

MINUTES

REGULAR MEETING OF THE BOARD OF WATER SUPPLY

December 18, 2017

At 2:01 PM on December 18, 2017 in the Board Room of the Public Service Building at 630 South Beretania Street, Honolulu, Hawaii, Board Chair Andaya called to order the Regular Meeting.

Present: Bryan P. Andaya, Chair
David C. Hulihee
Ray C. Soon
Ross S. Sasamura
Jade T. Butay

Also Present: Ernest Lau, Manager and Chief Engineer
Ellen Kitamura, Deputy Manager and Chief Engineer
Erwin Kawata
Mike Fuke
Jason Takaki
Joe Cooper
Kathleen Pahinui
Robert Morita
Michele Thomas
Barry Usagawa
Jon Arakaki
Ron Wada
Warren Young

Others Present: Jeff Lau, Deputy Corporation Counsel
Jessica Wong, Deputy Corporation Counsel
David Ebersold, CDM Smith
Chris Harris, CDM Smith
Susan Uyesugi, SSFM International

Absent: Kapua Sproat, Vice Chair
Kay C. Matsui

APPROVAL OF
MINUTES

Approval of the Minutes of the Regular Meeting held on November 27, 2017

MOTION
TO APPROVE

David Hulihee and Ray Soon motioned and seconded, respectively, to approve the Minutes of the Regular Meeting of November 27, 2017. The motion was unanimously carried.

APPROVAL OF
REVISION OF
2017-2018 CIP
BUDGET -
AMENDMENT
NO. 1

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

Chair and Members:

Subject: Approval of the Revision of the 2017 – 2018 Capital
Improvement Program Budget – Amendment No. 1

We recommend revision of the current Capital Improvement Program (CIP)
Budget as described below:

1. Delete the following CIP project and appropriation:

			<u>Appropriation</u>
		<u>Present</u>	<u>Proposed</u>
<u>Item No. 46</u>	EMERGENCY GENERATORS AT KALIHI YARD AND SHAFT, HALAWA SHAFT, AND KUNIA WELLS I		

OPERATING FUND	CONST.	7,700,000	---
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This project installs permanent emergency generators at three critical Board of Water Supply (BWS) sources. This project was advertised and awarded in FY 2016. At the time the FY 2018 CIP budget was formulated, the execution of the FY 2016 construction contract for the installation was stayed due to multiple bid protests. To ensure this project moved forward, an appropriation was funded in the FY 2018 CIP budget in the event a resolicitation of the project might be required in the adjudication of the bid protests. All bid protests have since been resolved in favor of the BWS and construction under the original contract is in progress. The appropriation in the FY 2018 CIP budget is no longer necessary.

2. Add the following CIP project and appropriation:

			<u>Appropriation</u>
		<u>Present</u>	<u>Proposed</u>
<u>Item No. 29B</u>	KAMEHAME UTILITY TUNNEL 36-INCH MAIN REHABILITATION		
OPERATING FUND	CONST.	---	4,730,000

This project will design and construct a new 30-inch main for the rehabilitation of the existing 36-inch concrete cylinder main within the Kamehame Utility Tunnel and install a sampling tap and 30-inch bevel geared gate valve for the west and east portal entrances. A 36-inch concrete cylinder main break occurred on September 17, 2017 in the Kamehame Utility Tunnel. The location of the break, at the midpoint of the tunnel, the confined working space within the tunnel, and the welding required to repair the concrete cylinder main made the repair extremely difficult. The 36-inch main is critical to the reliability of the water system for East Honolulu. It provides the operational flexibility to move water from the Windward side if a main break were to occur that affected transmission from the Diamond Head side.

3. Increase the appropriation for the following CIP Contract Adjustment Account:

OPERATING FUND	20,000,000	22,970,000
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Upon approval, the appropriate pages of the current CIP budget will be revised for distribution.

Respectfully submitted,

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

DISCUSSION: Robert Morita, Executive Support Office Executive Assistant, and Michael Fuke, Field Operations Division Acting Program Administrator gave the report. There were no comments or discussion.

MOTION TO APPROVE THE REVISION OF THE 2017-2018 CIP BUDGET – AMENDMENT NO. 1 David Hulihee and Ray Soon motioned and seconded, respectively, to approve the Revision of the 2017 – 2018 Capital Improvement Program Budget – Amendment No. 1. The motion was unanimously carried.

REVISION OF THE 2017-2018 CAPITAL IMPROVEMENT PROGRAM BUDGET – AMENDMENT NO. 1 WAS APPROVED AT THE DECEMBER 18, 2017 BOARD MEETING			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT			ABSENT
DAVID C. HULIHEE	X		
KAY C. MATSUI			ABSENT
RAY C. SOON	X		
ROSS S. SASAMURA	X		
JADE T. BUTAY	X		

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Board of Water Supply
City and County of Honolulu

Kamehame Utility Tunnel



Location Map

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Board of Water Supply
City and County of Honolulu

Kamehame Utility Tunnel



Location Map



36-Inch Main Break

- Main break on September 19, 2017
- Main installed in 1973
- Concrete cylinder pipe with an exterior enamel coating within the utility tunnel



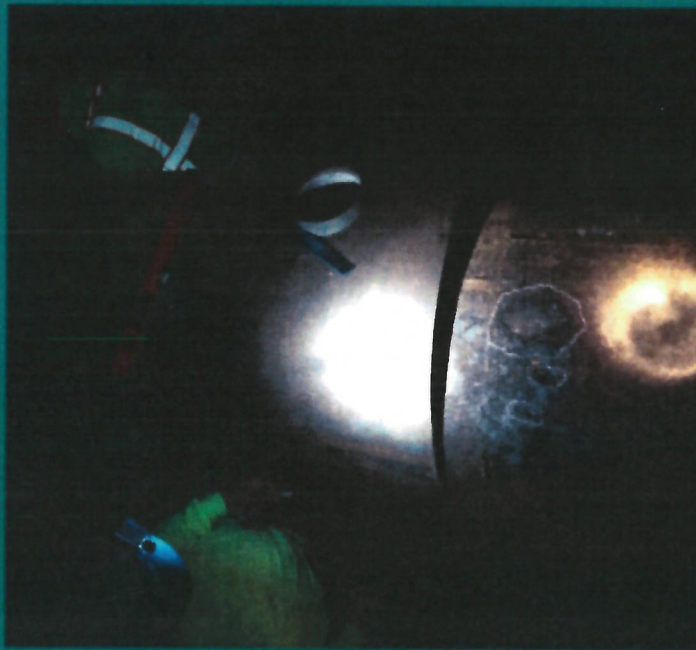
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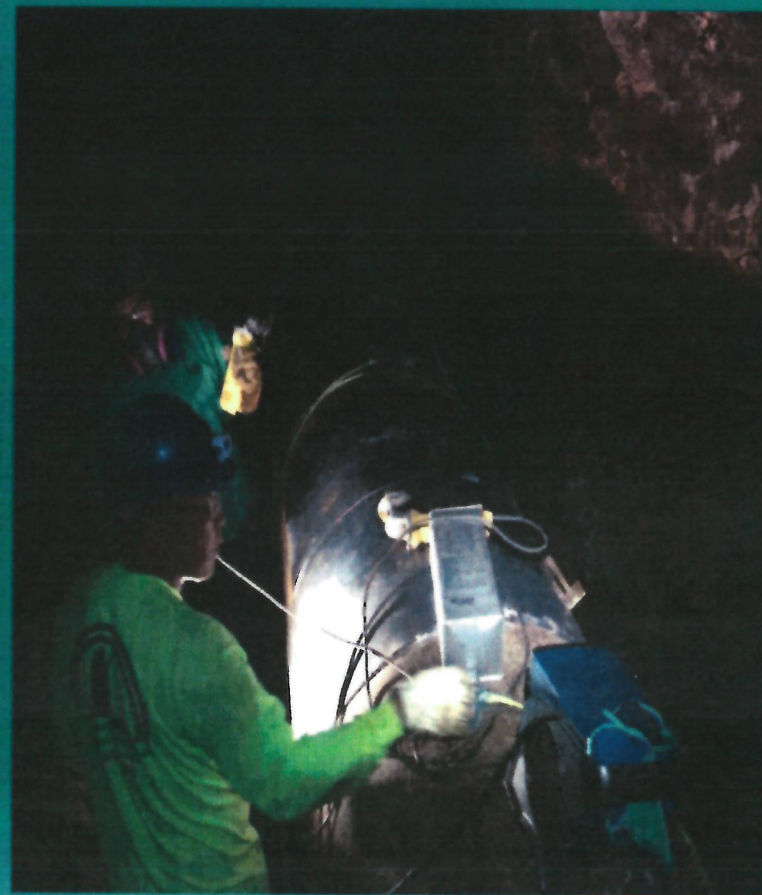


Board of Water Supply
City and County of Honolulu

36-Inch Main Break



Welded Repair Section





36-Inch Main Break



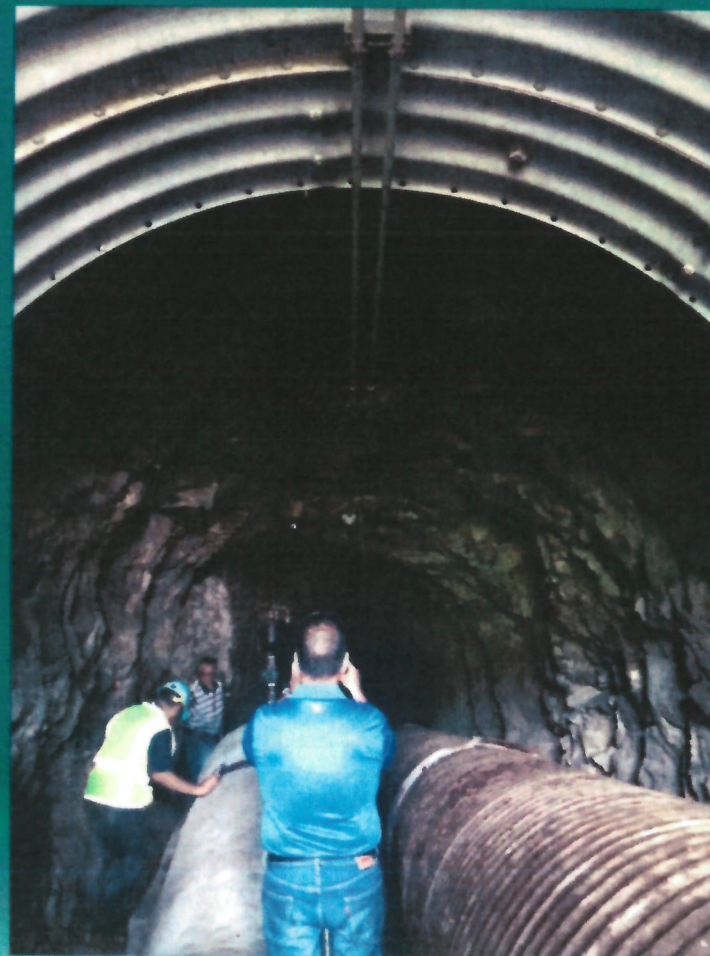
Overall Condition of the concrete cylinder main is poor.



Sewer Main



Existing 36-inch sewer main
within the tunnel



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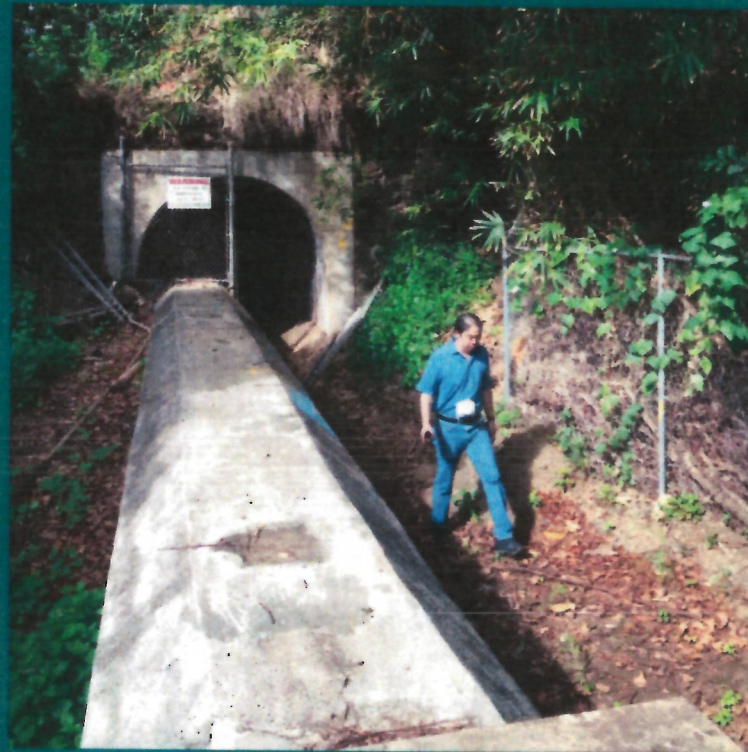


Board of Water Supply
City and County of Honolulu

Portal Entrances



West



East





Kamehame Utility Tunnel 36-Inch Main Rehabilitation

- **Scope of Work:** Design and construction of a new 30-inch HDPE main for the rehabilitation of the existing 36-inch concrete cylinder main within the Kamehame Utility Tunnel – approx. 2,179 lin. ft., and the installation of a 30-inch bevel geared gate valves and sampling taps for the West and East portal entrances.
- **Contractor:** Koga Engineering & Construction, Inc.
- **Design Consultant:** Sam O. Hirota, Inc.
- **Contract Amount:** \$4,300,000.00

ITEM FOR INFORMATION NO. 1

"December 18, 2017

FINANCIAL
PLAN AND
RATE STUDY
UPDATE

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

Chair and Members:

Subject: Board of Water Supply Financial Plan and Rate Study Update

Joe Cooper, Waterworks Controller, and David Ebersold of CDM Smith, will present an update of our Water Master Plan Financial Plan and Rate Study.

Respectfully submitted,

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

Attachment"

The foregoing was for information only.

DISCUSSION:

Joseph Cooper, Waterworks Controller, and David Ebersold of CDM Smith provided the report. Mr. Cooper's presentation discussed the costs associated with the Board of Water Supply's (BWS) current billing charge, other costs that are included in billing charges according to the American Water Works Association (AWWA), proportioning costs that change by meter size, and the two options for monthly billing charges.

Board Member Soon asked Mr. Cooper for clarification on what he meant by the customer category ratio being the same, regardless of the meter size. Mr. Cooper explained that although the meter costs vary depending on the size of the meter the customer has, the customer costs stay the same. Mr. Soon asked if this was true in all customer categories, and Mr. Cooper said yes.

Board Member Hulihee commented that the presentation shows a lot of calculations, just for a small amount of money. Mr. Lau reminded him that the fixed charge represents only 7 percent of BWS's total annual revenue, but it's important to look at how the costs are allocated to the different customer classes. Mr. Cooper added that the goal is to allocate the costs to achieve cost of service, and to do it in a fair and equitable manner.

Mr. Lau commented that this information was shared with the Stakeholder Advisory Group (SAG) on December 7th and asked Mr. Ebersold to share the Stakeholders' feedback with the Board. Mr. Ebersold explained that in the initial discussion with the SAG about fixed charges, there was a lot of confusion about what costs were trying to be recovered through the monthly

charge. After explaining a detailed analysis, varying the monthly charge by meter size made sense to them.

Mr. Ebersold continued with his presentation, which included the 10-year revenue requirement projections based on operating and capital improvement costs, and also based on the Capital Improvement Program PL2 scenario, and the different scenarios to build the revenue requirement. Mr. Lau explained that they modeled the 180-day cash scenario in the operating fund to have those funds in the event of natural disaster emergencies. Mr. Ebersold stated that it seemed reasonable to the SAG, and added that they understood the importance of issuing bonds to maintain affordability.

Mr. Lau stated that the discussion today is purely about revenue increases. The start of the rate development process on how to generate the revenue and the impact it has on different customers will be discussed at the January 5th Rate Workshop.

