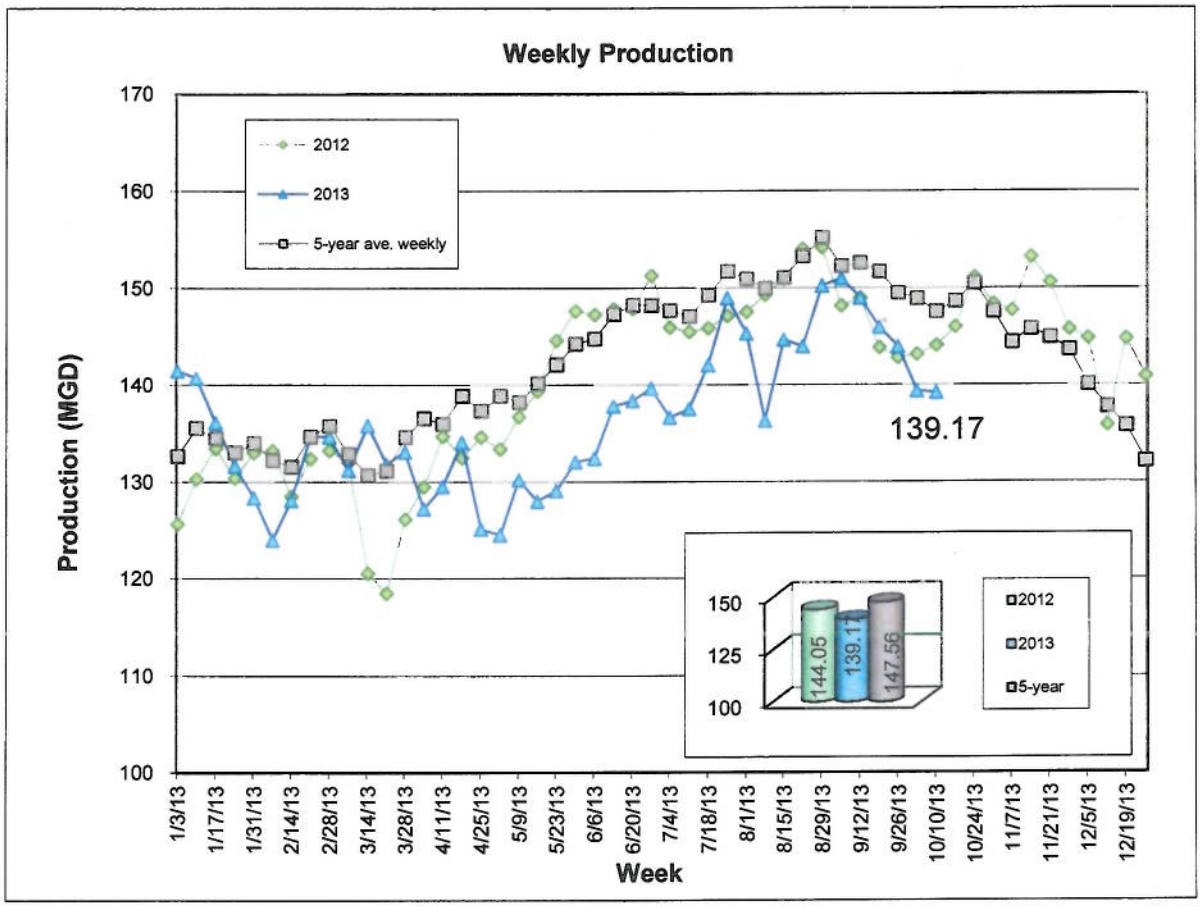
5
0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
head level
caution
alert
critical


Waialua
head (feet)
14
13
12
11
10
9
8
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
head level
caution
alert
critical


HONOLULU WATERSHED AREA
Rainfall Intake
Percent
200
180
160
140
120
100
80
60
40
20
0
83
66
127
27
25
48
161
121
61
74
172
117
69
65
79
NORMAL
Jul-12
Aug-12
Sep-12
Oct-12
Nov-12
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Date
Rainfall Index (Monthly)
5-Month MAV
Normal Rainfall


Weekly Production
Production (MGD)
170
160
150
140
130
120
110
100
2012
2013
5-year ave. weekly
139.17
150
125
100
144.05
139.17
147.56
2012
2013
5-year
1/3/13
1/17/13
1/31/13
2/14/13
2/28/13
3/14/13
3/28/13
4/11/13
4/25/13
5/9/13
5/23/13
6/6/13
6/20/13
7/4/13
7/18/13
8/1/13
8/15/13
8/29/13
9/12/13
9/26/13
10/10/13
10/24/13
11/7/13
11/21/13
12/5/13
12/19/13
Week