Mr. Soon asked, with the amortization of the Capital Improvements Program (CIP) over the next 10 years, what will the financial model for the CIP look like beyond 2028. Mr. Ebersold referred back to Slide 26 of the presentation. He stated that when looking at the whole 30-year period, one could expect to see revenue adjustments that reflect cost increases every year. Mr. Lau added that the goal is to achieve a more uniform incremental increase in the water rates and to keep that up, so that there isn't a need to do catch up rate increases after a long period of time.

Mr. Andaya stated that at the last Permitted Interaction Group meeting, the smoothing of revenue adjustments seemed to be the preferred revenue adjustment scenario. He added that this scenario would address the problem of the water main breaks by allowing BWS to ramp up the CIP. Mr. Lau pointed out that Mr. Andaya is referring to revenue increases and the rates are how those increases will be achieved. Mr. Lau continued by saying that this is a good way to project what BWS's long-term capital needs are with the 30 year capital program.

Mr. Andaya asked if the revenue adjustment could be adjusted by the Board. Mr. Lau responded, yes, the 10-year long term financial plan can be updated periodically.

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Board Update

**Monthly Customer Charge
and**

10-Year Revenue Requirement

Joe Cooper, Waterworks Controller

David Ebersold, CDM Smith

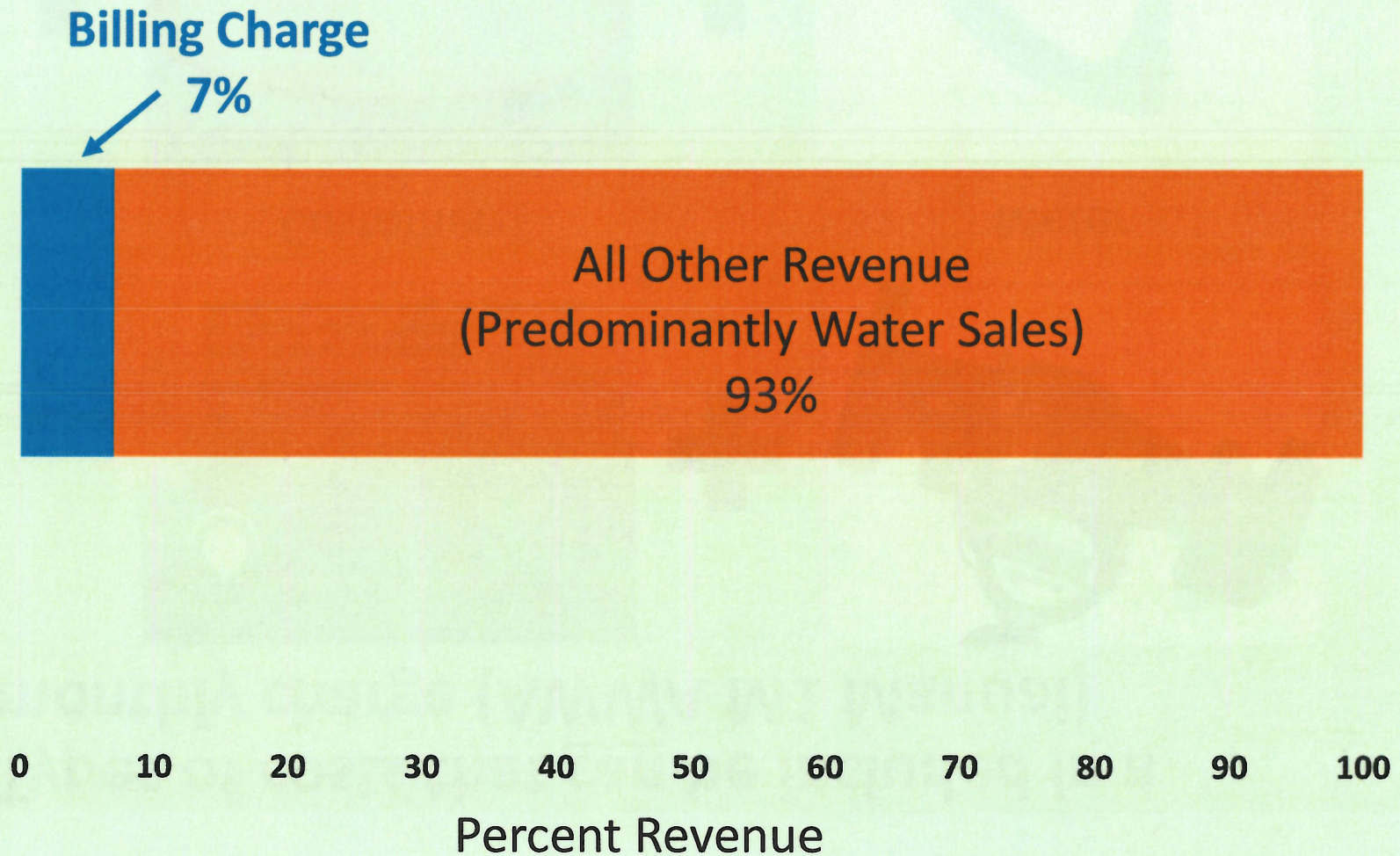
BWS Water Master Plan Project

December 18, 2017

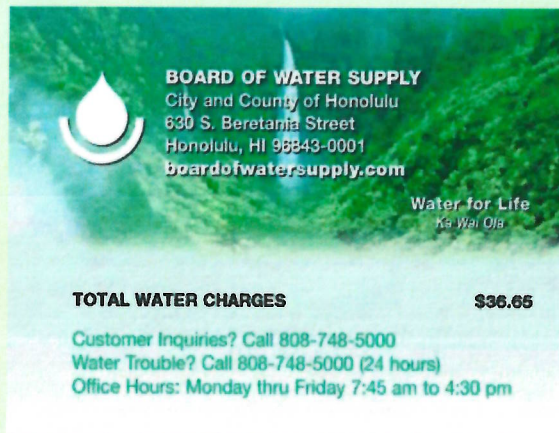
Summary of BWS's Current Billing Charge

- 💧 The charge is a flat fee of \$9.26 per bill for all customers, whatever their meter size or level of use
- 💧 The billing charge covers:
 - Customer service and billing staff
 - Meter maintenance and repair
 - Meter reading
 - Processing and mailing bills
- 💧 Noted in 2014 Audit for not being able to clearly justify billing charge, recommended to follow industry best practice (AWWA)

Billing Charge Provides 7% of Total Revenues



Types of costs that can be included in a monthly charge (AWWA M1 Manual)



Customer



Meter

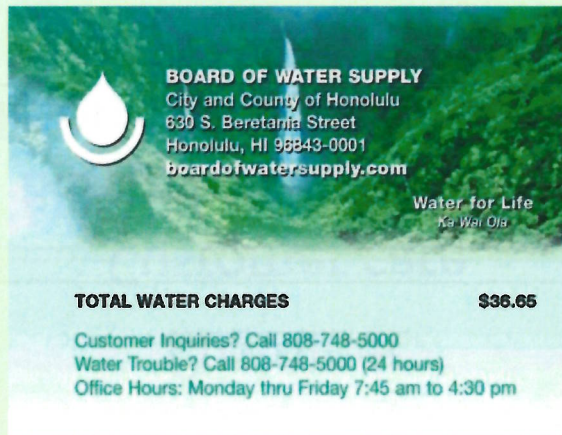


System Capacity



Water Allowance

Lower fixed charges gives BWS's customers greater control of their bills through conservation

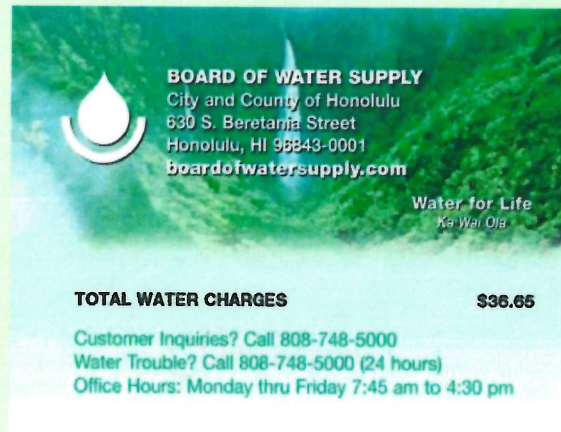


Customer



Meter

Types of accounting cost categories included in BWS's Customer and Meter allocations



Customer

Customer care
Billing and collections
Information technology
Water resources
Finance



Meter

Backflow and Cross Connection
Meter shop/maintain/replace
Automotive
Field operations



Proportioning costs that change by meter size

Meter Size	AWWA Capacity Ratios	BWS Meter Cost Ratios	BWS Meter Cost	Meter Type
3/4	1			
1	1.7			
1.5	3.4			
2	5.4			
3	10.9			
4	17.0			
6	33.9			
8	54.3			

Proportioning costs that change by meter size

Meter Size	AWWA Capacity Ratios	BWS Meter Cost Ratios	BWS Meter Cost	Meter Type
3/4	1	1.70 : 1.00 3.40 : 1.00 5.40 : 1.00 10.9 : 1.00 17.0 : 1.00 33.9 : 1.00 54.3 : 1.00	\$86	3/4" Displacement
1	1.7		\$141	1" Displacement
1.5	3.4		\$171	1-1/2" Displacement
2	5.4		\$590	2" Turbine
3	10.9		\$753	3" Turbine
4	17.0		\$1,538	4" Turbine
6	33.9		\$2,829	6" Turbine
8	54.3		\$4,372	8" Turbine

Proportioning costs that change by meter size

Meter Size	AWWA Capacity Ratios	BWS Meter Cost Ratios	BWS Meter Cost	Meter Type
3/4	1	1	\$86	3/4" Displacement
1	1.7	1.6	\$141	1" Displacement
1.5	3.4	2.0	\$171	1-1/2" Displacement
2	5.4	6.9	\$590	2" Turbine
3	10.9	8.8	\$753	3" Turbine
4	17.0	17.9	\$1,538	4" Turbine
6	33.9	32.9	\$2,829	6" Turbine
8	54.3	50.8	\$4,372	8" Turbine

Over 25 of 77 accounting cost categories include allocations to customers or meters

Type	Total
Same for all meter sizes	\$10,906,000
Varies by meter size	\$12,473,300
	\$23,379,300

Example amounts

Two options for monthly Customer Charge

Type	Total
Same for all meter sizes	\$10,906,000
Varies by meter size	\$12,473,300
	\$23,379,300



Spread uniformly over 1.9 million bills = \$12.05 per bill

Example amounts

Two options for monthly Customer Charge

	Total
Same for all meter sizes	\$10,906,000
Change by meter size	\$12,473,300
	\$23,379,300

	Total
Same for all meter sizes	\$10,906,000
Change by meter size	\$12,473,300
	\$23,379,300

Spread uniformly over 1.9 million bills = \$5.60 per bill

Spread by meter size

Example amounts

Two options for monthly Customer Charge

Meter Size	# Mtrs	Uniform Customer Charge	Average Monthly Bill	% of Bill that is Fixed	Customer Charge by Meter Size	Average Monthly Bill	% of Bill that is Fixed
5/8 or ¾	162,508	\$12.05					
1	8,384	\$12.05					
1.5	3,097	\$12.05					
2	3,851	\$12.05					
3	456	\$12.05					
4	294	\$12.05					
6	154	\$12.05					
8	325	\$12.05					

Example amounts

Two options for monthly Customer Charge

Meter Size	# Mtrs	Uniform Customer Charge	Average Monthly Bill	% of Bill that is Fixed	Customer Charge by Meter Size	Average Monthly Bill	% of Bill that is Fixed
5/8 or ¾	162,508	\$12.05			\$10.40		
1	8,384	\$12.05			\$13.30		
1.5	3,097	\$12.05			\$15.20		
2	3,851	\$12.05			\$38.70		
3	456	\$12.05			\$47.80		
4	294	\$12.05			\$81.45		
6	154	\$12.05			\$163.40		
8	325	\$12.05			\$249.25		

Example amounts

Two options for monthly Customer Charge

Meter Size	# Mtrs	Uniform Customer Charge	Average Monthly Bill	% of Bill that is Fixed	Customer Charge by Meter Size	Average Monthly Bill	% of Bill that is Fixed
5/8 or ¾	162,508	\$12.05	\$52	23.2%	\$10.40		
1	8,384	\$12.05	\$235	5.1%	\$13.30		
1.5	3,097	\$12.05	\$458	2.6%	\$15.20		
2	3,851	\$12.05	\$911	1.3%	\$38.70		
3	456	\$12.05	\$2,900	0.4%	\$47.80		
4	294	\$12.05	\$6,036	0.2%	\$81.45		
6	154	\$12.05	\$10,552	0.1%	\$163.40		
8	325	\$12.05	\$11,681	0.1%	\$249.25		

Example amounts

Two options for monthly Customer Charge

Meter Size	# Mtrs	Uniform Customer Charge	Average Monthly Bill	% of Bill that is Fixed	Customer Charge by Meter Size	Average Monthly Bill	% of Bill that is Fixed
5/8 or ¾	162,508	\$12.05	\$52	23.2%	\$10.40	\$50	20.8%
1	8,384	\$12.05	\$235	5.1%	\$13.30	\$236	5.6%
1.5	3,097	\$12.05	\$458	2.6%	\$15.20	\$462	3.3%
2	3,851	\$12.05	\$911	1.3%	\$38.70	\$938	4.1%
3	456	\$12.05	\$2,900	0.4%	\$47.80	\$2,935	1.6%
4	294	\$12.05	\$6,036	0.2%	\$81.45	\$6,116	1.5%
6	154	\$12.05	\$10,552	0.1%	\$163.40	\$10,704	1.5%
8	325	\$12.05	\$11,681	0.1%	\$249.25	\$11,919	2.1%

Example amounts

WATER FOR LIFE

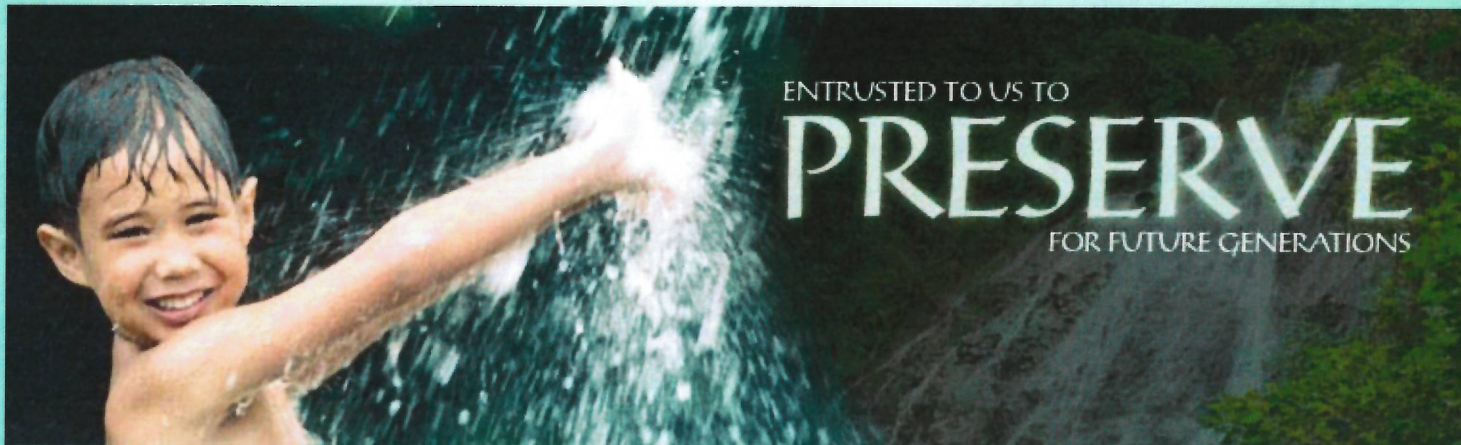
Safe, dependable, and affordable water now and into the future



Board of Water Supply
City and County of Honolulu

Mahalo!

Questions & Answers



WATER FOR LIFE

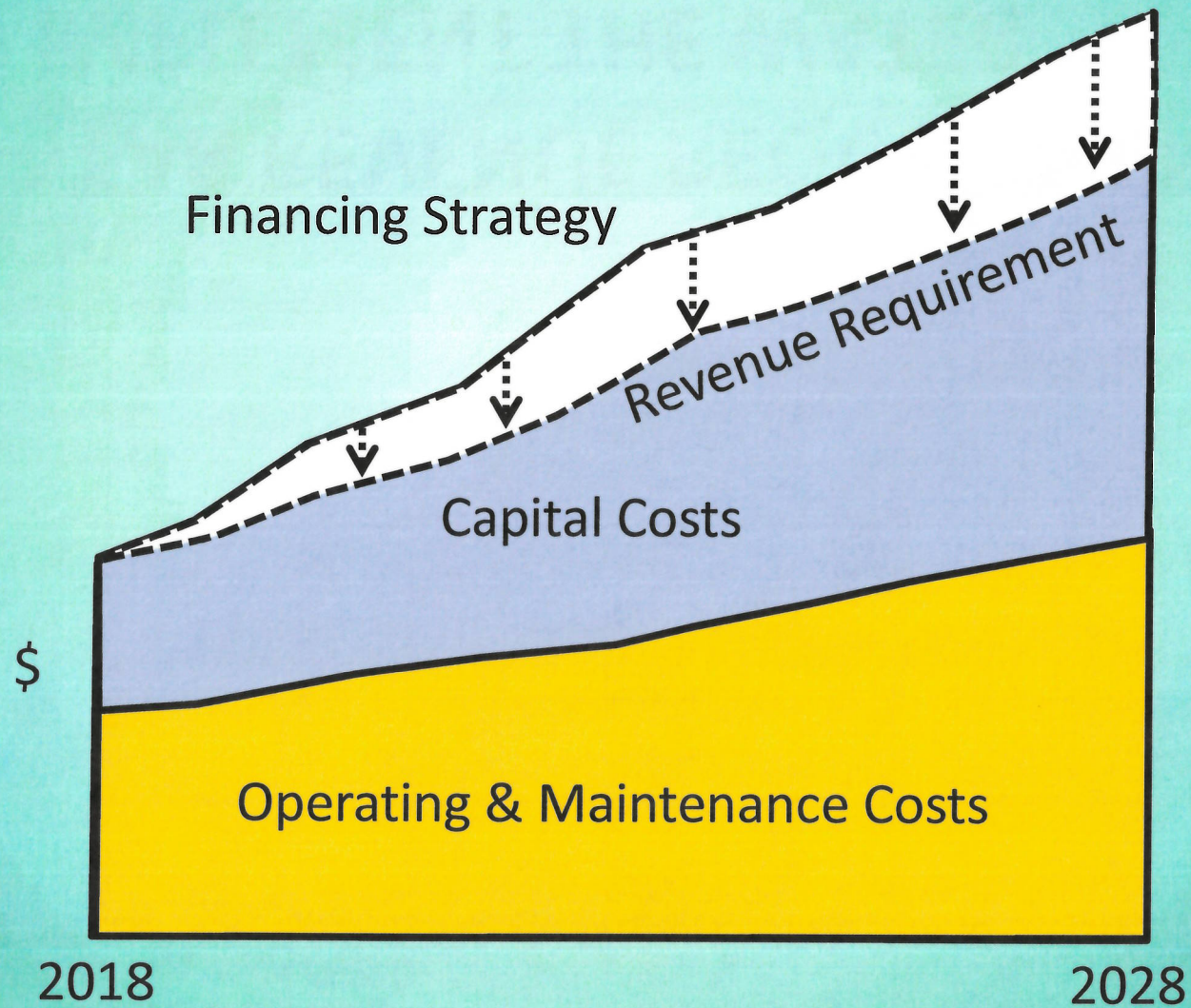
Safe, dependable, and affordable water now and into the future



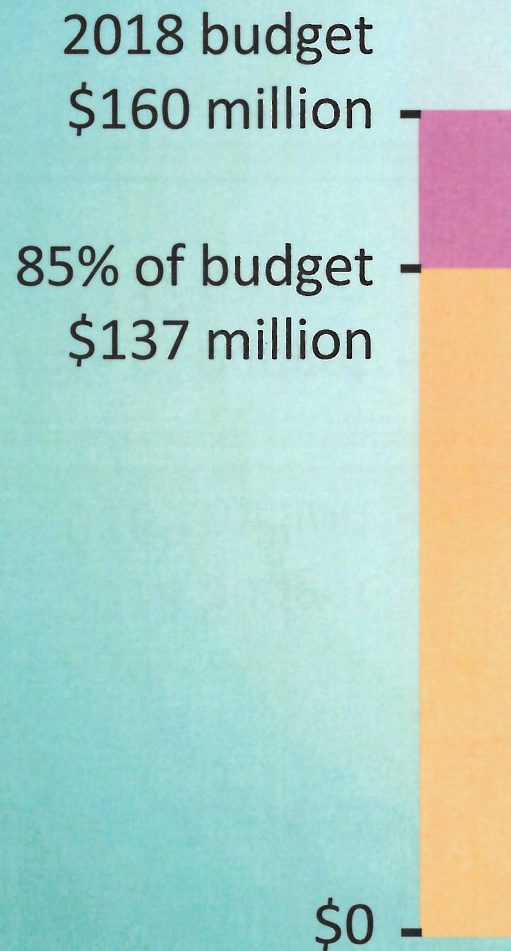
Board of Water Supply
City and County of Honolulu

10-YEAR REVENUE REQUIREMENT TO IMPLEMENT THE WATER MASTER PLAN (WMP)

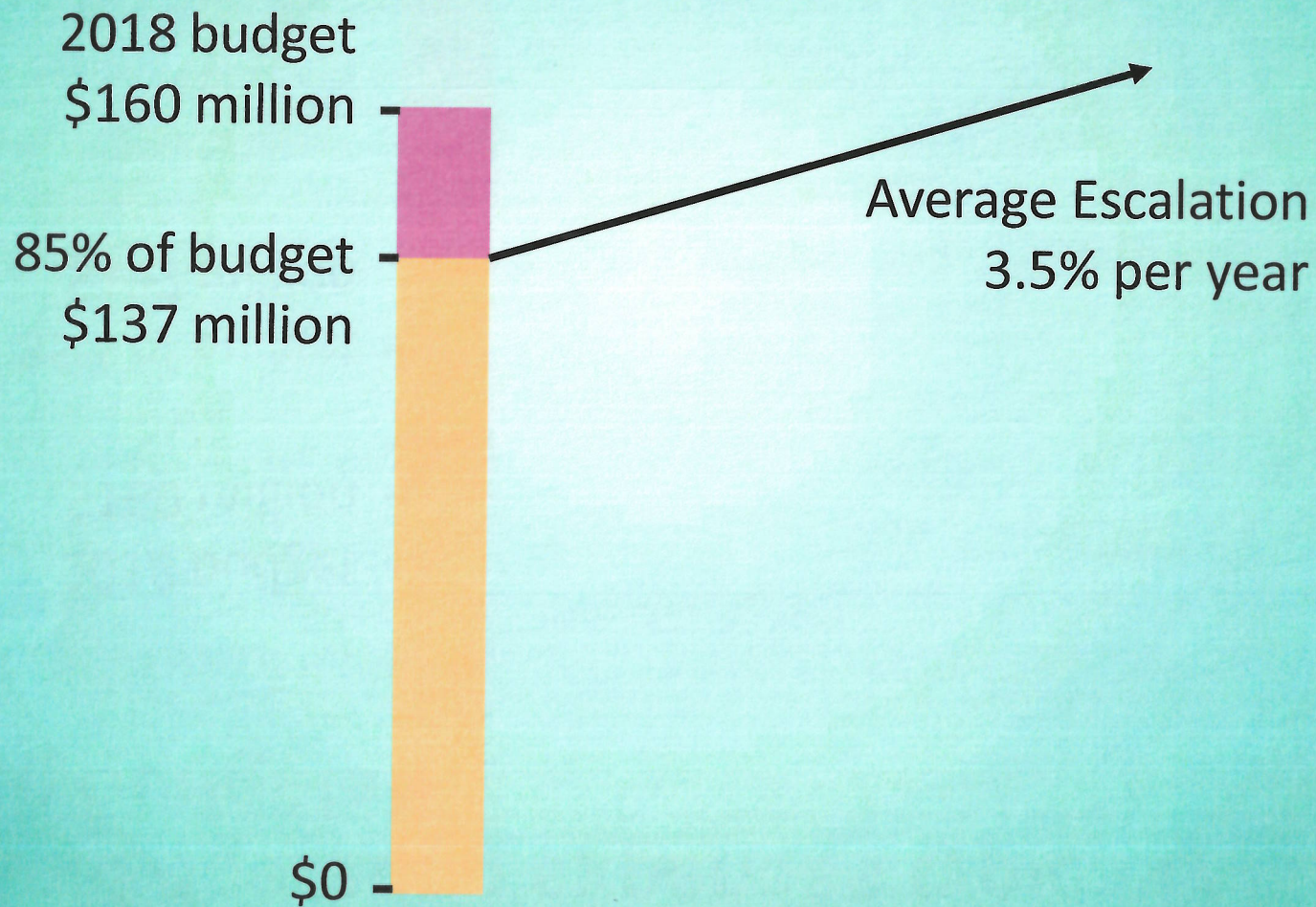
Building the revenue requirement



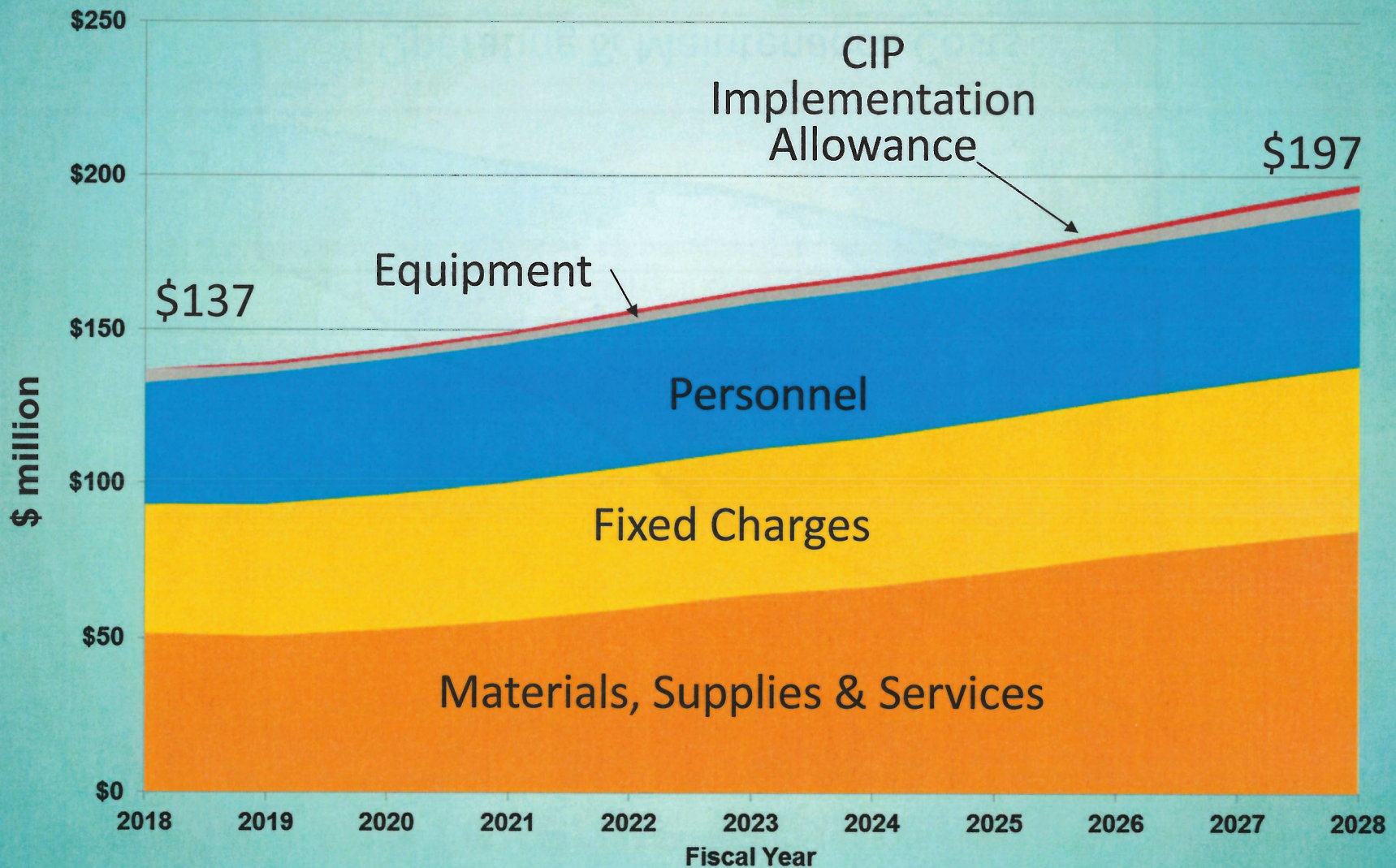
Actual operating expenses typically less than budgeted



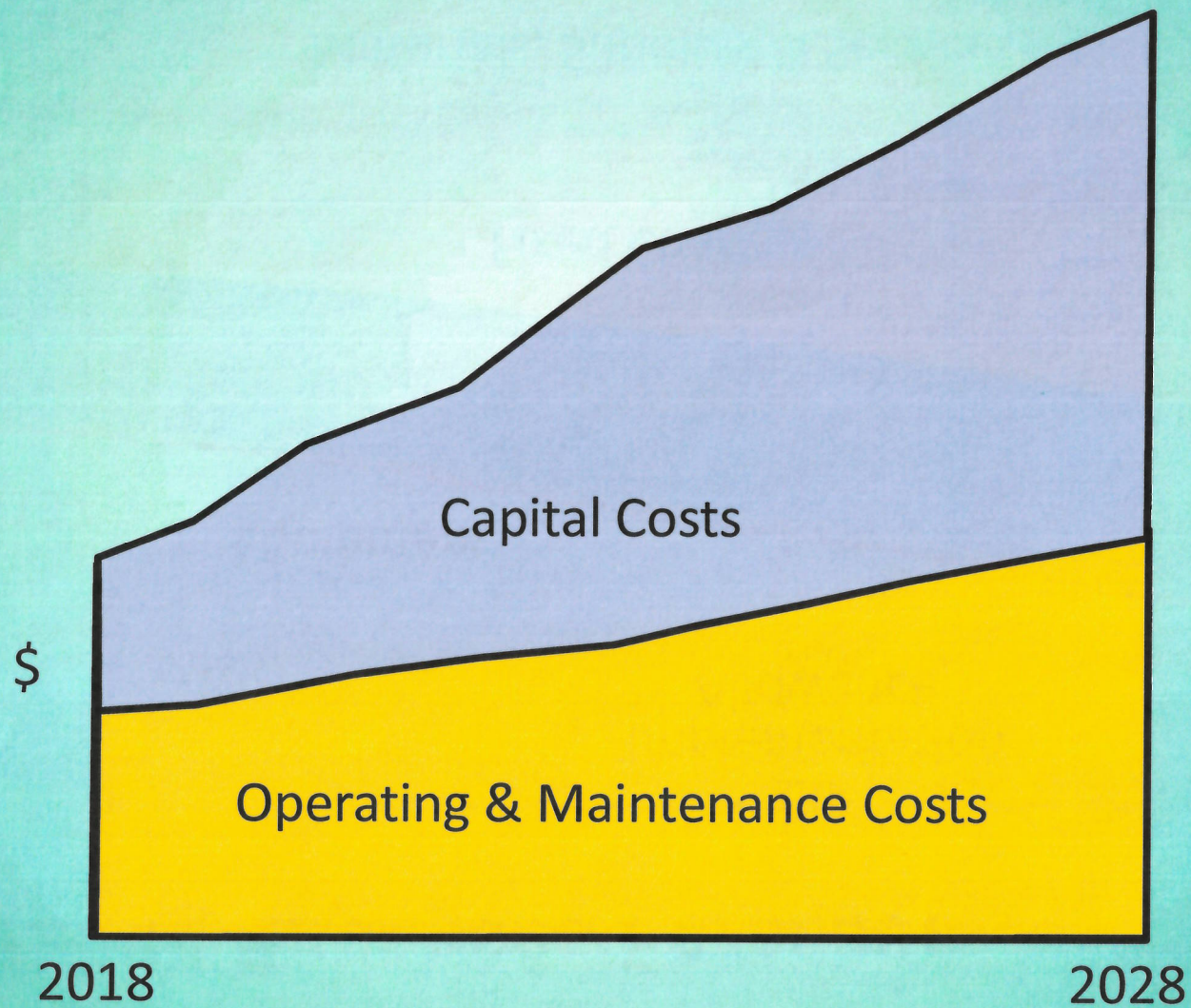
Actual operating expenses typically less than budgeted