ITEM FOR INFORMATION NO. 5

"October 28, 2013

FINANCIAL UPDATE FOR THE QUARTER ENDED SEPTEMBER 30, 2013

Chairman and Members
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii 96843

Chairman and Members:

Subject: Financial Update for the Quarter Ended September 30, 2013

The following Board of Water Supply's financial reports and graphs are attached:

- Budget vs Actual Revenue and Expense Totals
- Statement of Revenues, Expenses and Change in Net Assets
- Balance Sheet
- Budget vs Actual Appropriation Budget – Total BWS Summary
- Graph of Budget vs Actual Expenses from Capital Projects
- Graph Representing Operating Expenditures by Category
- Graphs of Total Budgeted Operating Expenditures and Total Budgeted Operating Revenues

Respectfully submitted,

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

Attachments"

The foregoing was for information only.

DISCUSSION: Chief Financial Officer Paul Kikuchi explained that for the budget versus actual appropriation, the utilities were a little under $2 million, which is due to staff's efforts in finding ways to reduce expenses by running operations more efficiently. Mr. Wong inquired if the budget versus actual expenditures discrepancy is real data. Mr. Kikuchi replied that it is and stated that the actual expenditures are based on fully executed contracts.

Ms. Cypher inquired if the surplus on personnel services is due to the lack of hiring a certain amount of people and does that surplus grow if the Department continues to not hire. Mr. Kikuchi confirmed that this was correct.

Mr. Kikuchi presented the quarterly financial report and update to the Board. In particular, he provided additional explanations on the variance between Budget and Actual expenditures. Mr. Wong inquired on disposition of any unexpended balance and impacts on the Department's Debt Service coverage ratio. Mr. Kikuchi explained that the Department's financial plan requires net revenues in excess of operating expense to meet bond covenants and is used for succeeding year's capital program financing.

Budget vs. Actual
Revenue and Expense Totals
As of September 30, 2013

	YTD Actuals	YTD Budget	Favorable/ (Unfavorable) Variance
Revenues	53,710,000	50,880,000	2,830,000
Operating Expenses	(29,501,000)	(41,013,000)	11,512,000
Net Revenues (expenditures)	24,209,000	9,867,000	14,342,000

Board Of Water Supply
Statement of Revenues, Expenses And Change In Net Assets
As of September 30, 2013

Current Month Actual	% Revenue	Last Year Actual	% Revenue	Description	Year to Date Actual	% Revenue	Last Year to Date Actual	% Revenue	% Change
				REVENUE					
21,380,276.08	100.00	17,097,830.56	100.00	OPERATING REVENUE	53,136,456.89	100.00	48,591,660.41	100.00	9.35
21,380,276.08	100.00	17,097,830.56	100.00	REVENUE	53,136,456.89	100.00	48,591,660.41	100.00	9.35
				OPERATING EXPENSES					
2,453,706.65-	11.48	2,354,554.96-	13.77	LABOR COSTS	7,500,025.99-	14.11	6,078,152.04-	12.51	23.39
619,165.33-	2.90	720,015.26-	4.21	SERVICES	1,900,268.68-	3.58	2,131,462.84-	4.39	10.85-
448,257.52-	2.10	314,552.98-	1.84	SUPPLIES	975,895.23-	1.84	549,985.59-	1.13	77.44
7,138.69-	.03	3,407.75-	.02	EDUCATION & TRAINING	7,835.19-	.01	24,916.13-	.05	68.55-
2,467,835.52-	11.54	3,754,029.17-	21.96	UTILITIES	5,060,411.32-	9.52	3,404,669.00-	7.01	48.63
295,509.97-	1.38	677,428.66-	3.96	REPAIR AND MAINTENANCE	470,486.09-	.89	1,174,142.68-	2.42	59.93-
2,554,988.00-	11.95	1,392,689.67-	8.15	MISC	4,944,675.00-	9.31	3,444,762.06-	7.09	43.54
1,237,653.44-	5.79	1,131,002.18-	6.61	RETIREMENT SYSTEM CONTRIBUTIO	2,674,032.31-	5.03	5,545,743.77-	11.41	51.78-
64,657.14-	.30	18,993.00	.11	MISC EMPLOYEES' BENEFITS	48,183.21	.09	98,981.70	.20	51.32-
10,148,912.26-	47.47	10,328,687.63-	60.41	OPERATING EXPENSES	23,485,446.60-	44.20	22,254,852.41-	45.80	5.53
95,489.10	.45	968,603.97-	5.67	NON OPERATING REVENUE AND EXPE	908,686.85-	1.71	1,616,720.20-	3.33	43.79-
254,363.39	1.19	2,302,254.64	13.47	CONTRIBUTION IN AID	2,059,848.05	3.88	3,728,772.51	7.67	44.76-
3,471,396.44-	16.24	5,079,623.31-	29.71	OTHER EXPENSES	10,199,663.02-	19.20	12,332,041.35-	25.38	17.29-
8,109,819.87	37.93	3,023,170.29	17.68	Change In Net Assets	20,602,508.47	38.77	16,116,818.96	33.17	27.83