Operating Expenses Forecast

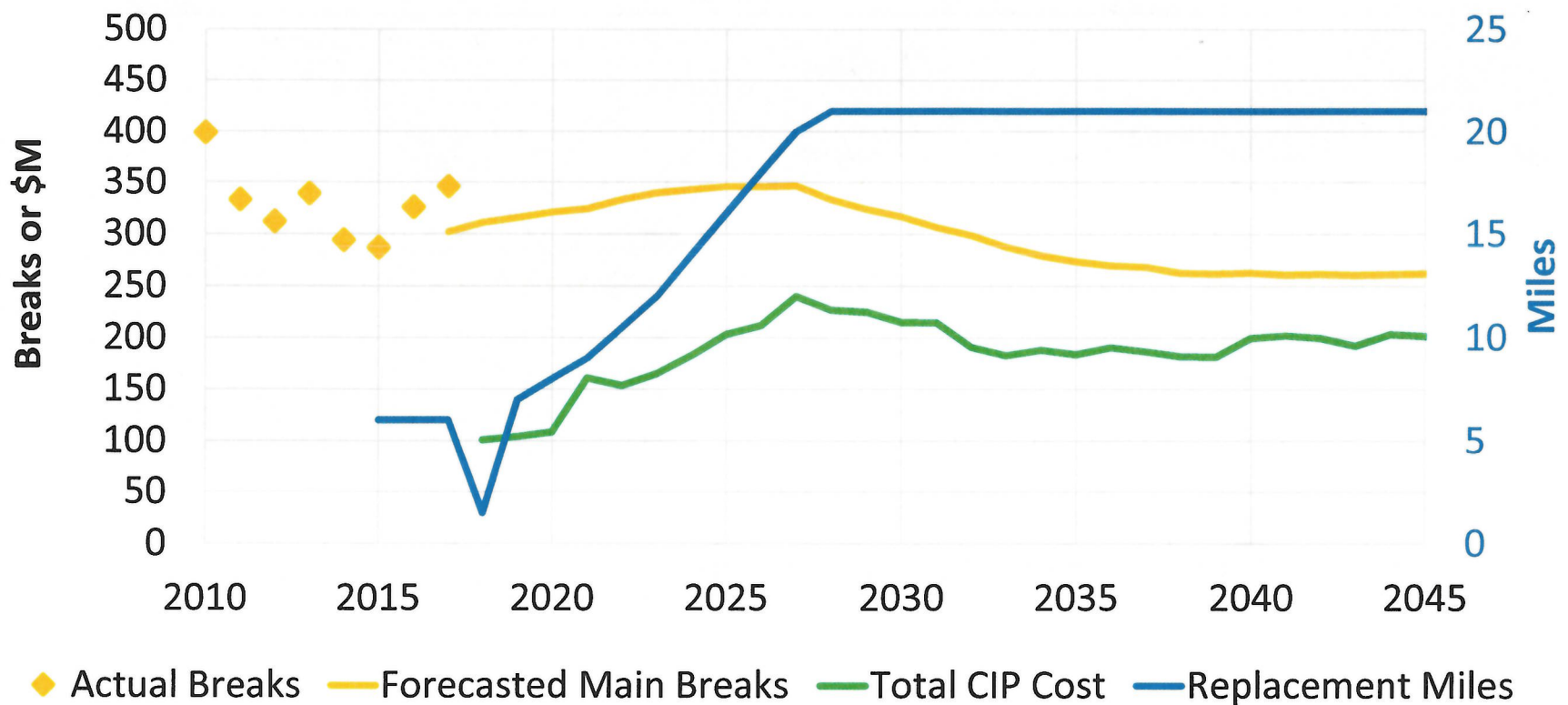


Building the revenue requirement

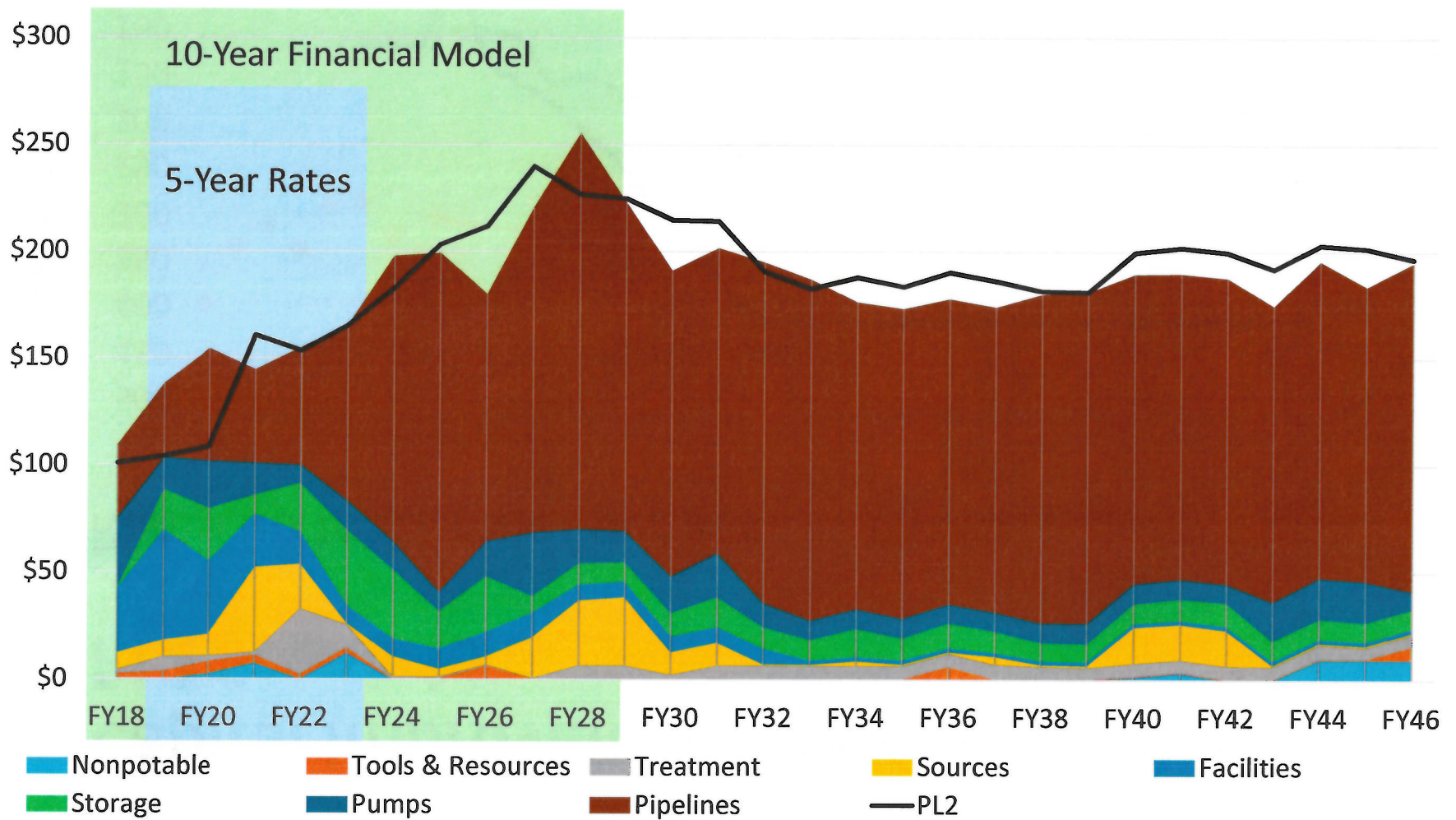


Capital Improvement Program (CIP) PL2 Scenario

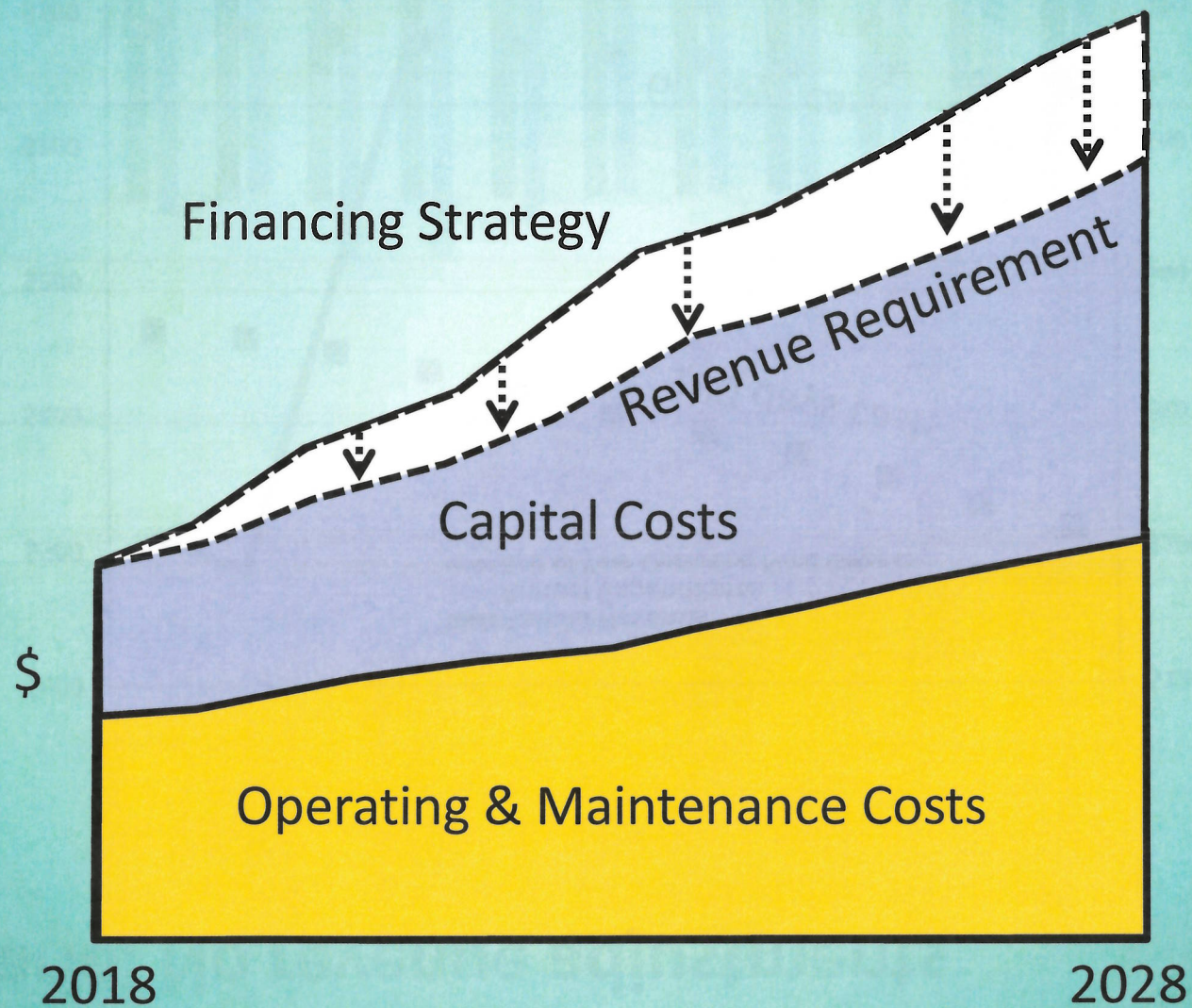
Ramp up to 21 miles per year in 10 years



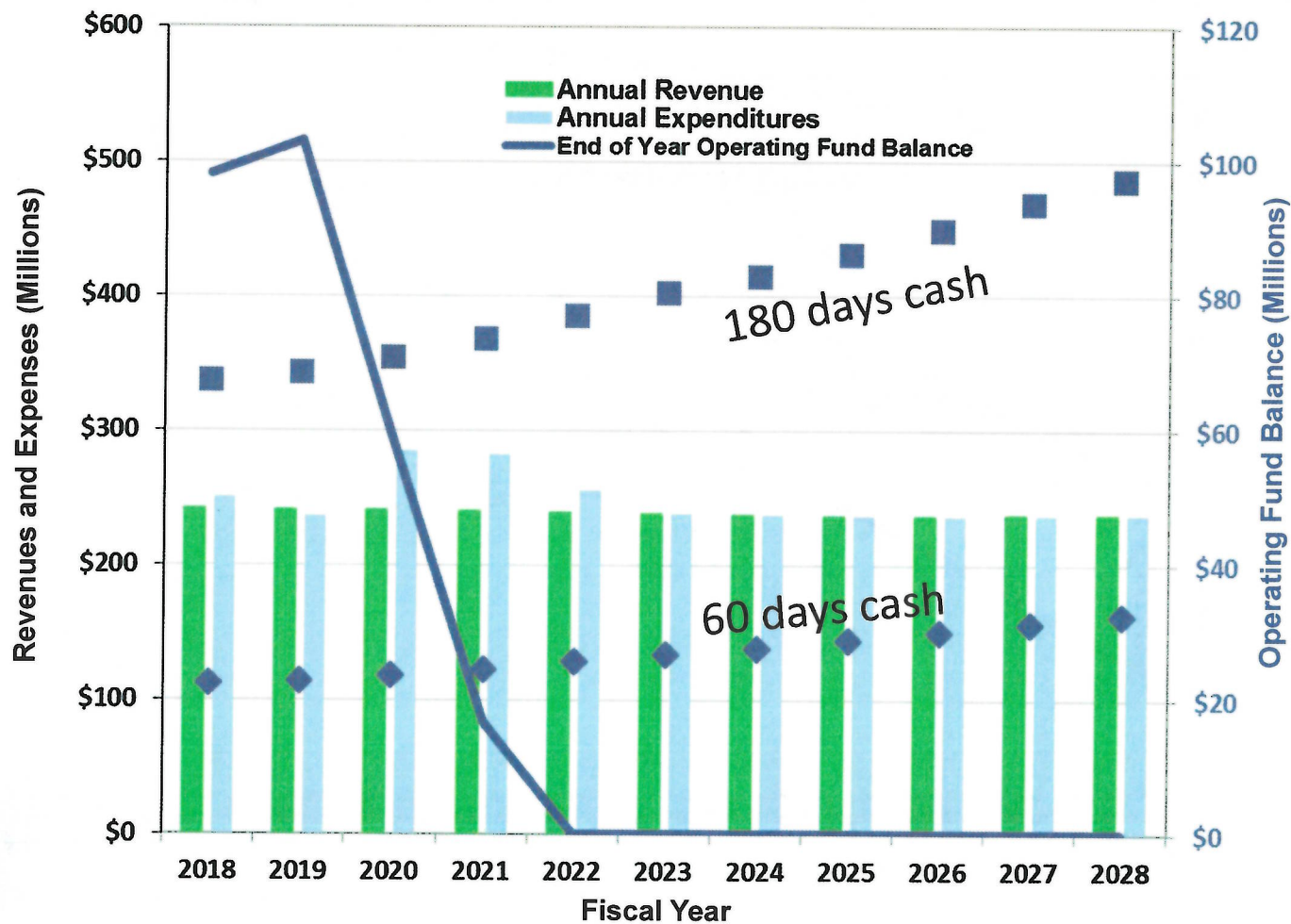
30-year Capital Improvement Program



Building the revenue requirement

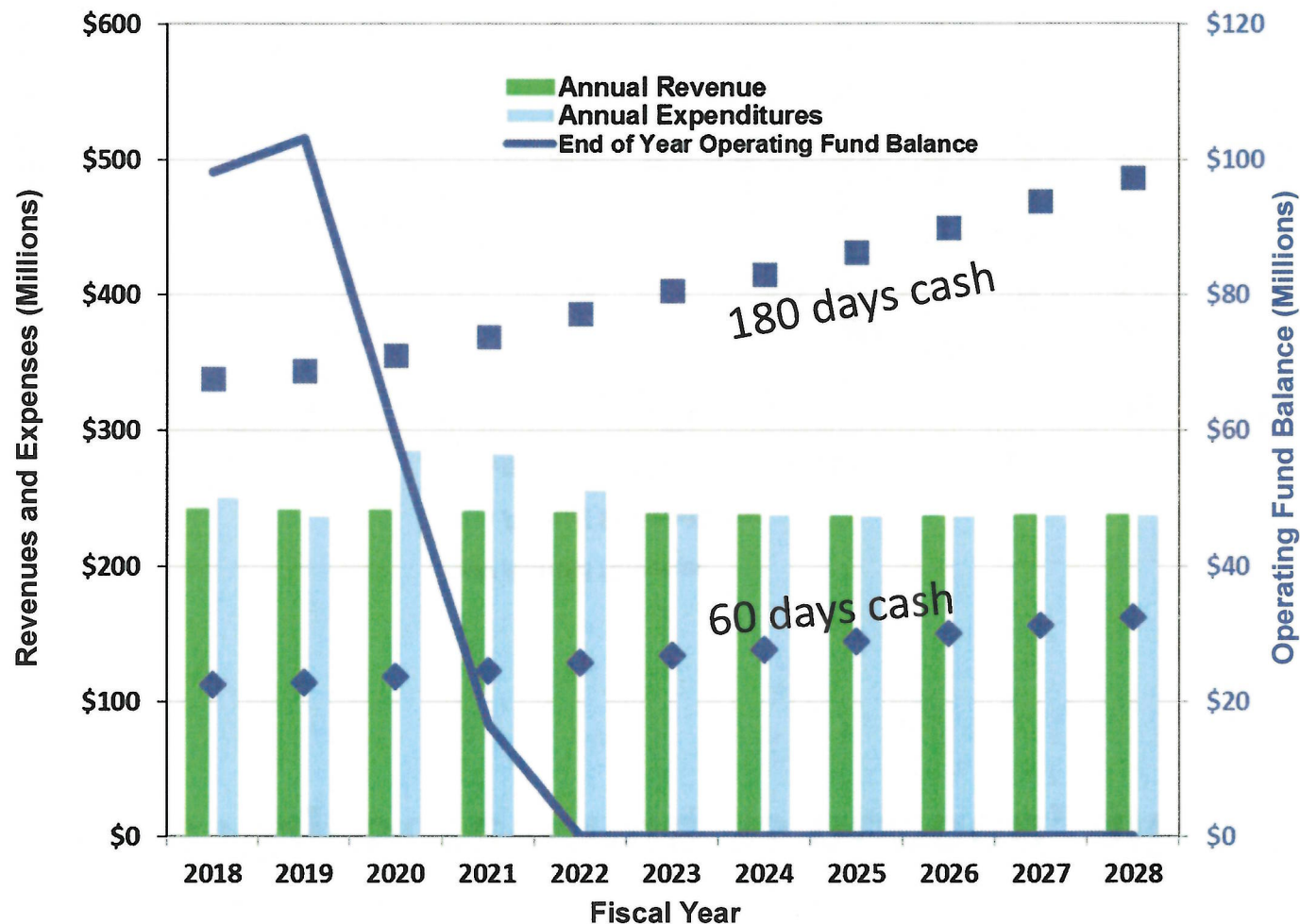


Scenario: No revenue adjustments

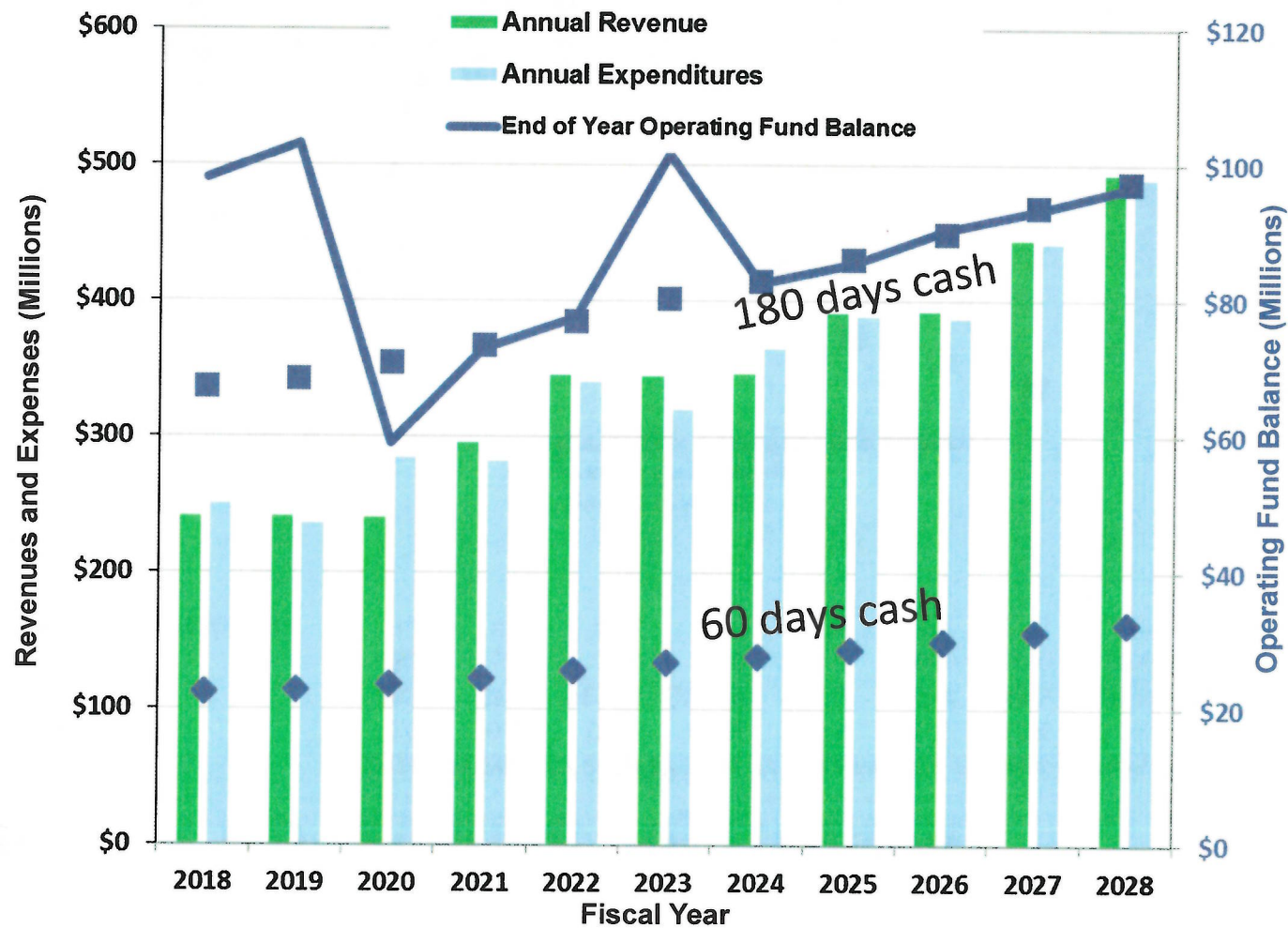


Scenario: No revenue adjustments

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Revenue Adjustment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash Funded Capital	\$82.5	\$74.6	\$117.4	\$108.9	\$75.0	\$50.0	\$43.5	\$35.9	\$28.4	\$20.3	\$13.0
Bond Issues	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
"All-in" Debt Service Coverage Ratio	3.36	4.57	4.15	3.80	3.42	3.04	2.73	2.40	2.09	1.76	1.48

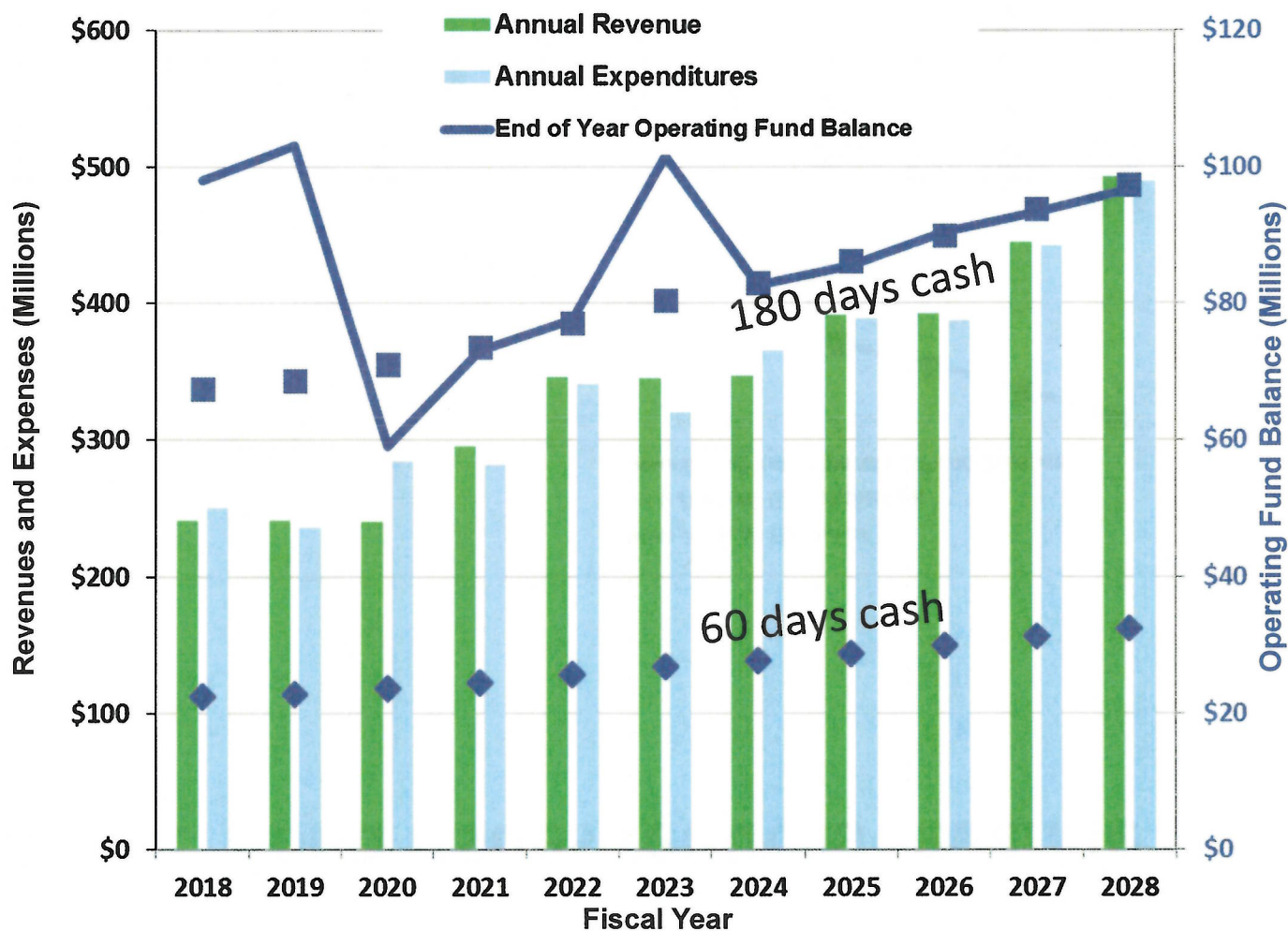


Scenario: Adjust revenue as needed, all cash

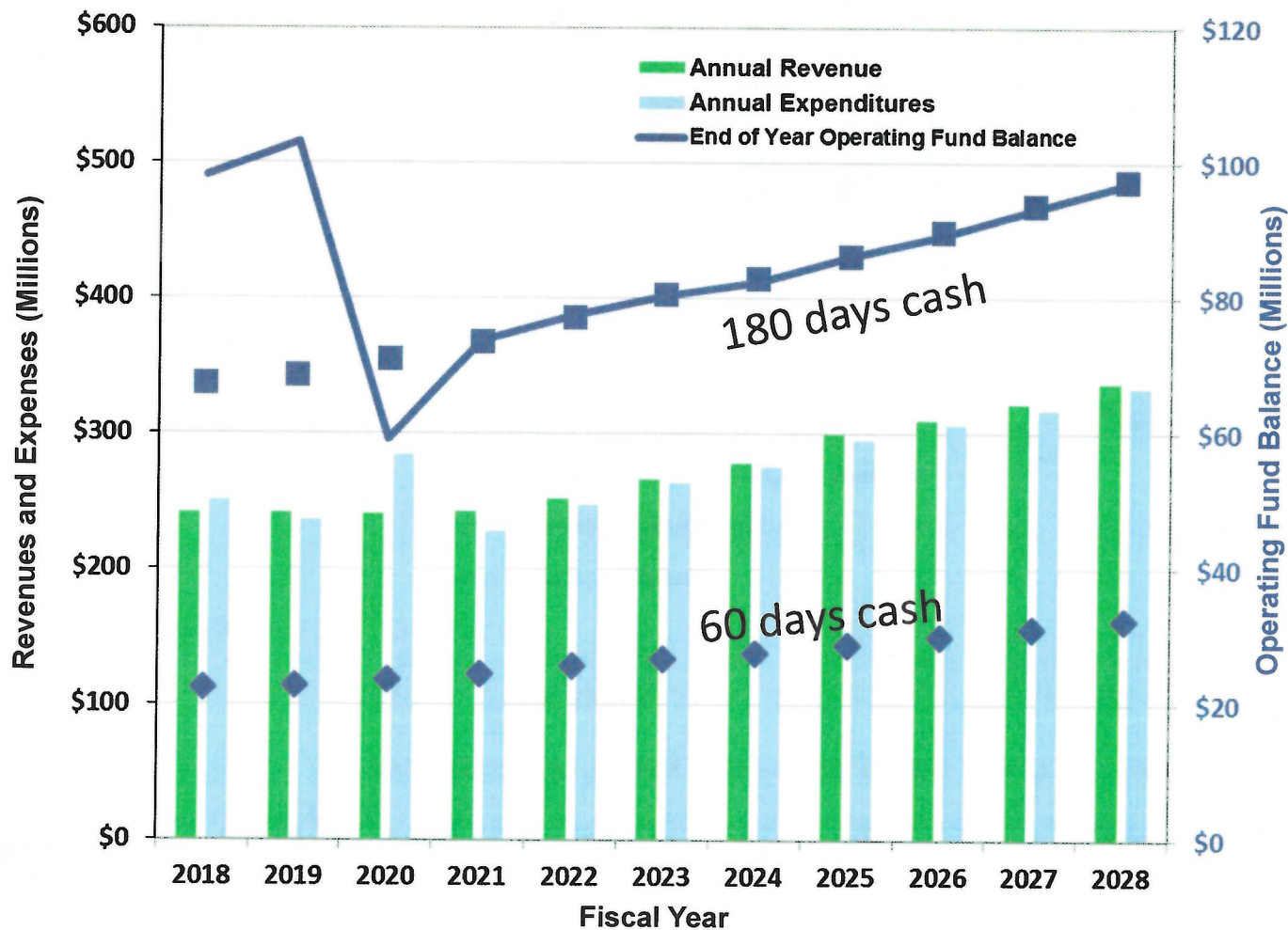


Scenario: Adjust revenue as needed, all cash

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Revenue Adjustment	0.0%	0.0%	0.0%	25.0%	18.0%	0.0%	1.0%	14.0%	0.0%	14.0%	11.0%
Cash Funded Capital	\$82.5	\$74.6	\$117.4	\$108.9	\$160.3	\$132.6	\$171.8	\$188.0	\$178.6	\$225.4	\$264.8
Bond Issues	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
"All-in" Debt Service Coverage Ratio	3.36	4.57	4.15	6.16	7.85	7.38	7.07	8.44	8.05	9.58	10.88