Board Of Water Supply
Balance Sheet
As of September 30, 2013

	********** Amounts **********			********** Change **********	
Description	Current	Last Month End	Last Year End	This Month	This Year
ASSETS					
CURRENT ASSETS	45,224,366.02	37,156,695.35	39,231,152.60	8,067,670.67	5,993,213.42
RESTRICTED ASSETS	3,447,138.44	1,511,760.34	15,820,173.22	1,935,378.10	-12,373,034.78
INVESTMENTS	200,314,679.13	197,723,436.92	194,327,978.98	2,591,242.21	5,986,700.15
OTHER ASSETS	8,939,311.23	9,652,454.53	8,861,200.80	-713,143.30	78,110.43
PROPERTY / PLANT	1,135,664,119.65	1,134,858,745.86	1,138,464,175.73	805,373.79	-2,800,056.08
TOTAL ASSETS	1,393,589,614.47	1,380,903,093.00	1,396,704,681.33	12,686,521.47	-3,115,066.86
LIABILITIES					
CURRENT LIABILITIES	12,554,590.59	7,341,621.82	29,685,255.92	5,212,968.77	-17,130,665.33
OTHER LIABILITIES	24,082,174.33	24,644,471.19	28,874,707.12	-562,296.86	-4,792,532.79
BONDS PAYABLE, NONCURRENT	287,556,663.46	287,630,613.77	289,351,020.25	-73,950.31	-1,794,356.79
LIABILITIES	324,193,428.38	319,616,706.78	347,910,983.29	4,576,721.60	-23,717,554.91
NET ASSETS					
RETAINED EARNINGS	344,790,580.64	343,401,551.20	331,998,095.37	1,389,029.44	12,792,485.27
FUND BALANCE	594,633,831.66	594,633,831.66	594,633,831.66		0.00
RESERVE FOR ENCUMBRANCES	108,760,948.85	110,149,978.29	121,553,434.12	-1,389,029.44	-12,792,485.27
CURRENT YEAR CHANGES TO FU	21,210,844.94	13,101,025.07	608,336.47	8,109,819.87	20,602,508.47
NET ASSETS	1,069,396,206.09	1,061,286,386.22	1,048,793,697.62	8,109,819.87	20,602,508.47
TOTAL LIABILITIES AND NET ASSETS	1,393,589,634.47	1,380,903,093.00	1,396,704,680.91	12,686,541.47	-3,115,046.44

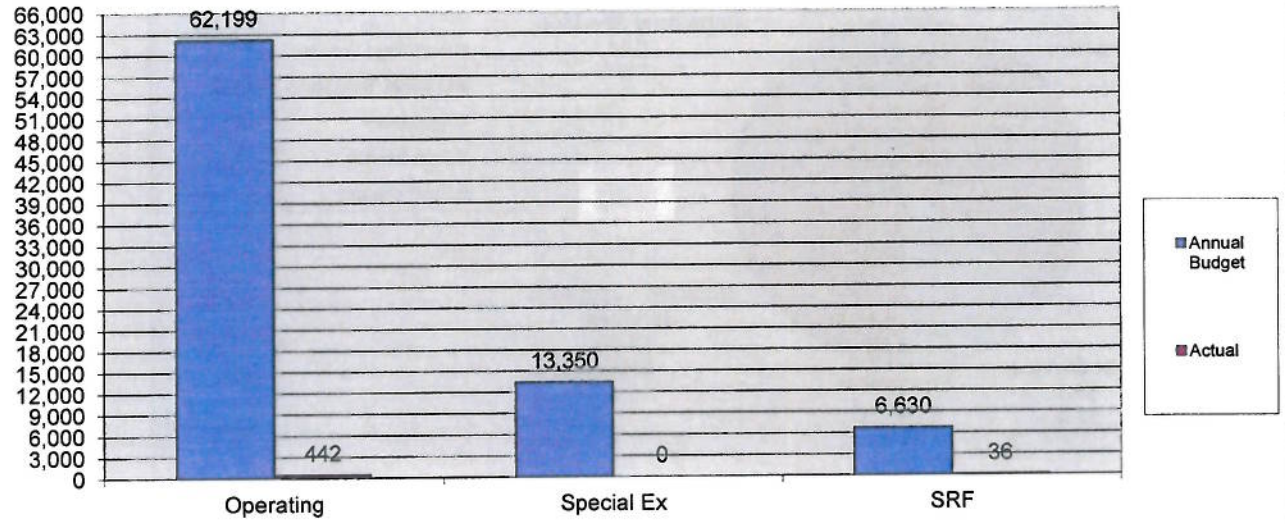
($000's)