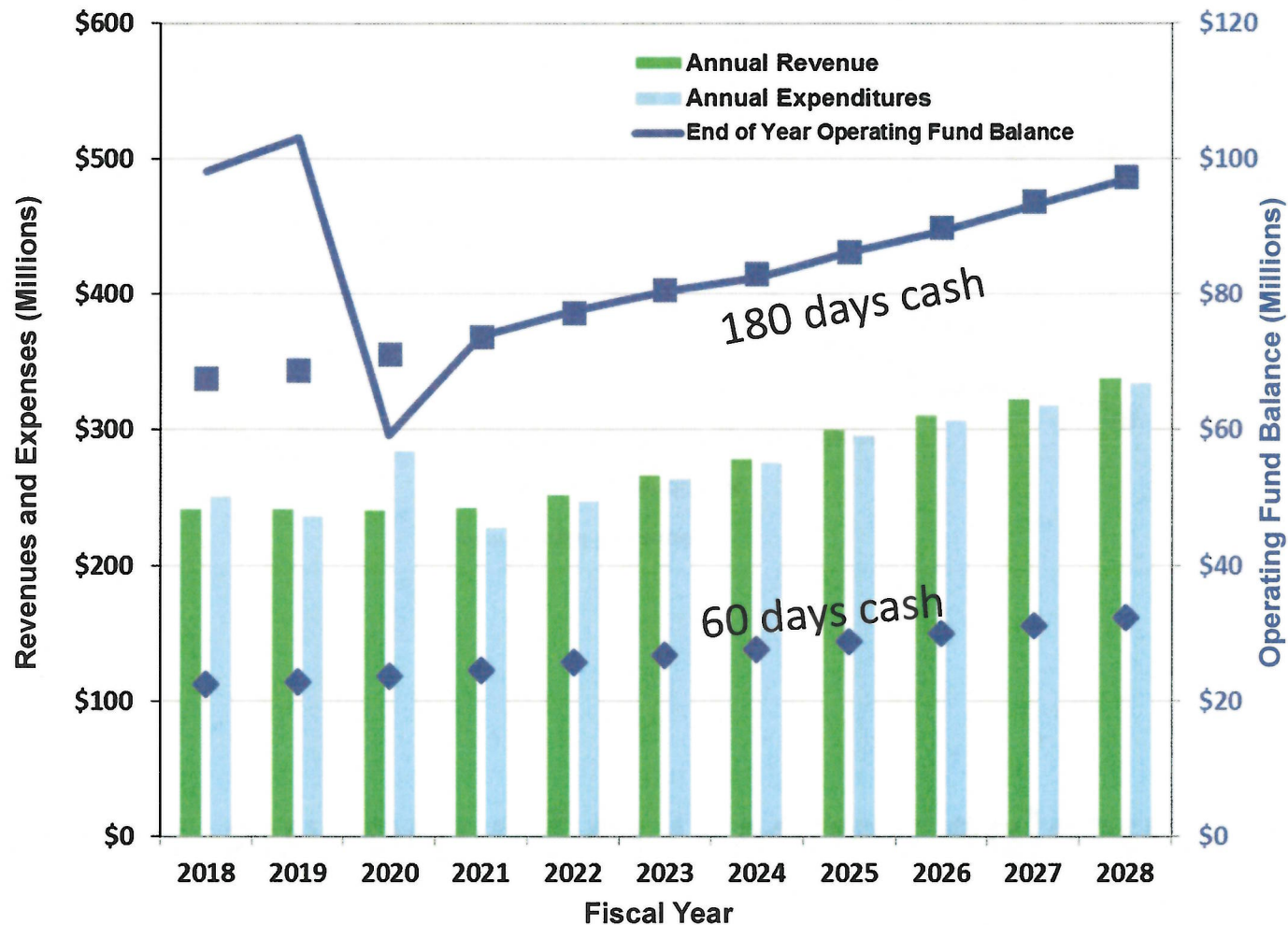


Scenario: Bond issues reduces revenue req.

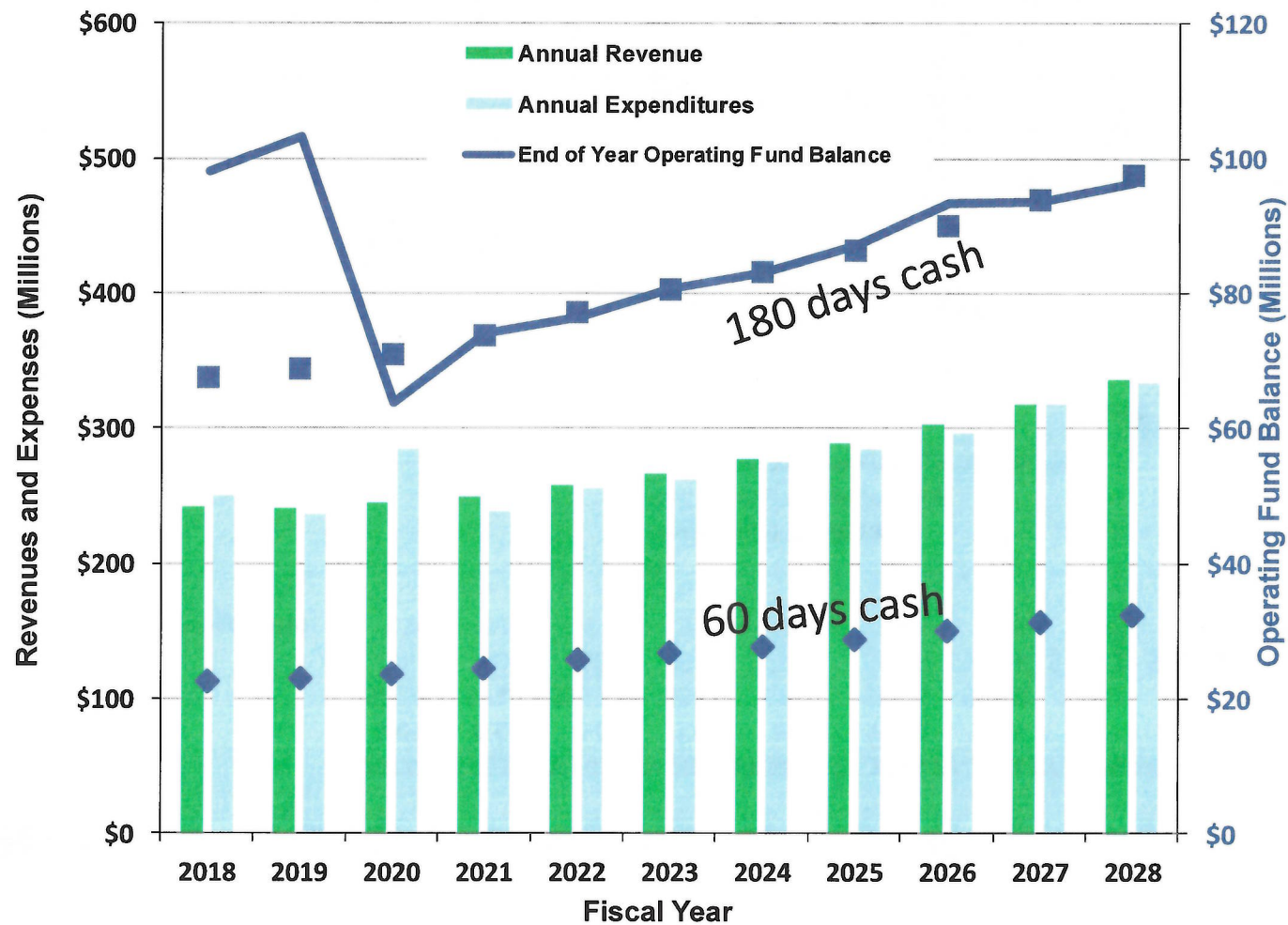


Scenario: Bond issues reduces revenue req.

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Revenue Adjustment	0.0%	0.0%	0.0%	1.0%	4.5%	6.5%	5.0%	8.5%	3.5%	4.0%	5.0%
Cash Funded Capital	\$82.5	\$74.6	\$117.4	\$54.6	\$64.3	\$66.5	\$68.9	\$75.4	\$71.7	\$67.9	\$66.5
Bond Issues	\$0.0	\$0.0	\$0.0	\$54.6	\$96.5	\$66.5	\$103.4	\$113.1	\$107.5	\$158.4	\$199.4
"All-in" Debt Service Coverage Ratio	3.36	4.57	4.15	3.90	3.50	3.06	2.85	2.75	2.42	2.20	2.00

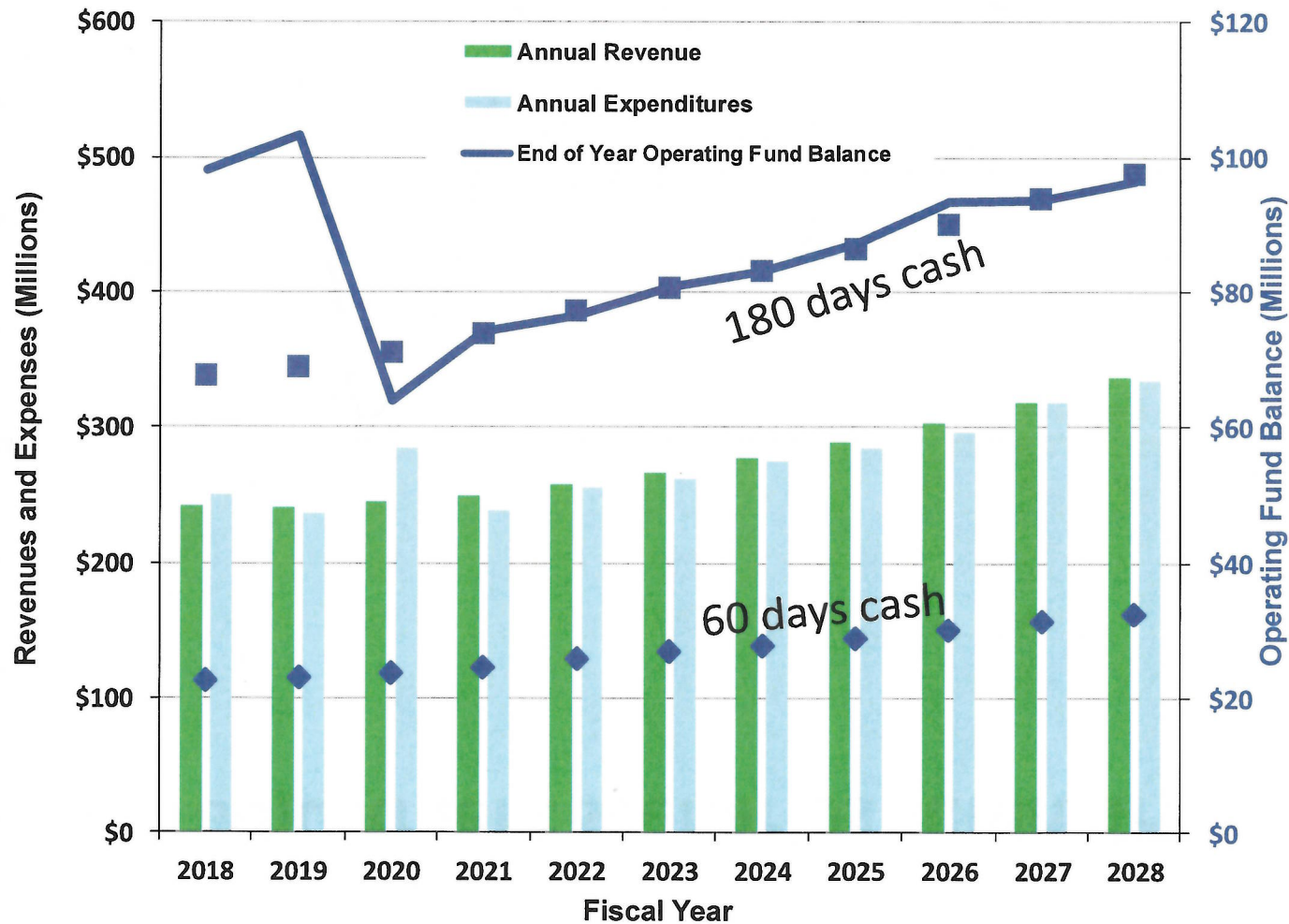


Scenario: Smoothing of revenue adjustments

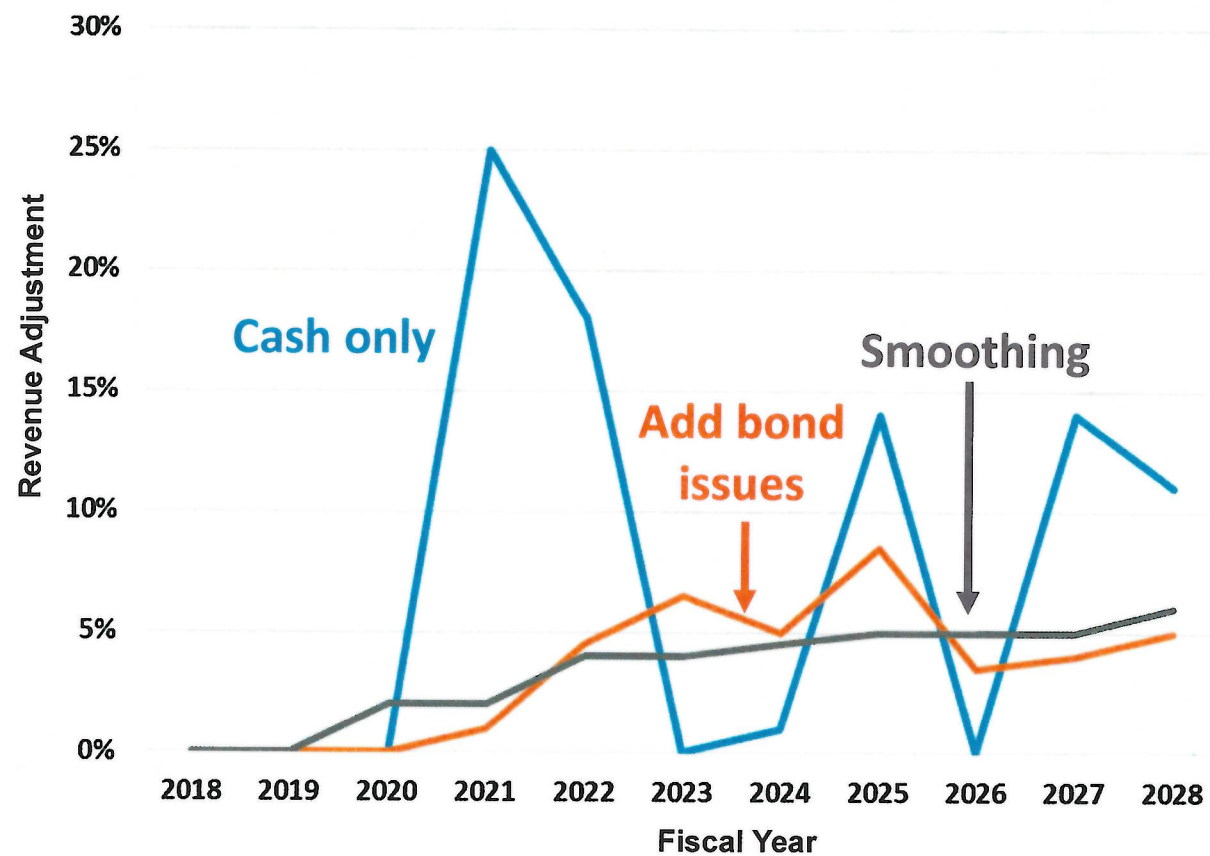


Scenario: Smoothing of revenue adjustments

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Revenue Adjustment	0.0%	0.0%	2.0%	2.0%	4.0%	4.0%	4.5%	5.0%	5.0%	5.0%	6.0%
Cash Funded Capital	\$82.5	\$74.6	\$117.4	\$65.5	\$72.3	\$66.5	\$68.9	\$66.0	\$62.7	\$67.9	\$66.5
Bond Issues	\$0.0	\$0.0	\$0.0	\$43.7	\$88.4	\$66.5	\$103.4	\$122.6	\$116.5	\$158.4	\$199.4
"All-in" Debt Service Coverage Ratio	3.36	4.57	4.35	4.19	3.81	3.18	2.91	2.59	2.33	2.14	1.99