OPER UNIT ALL CIFIS 14820-3021

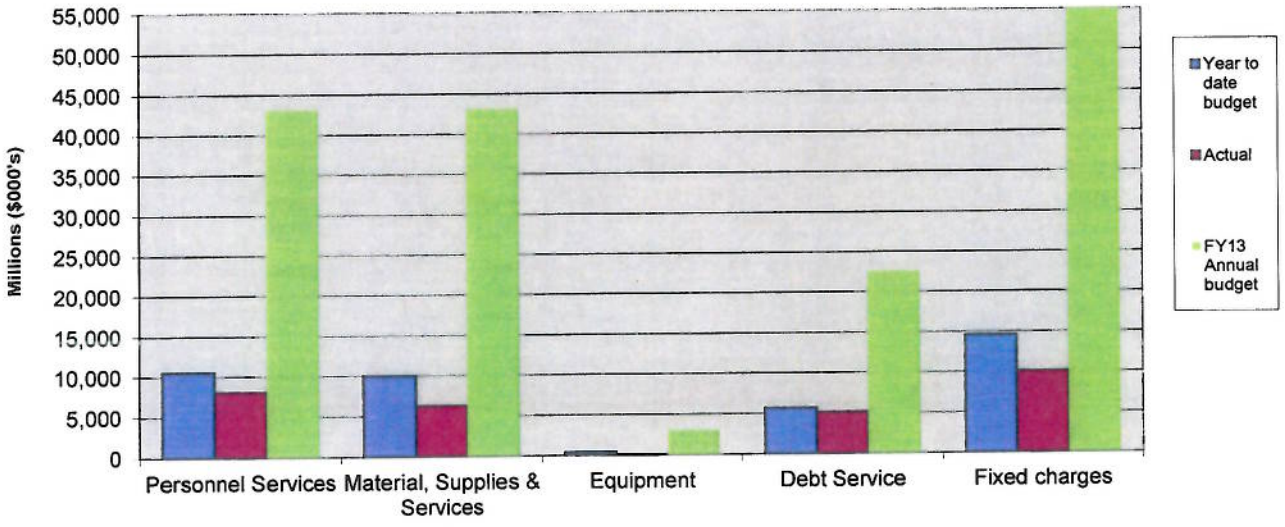
BUSINESS UNIT ALL AS OF 9/30/2013

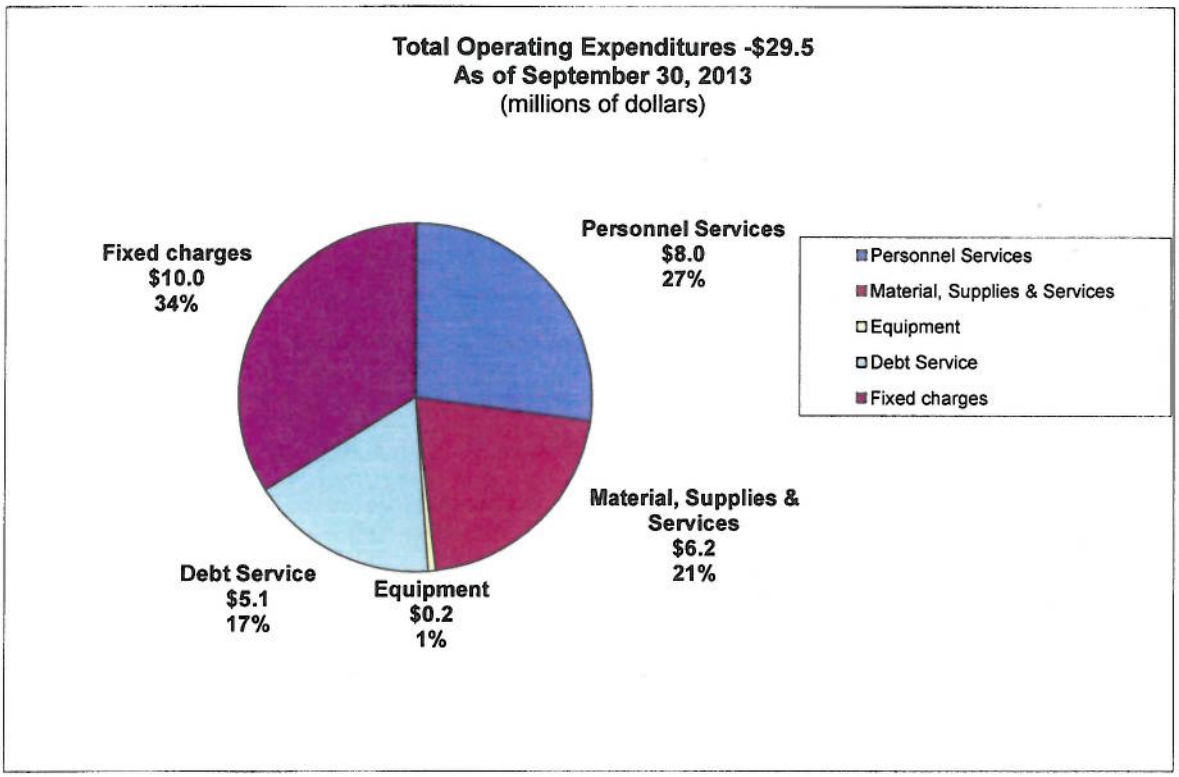
YTD-TO-DATE					FOR THE FISCAL YEAR				
YTD Actuals	YTD Budget	Avail/ (Over)	%	Object Description	Revenues/ Expend	Open Encumb	Annual Budget	Avail/ (Over)	%
53,710	50,880	(2,830)	5.56-	REVENUE	53,710		203,518	149,808	73.61
				OPERATING EXPENSES:					
8,048	10,484	2,436	23.24	Personnel Services	8,048		43,021	34,973	81.29
				MATERIALS AND SUPPLIES					
2,003	4,155	2,152	51.79	Services	1,161	842	18,213	16,210	89.00
1,187	2,339	1,152	49.25	Supplies	1,036	151	10,057	8,870	88.20
24	84	60	71.43	Education & Training	15	9	478	454	94.98
	3	3	100.00	Utilities			14	14	100.00
486	672	186	27.68	Repairs & Maint	285	201	4,207	3,721	88.45
2,551	2,719	168	6.18	Misc	2,338	213	10,095	7,544	74.73
25	370	345	93.24	Equipment		25	2,950	2,925	99.15
5,127	5,620	493	8.77	Debt Service	5,127		22,479	17,352	77.19
				FIXED CHARGES:					
5,956	7,953	1,997	25.11	Utilities	5,956		31,813	25,857	81.28
825	825			Case Fees	825		3,300	2,475	75.00
1,793	1,890	97	5.13	Retirement System Contribution	1,793		7,560	5,767	76.28
1,476	3,899	2,423	62.14	Misc Employees' Benefits	1,476		15,598	14,122	90.54
29,501	41,013	11,512	28.07	TOTAL OPERATING EXPENDITURES	28,060	1,441	169,785	140,284	82.62
24,209	9,867	(14,342)		NET REVENUES (EXPENDITURES)	25,650	(1,441)	33,733	9,524	