Revenue adjustment scenarios summary



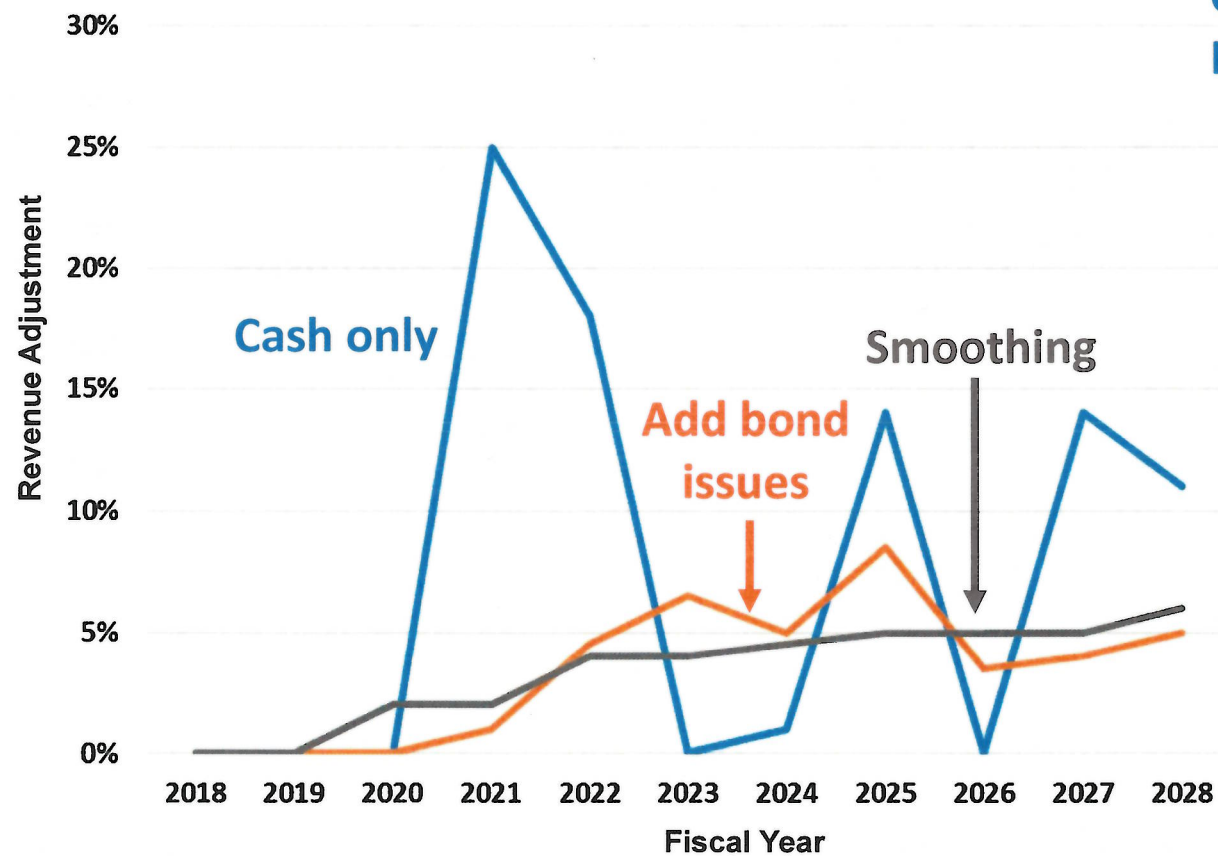
Revenue adjustment scenarios summary

Cash only

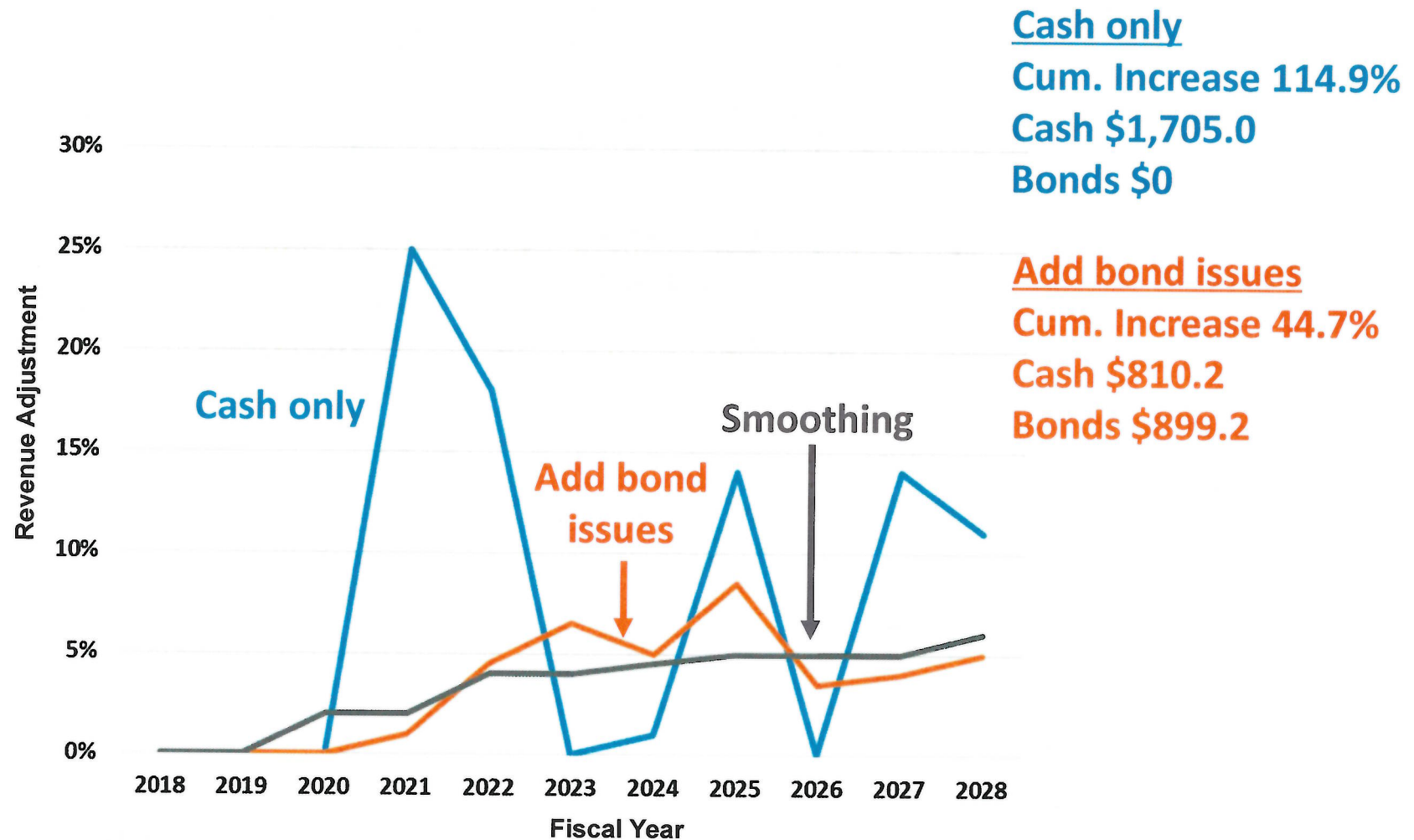
Cum. Increase 114.9%

Cash \$1,705.0

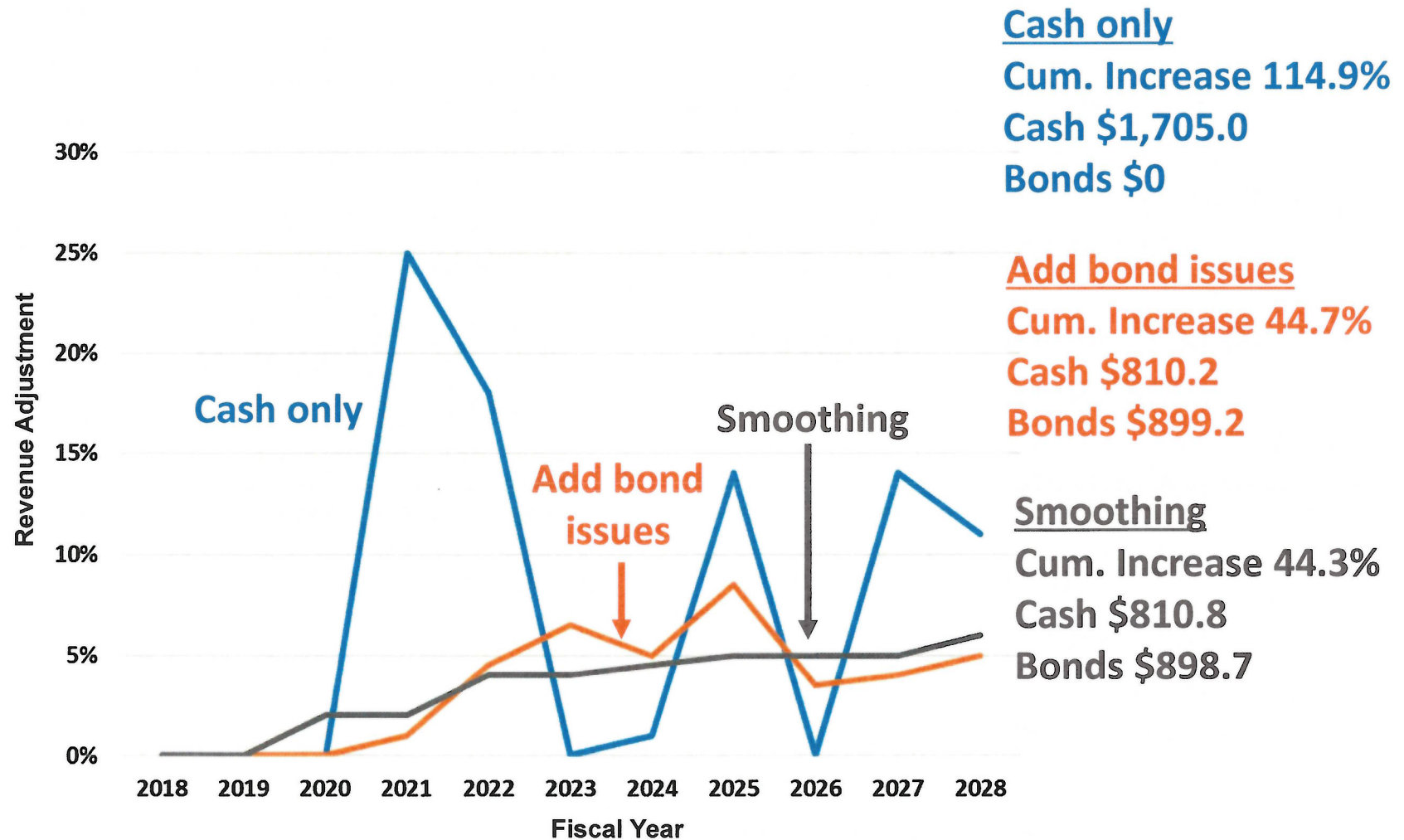
Bonds \$0



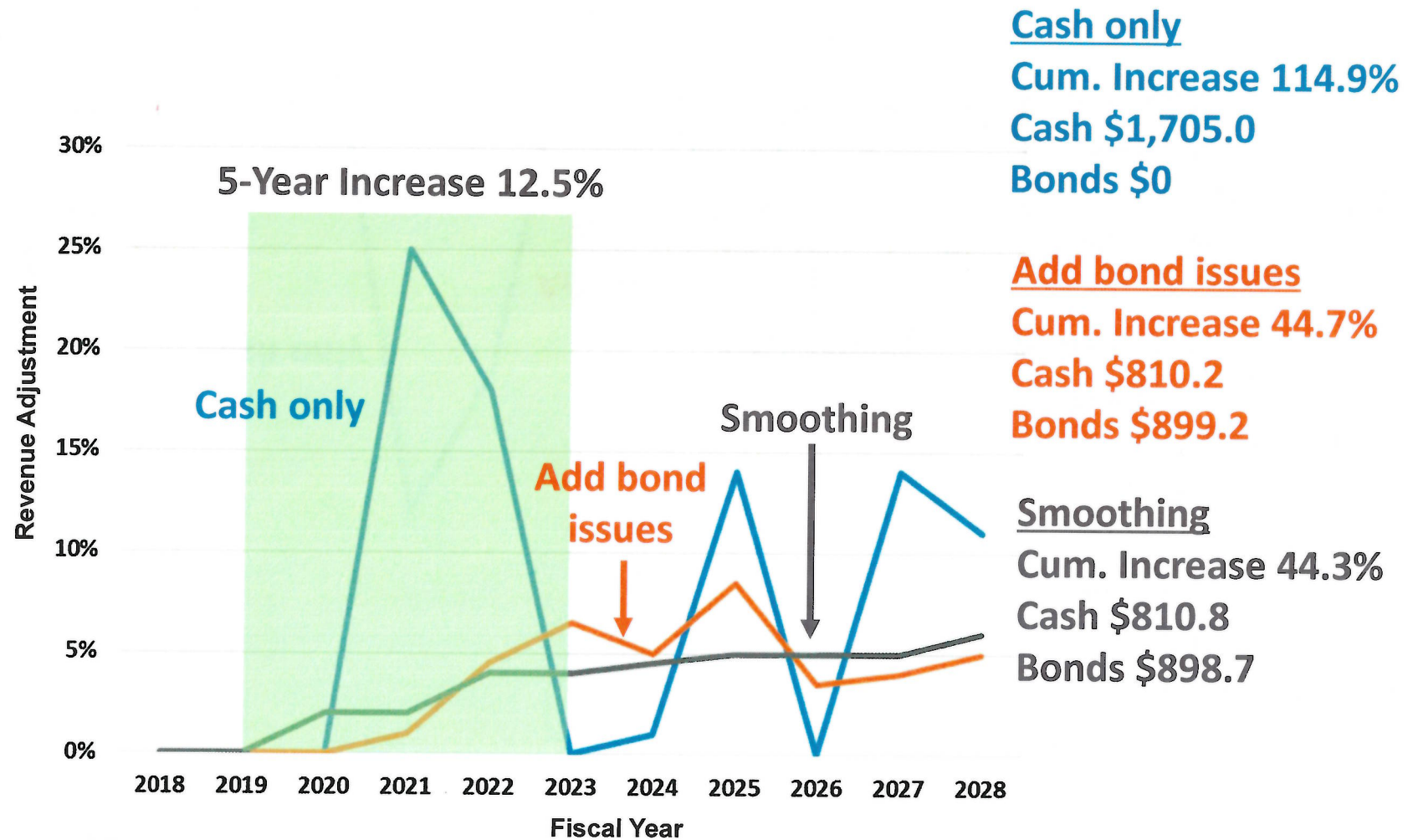
Revenue adjustment scenarios summary



Revenue adjustment scenarios summary



Revenue adjustment scenarios summary



WATER FOR LIFE

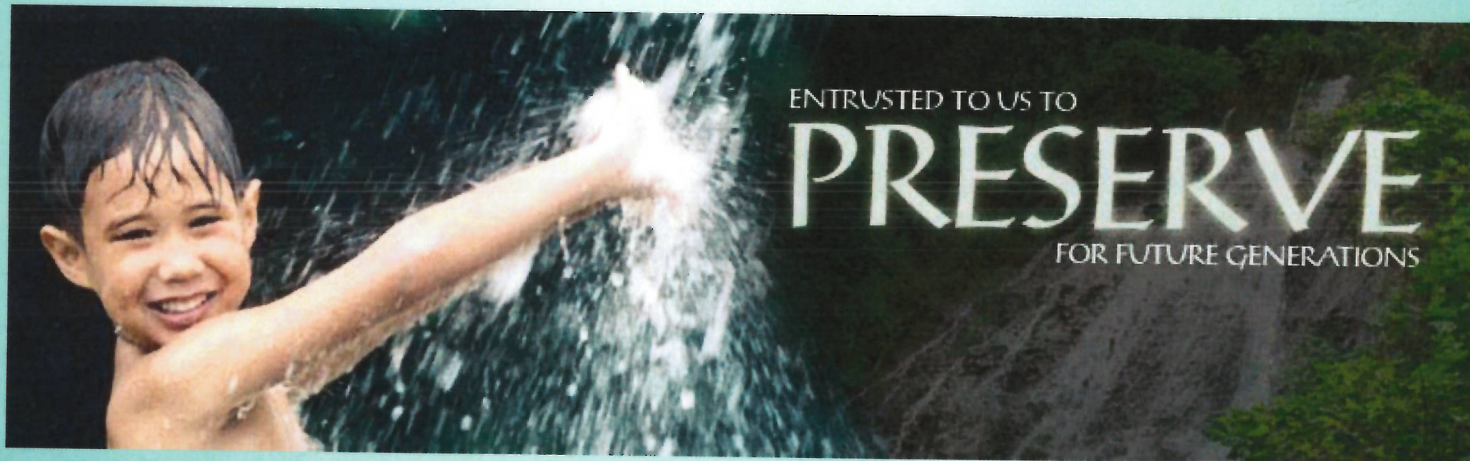
Safe, dependable, and affordable water now and into the future



Board of Water Supply
City and County of Honolulu

Mahalo!