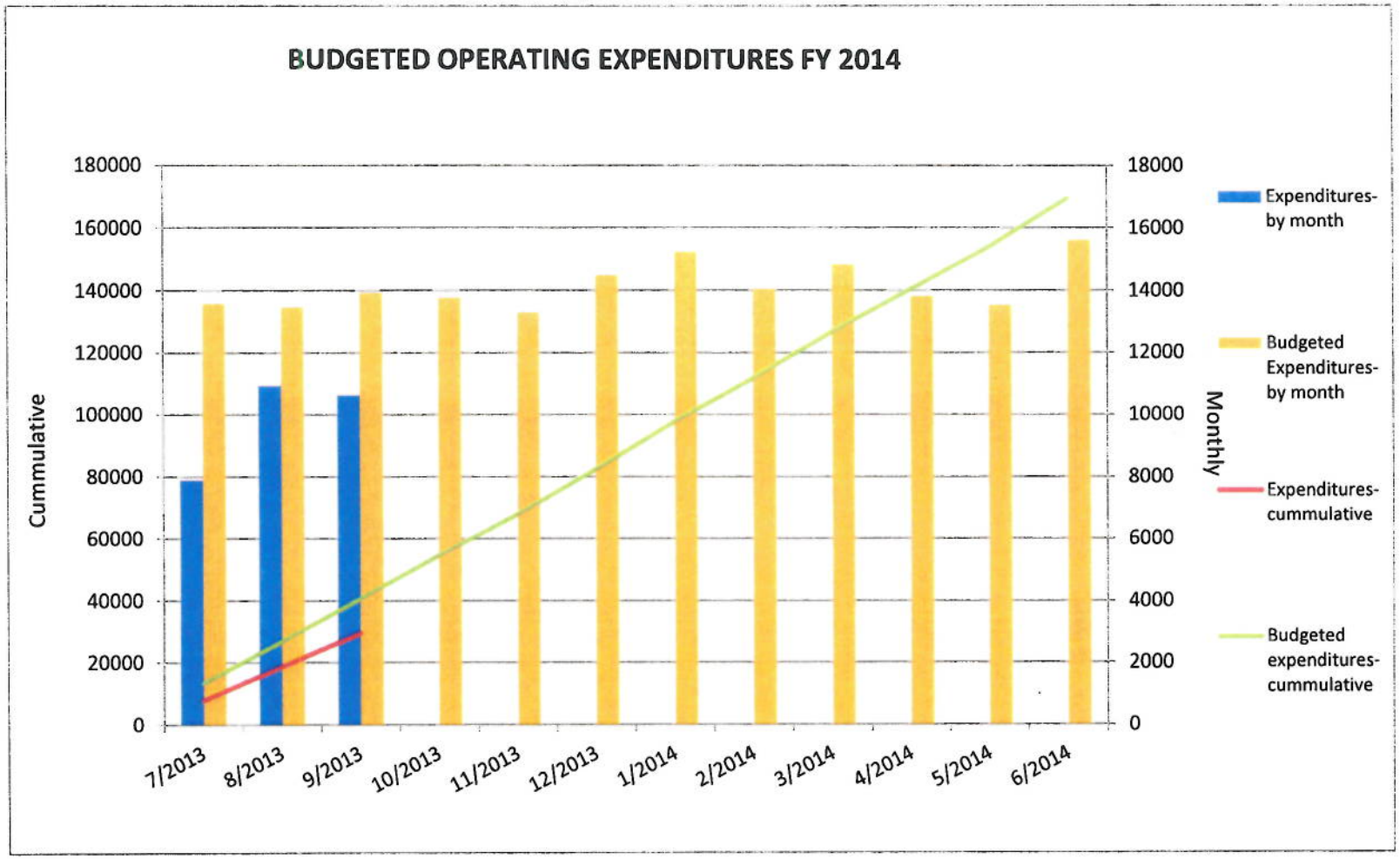
FY 2014 Captial Program (Annual Budget vs. Actual Expenditures and Encumbrances)
as of September 30, 2013 (millions of dollars)

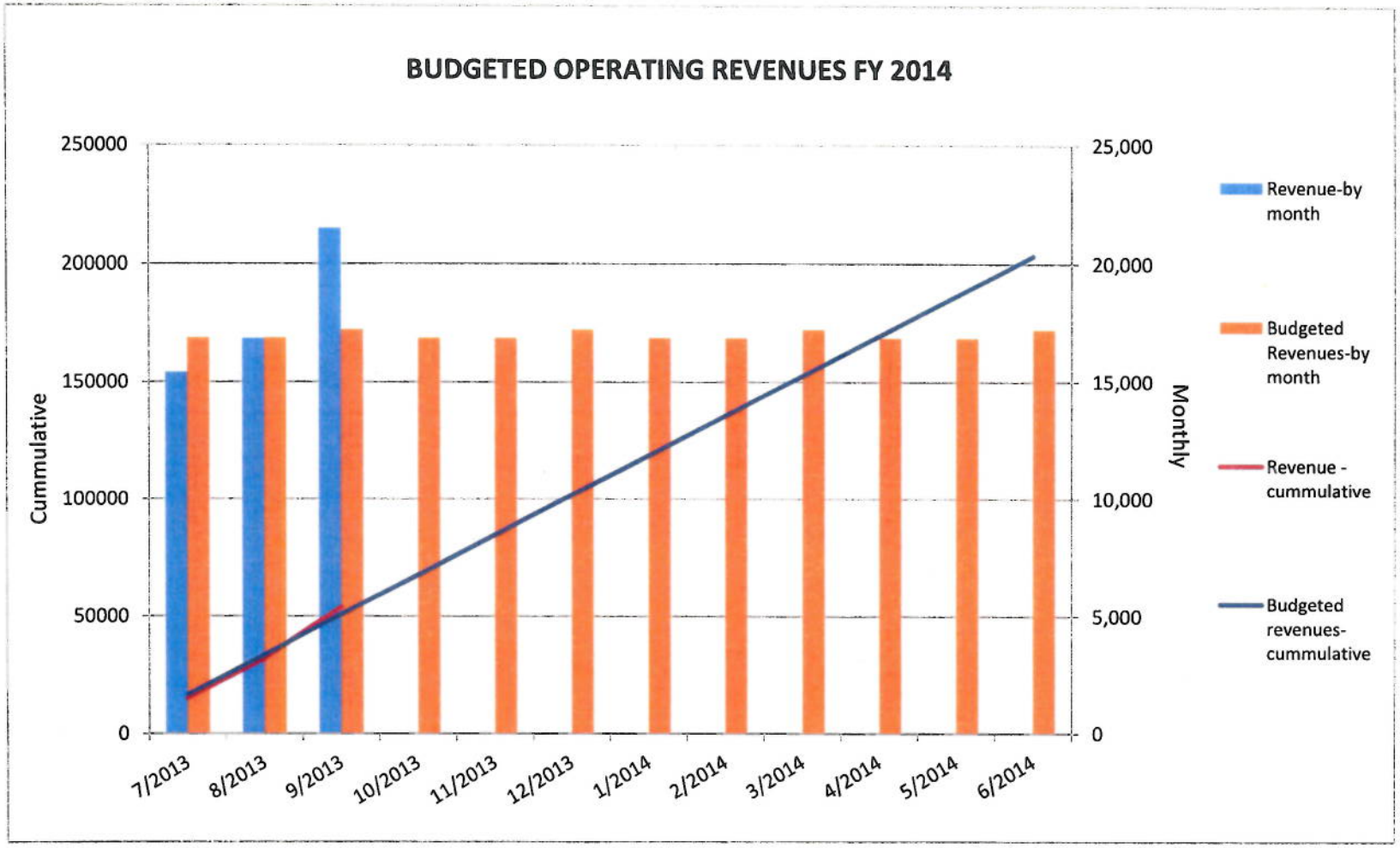


Operating Expenditures by Category (Budget vs. Actual Expenditures and Encumbrances)
as of September 30, 2013 (millions of dollars)




Total Operating Expenditures -$29.5
As of September 30, 2013
(millions of dollars)
Personnel Services
$8.0
27%
Material, Supplies & Services
$6.2
21%
Equipment
$0.2
1%
Debt Service
$5.1
17%
Fixed charges
$10.0
34%
Personnel Services
Material, Supplies & Services
Equipment
Debt Service
Fixed charges


BUDGETED OPERATING EXPENDITURES FY 2014
Cummulative
Monthly
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
7/2013
8/2013
9/2013
10/2013
11/2013
12/2013
1/2014
2/2014
3/2014
4/2014
5/2014
6/2014
Expenditures-by month
Budgeted Expenditures-by month
Expenditures-cummulative
Budgeted expenditures-cummulative


BUDGETED OPERATING REVENUES FY 2014
250000
200000
150000
100000
50000
0
Cummulative
25,000
20,000
15,000
10,000
5,000
0
Monthly
7/2013
8/2013
9/2013
10/2013
11/2013
12/2013
1/2014
2/2014
3/2014
4/2014
5/2014
6/2014
Revenue-by month
Budgeted Revenues-by month
Revenue - cummulative
Budgeted revenues-cummulative

ITEM FOR INFORMATION NO. 6

CAPITAL IMPROVEMENT PROGRAM QUARTERLY UPDATE
ALL DIVISIONS

Quarter	JUL-SEPT	OCT-DEC	JAN-MAR	APR-JUN	Awarded to Date	Total Budgeted
Design Contracts Awarded ($)	$17,544.00	$0.00	$0.00	$0.00	$17,544.00	$16,344,000.00
Construction Contracts Awarded ($)	$2,189,909.00	$0.00	$0.00	$0.00	$2,189,909.00	$57,968,000.00
Project Totals	$2,207,453.00	$0.00	$0.00	$0.00	$2,207,453.00	$74,312,000.00

Quarter	JUL-SEPT	OCT-DEC	JAN-MAR	APR-JUN	Totals
Design Contracts Completed ($)	$0.00	$0.00	$0.00	$0.00	$0.00
Construction Contracts Completed ($)	$4,142,532.66	$0.00	$0.00	$0.00	$0.00
Totals	$4,142,532.66	$0.00	$0.00	$0.00	$0.00

On Going Design Projects (#)	168
On Going Design Projects ($)	$68,226,209.41
On Going Construction Projects (#)	62
On Going Construction Projects ($)	$160,149,486.03

CAPITAL IMPROVEMENT PROGRAM QUARTERLY UPDATE
ALL DIVISIONS

DESIGN AND CONSTRUCTION PROJECTS ENCUMBERED - FIRST QUARTER FY 2014

Job #	Project Title	Expend Type	Budget Amount	Encumbrance	Quarter
020B	Pump Renewal and Replacement - Kuliouou Well: Replace Power Converter	P&E	17,544.00	17,544.00	1
028	Hihimanu Street 20-Inch Main	Const	100,000.00	97,339.00	1
040A	Mapunapuna Water System Improvements, Part I	Const	2,093,000.00	2,092,570.00	1
	1st Quarter totals		**2,210,544.00**	**2,207,453.00**	

DESIGN AND CONSTRUCTION PROJECTS COMPLETED - FIRST QUARTER FY 2014

Job #	Project Title	Completion Date	Contract Amount	Quarter
08-013	Emergency Power Transformer Replacement	7/1/2013	2,855,532.66	1
12-015D	Makakilo 440 and Makakilo 1230' Reservoir Repair	7/25/2013	1,287,000.00	1
	1st Quarter totals		**4,142,532.66**	

DISCUSSION:

Capital Projects Program Administrator Jason Takaki informed the Board that from this report going forward, he will report on all divisions instead of just a report on the Capital Projects Division. Board Member Sasamura commented that there are still a lot of projects to award. Mr. Takaki stated that a number of ads are already out, and he is hopeful that quite a bit of projects will be awarded in this current quarter. Mr. Lau added that Mr. Takaki and his staff have been working hard to get projects out to bid earlier during the year and not at the end of the year. Mr. Takaki stated that this is an ongoing effort and they are looking at ways to improve on that.

Mr. Takaki stated that at a previous Board meeting, the Board had inquiries about hiring consultants versus using in-house staff for design and construction, and also if the Department has a zero liability policy for consultants. Mr. Takaki explained that for design projects, they seek to balance between external and internal resources, but there is always design work that utilizes in-house staff. Using the Department's engineers to do design work helps them to better understand the design process, the construction practices, the challenges the consultants face in permitting and plan approval, and just helps them better understand the operations of the water system. At the same time, they leverage staff's capabilities by having them be project managers to manage consulting contracts in order to address a larger workload with less staff. The Water Master Plan will help determine funding, workload and staffing. On the construction side, they only hire construction managers where in-house expertise lacks. One project was the replacing of the air conditioning system and another ongoing project is the replacement of the emergency generator that powers the Control Center and the Engineering Building. Under the Division's Construction Management Program Management project, the Department may utilize more construction management consultants. Staff will shadow these consultants on a short-term basis to observe industry practices. In time, the consultants will no longer be needed and in-house staff will be able to handle the jobs on their own.

Mr. Takaki stated that the Department does not have a zero liability policy for consultants. Staff informs the consultants that they will be held liable for errors and omissions. BWS's contract's general terms require a $1 million insurance coverage for errors, omissions, and negligence in performance of professional services. BWS has pursued compensation from consultants in the past for cost attributable to their errors and omissions, but this has been rare because consultants are hired based on qualifications and experience and also because staff reviews all their work before it goes out to construction.

Board Member Hulihee commented that he thought there was a state law on how much the architects and engineers are liable for, something like 10 percent of their contract amount. Mr. Lau stated that he doesn't remember the specifics, but he thinks in the recent Legislature session they tried to limit the liability amount. Mr. Lau stated that they will do the research and get back to the Board.

Mr. Wong inquired if BWS's inspectors fall under construction management. Mr. Takaki replied that inspection is just one piece of the management of a project so they want to elevate their Construction Branch to become like a Construction Management firm,

handling everything from one place, the contract management as well as the construction inspection. Mr. Lau added that it is very important, in addition to designing things well and properly, to making sure that the construction is done well. Once it's buried and in the ground, BWS will inherit that problem for 50+ years, so it's important to stop the contractor if they are not doing the job according to the plans and specifications. Mr. Lau stated that sometimes they face challenges with contractors trying to cut corners.

MOTION TO ADJOURN

There being no further business Chair Miyashiro at 3:36 PM called for a motion to adjourn the Open Session. Ross Sasamura so moved; seconded by Mahealani Cypher and unanimously carried.

Respectfully submitted,

Lisa K. Kim

LISA K. KIM

APPROVED:

DUANE R. MIYASHIRO
Chairman of the Board

NOV 25 2013

Date

THE MINUTES OF THE REGULAR SESSION BOARD MEETING ON OCTOBER 28, 2013 WERE APPROVED AT THE NOVEMBER 25, 2013 BOARD MEETING			
	AYE	NO	COMMENT
DUANE R. MIYASHIRO	X		
MAHEALANI CYPHER	X		
THERESIA C. MCMURDO			ABSENT
ADAM C. WONG	X		
DAVID C. HULIHEE	X		
ROSS S. SASAMURA	X		
GLENN M. OKIMOTO	X		