Questions & Answers



ITEM FOR INFORMATION NO. 2

"December 18, 2017

UPDATE ON
AFFORDABLE
HOUSING

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

Chair and Members:

Subject: Update on Affordable Housing Subsidies

An update on research into the Mayor's request for a Board of Water Supply subsidy or incentive to encourage development of affordable housing and homeless units will be provided at the meeting.

Respectfully submitted,

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

Attachment"

The foregoing was for information only.

DISCUSSION:

Ellen Kitamura, Deputy Manager, provided the report. Ms. Kitamura presented estimated calculations for BWS water meter hook-up fees and Water System Facilities Charges (WSFC) subsidies for City Affordable & Homeless Housing Projects in Fiscal Years 2017-2021. Ms. Kitamura stated that BWS is meeting with the Department of Planning and Permitting, Department of Land Management, Council Member Pine, and Council Member Manahan for the latest information updates.

Mr. Andaya pointed out that it is BWS's hook-up fees, not the WSFC fees, in which the Mayor is requesting BWS to waive for the affordable housing subsidy. Mr. Lau agreed.

Mr. Andaya suggested that the Board's course of action should be in 5 steps – sizing up the proposal, approving and prioritizing various subsidy requests, budgeting monies to fund the subsidies, holding public hearing, and setting the policy to implement the subsidies.

Mr. Hulihee commented that the problem with the affordable housing subsidy is that it is the customers' money that is being used to fund the program. Mr. Andaya agreed, and added that a decision would not be made today.

Mr. Soon commented that he would like to make a policy decision on the matter in January 2018. Mr. Andaya agreed. Mr. Lau stated that the Board can request more information on the various subsidies prior to the Rates

Workshop Meeting in January and he would try to get that information so that they could make preliminary decisions on future direction regarding affordable housing and homeless subsidies.



Estimated BWS Meter and WSFC Subsidies for City Affordable & Homeless Housing Projects FY 2017 - 2021

Description	Total Units	Hook-Up	WSFC	Assumptions
Single-Family	96	\$172,512	\$355,834	<ul style="list-style-type: none"> 20 fixture units * \$185.33/fxu ¾" meter & lateral = \$1,797
Multi-Family	861	\$710,100	\$966,610	<ul style="list-style-type: none"> 5.5 fixture units * \$204.12/fxu 8"X2" FM meter = \$28,404 5 developments/year
Homeless	375	\$284,040	\$420,998	<ul style="list-style-type: none"> 5.5 fixture units * \$204.12/fxu 8"X2" FM meter = \$28,404 2 developments/year
SUBTOTAL	1,332	\$1,166,652	\$1,743,441	
TOTAL WSFC + HOOKUP = : \$2,910,093 OR \$582,019/YEAR				

- ◆ DPP Projected Demands for Affordable and Homeless Housing Units FY 2017-2021
- ◆ Does not include Accessory Dwelling Units
- ◆ Fees are estimates only; actual fees to be determined at building permit stage
- ◆ Water System Facilities Charges (WSFC) based on charges set in 1993



In Progress

- ◆ Continued meetings with DPP – Harrison Rue
 - Confirm housing numbers
 - Status of projects and management of affordable housing initiative
- ◆ Getting Update on Status of Bills 58 & 59
 - Bill 58 (2017): Affordable Housing Requirement
 - Bill 59 (2017): Affordable Housing Incentives, Companion for Bill 58
 - Meeting with Council Member Pine (Zoning and Housing Chair)
 - Meeting with Council Member Manahan (Budget Chair)
- ◆ Meeting with Department of Land Management – Sandy Pfund
 - Status of plans of future affordable and homeless housing development

ITEM FOR INFORMATION NO. 3

"December 18, 2017

GROUNDWATER
LEVELS

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

Chair and Members:

Subject: Status Update of Groundwater Levels at All Index Stations

There was one aquifer index well within low groundwater status for the production month of November 2017. Punaluu has been in caution status since the week of June 18, 2017. The monthly production average for November 2017 was 133.98 million gallons per day.

The Board of Water Supply rainfall index for the month of November 2017 was 107 percent of normal; with a 5-month moving average of 87 percent. As of December 5, 2017, the Hawaii Drought Monitor shows abnormally dry to moderate drought conditions for the leeward coast of Oahu from Nanakuli to Makaha.

The National Weather Service is forecasting La Niña conditions in the equatorial Pacific Ocean and above normal rainfall this Winter and into Spring 2018.

Most monitoring wells are continuing to exhibit static or slight rises in head level trends due to the decreased pumpage in the winter months.

Respectfully submitted,

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

Attachment"

The foregoing was for information only.

DISCUSSION: Barry Usagawa, Water Resources Division Program Administrator, gave the report. There were no comments or discussion.

**PRODUCTION, HEAD AND RAINFALL REPORT
MONTH OF NOVEMBER 2017**

POTABLE

STATION	MGD
HONOLULU (1)	
KULIOUOU	0.07
WAILUPE	0.04
AINA KOA	0.18
AINA KOA II	0.93
MANOA II	0.00
PALOLO	1.13
KAIMUKI HIGH	2.29
KAIMUKI LOW	1.51
WILDER	7.12
BERETANIA HIGH	5.28
BERETANIA LOW	2.55
KALIHI HIGH	0.00
KALIHI LOW	2.31
KAPALAMA	1.49
KALIHI SHAFT	8.63
MOANALUA	1.25
HALAWA SHAFT	6.10
KAAMILO	0.00
KALAUAO	6.86
PUNANANI	12.07
KAAHUMANU	0.00
HECO WAIU	2.74
MANANA	0.46
WELLS SUBTOTAL:	63.04
MANOA TUNNEL	0.17
PALOLO TUNNEL	0.23
GRAVITY SUBTOTAL:	0.40
HONO. SUBTOTAL:	63.44

STATION	MGD
WINDWARD (2)	
WAIMANALO II	0.32
WAIMANALO III	0.17
KUOU I	0.81
KUOU II	0.08
KUOU III	0.25
LULUKU	0.92
HAIKU	0.00
IOLEKAA	0.00
KAHALUU	0.81
KAHANA	0.77
PUNALUU I	0.00
PUNALUU II	2.65
PUNALUU III	1.05
KALUANUI	0.00
MAAKUA	0.28
HAUULA	0.13
WELLS SUBTOTAL:	8.25
WAIM. TUNNELS I & II	0.00
WAIM. TUNNELS III&IV	0.19
WAIHEE INCL. WELLS	0.66
WAIHEE TUNNEL	4.26
LULUKU TUNNEL	0.18
HAIKU TUNNEL	0.87
KAHALUU TUNNEL	1.75
GRAVITY SUBTOTAL:	7.91
WIND. SUBTOTAL:	16.16

STATION	MGD
NORTH SHORE (3)	
KAHUKU	0.34
OPANA	0.59
WAIALEE I	0.00
WAIALEE II	0.40
HALEIWA	0.00
WAIALUA	1.20
N.SHORE SUBTOTAL:	2.53

STATION	MGD
MILILANI (4)	
MILILANI I	2.75
MILILANI II	0.00
MILILANI III	0.00
MILILANI IV	1.55
MILILANI SUBTOTAL:	4.30

STATION	MGD
WAIHAWA (5)	
WAIHAWA	2.92
WAIHAWA II	0.00
WAIHAWA SUBTOTAL:	2.92

STATION	MGD
PEARL CITY-HALAWA (6)	
HALAWA 277	1.00
HALAWA 550	0.00
AIEA	1.08
AIEA GULCH 497	0.00
AIEA GULCH 550	0.21
KAONOHII I	1.04
WAIMALU I	0.00
NEWTOWN	0.97
WAIU	0.71
PEARL CITY I	0.51
PEARL CITY II	0.98
PEARL CITY III	0.38
PEARL CITY SHAFT	0.86
PEARL CITY-HALAWA SUBTOTAL:	7.74

STATION	MGD
WAIPAHU-EWA (7)	
WAIPIO HTS.	0.26
WAIPIO HTS. I	0.15
WAIPIO HTS. II	0.40
WAIPIO HTS. III	1.23
WAIPAHU	5.55
WAIPAHU II	1.94
WAIPAHU III	1.69
WAIPAHU IV	2.40
KUNIA I	2.41
KUNIA II	1.62
KUNIA III	1.39
HOAEAE	4.29
HONOULIULI I	1.30
HONOULIULI II	7.88
MAKAKILO	0.24
WAIPAHU-EWA SUBTOTAL:	32.73

STATION	MGD
WAIANAE (8)	
MAKAHA I	0.86
MAKAHA II	0.31
MAKAHA III	0.53
MAKAHA V	0.20
MAKAHA VI	0.00
MAKAHA SHAFT	0.00
KAMAILE	0.00
WAIANAE I	0.18
WAIANAE II	0.06
WAIANAE III	0.47
WELLS SUBTOTAL:	2.59
WAI. C&C TUNNEL	1.40
WAI. PLANT. TUNNELS	0.16
GRAVITY SUBTOTAL:	1.56
WAIANAE SUBTOTAL:	4.15

NONPOTABLE

NONPOTABLE	MGD
KALAUAO SPRINGS	0.46
BARBERS POINT WELL	1.05
GLOVER TUNNEL NP	0.41
NONPOTABLE TOTAL:	1.91

RECYCLED WATER (OCTOBER 2017)

RECYCLED WATER	MGD
HONOULIULI WRF R-1	7.23
HONOULIULI WRF RO	1.67
RECYCLED WATER TOTAL:	8.90

**PRODUCTION, HEAD AND RAINFALL REPORT
MONTH OF NOVEMBER 2017**

PRODUCTION SUMMARIES

TOTAL WATER	MGD
PUMPAGE	124.10
GRAVITY	9.87
POTABLE TOTAL:	133.98
NONPOTABLE	1.91
RECYCLED WATER	8.90
TOTAL WATER:	144.79

CWRM PERMITTED USE AND BWS ASSESSED YIELDS FOR BWS				
POTABLE SOURCES				
WATER USE DISTRICTS		A PERMITTED USE/ BWS YLDS	B NOV 2017	C DIFF. A-B
1	HONOLULU	82.93	63.04	19.89
2	WINDWARD	25.02	11.24	13.78
3	NORTH SHORE	4.74	2.53	2.21
4	MILILANI	7.53	4.30	3.23
5	WAHIAWA	4.27	2.92	1.35
6	PEARL CITY-HALAWA	12.25	7.74	4.51
7	WAIPAHU-EWA	50.63	32.73	17.90
8	WAIAANAE	4.34	2.59	1.75
TOTAL:		191.71	127.10	64.61

CWRM PERMITTED USE FOR BWS				
NONPOTABLE SOURCES				
WATER USE DISTRICTS		A PERMITTED USE	B NOV 2017	C DIFF. A-B
7	WAIPAHU-EWA (BARBERS POINT WELL)	1.00	1.05	-0.05
TOTAL:		1.00	1.05	-0.05

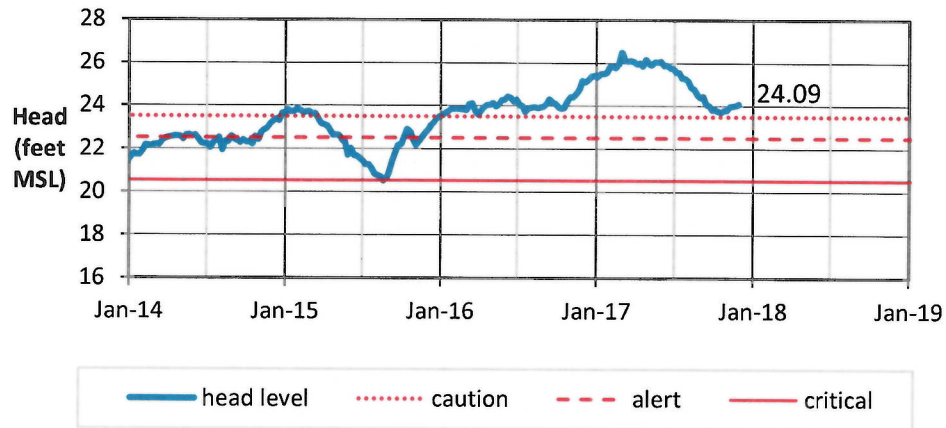
EFFECTIVE WATER DEMAND PER DISTRICT

IMPORT/EXPORT BETWEEN WATER USE DISTRICTS			
FROM	TO		MGD
2	1	WINDWARD EXPORT	0.86
7	8	BARBERS PT LB	5.21

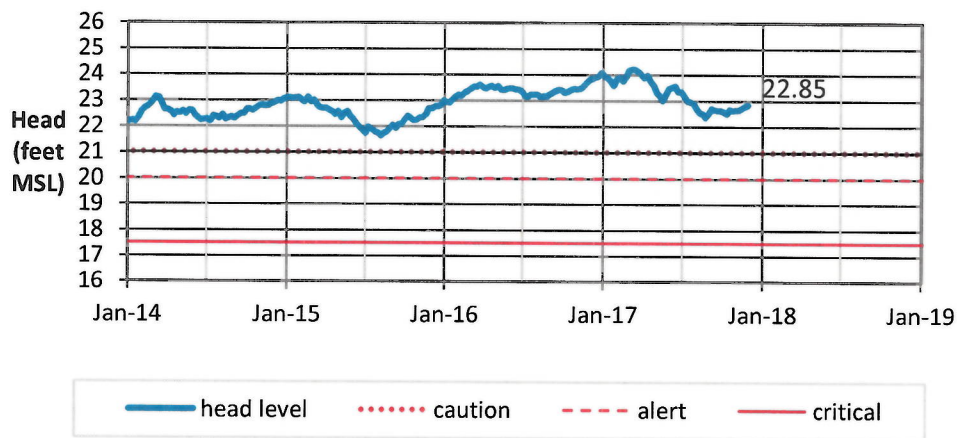
WATER USE DISTRICTS		SUBTOTAL	IMPORT	EXPORT	EFFECTIVE WATER DEMAND
1	HONOLULU	63.04	0.86	-	63.90
2	WINDWARD	11.24	-	0.864	10.38
3	NORTH SHORE	2.53	-	-	2.53
4	MILILANI	4.30	-	-	4.30
5	WAHIAWA	2.92	-	-	2.92
6	PEARL CITY-HALAWA	7.74	-	-	7.74
7	WAIPAHU-EWA	32.73	-	5.21	27.52
8	WAIAANAE	2.59	5.21	-	7.80
TOTAL:		127.10	6.07	6.07	127.10

Weekly Head Report

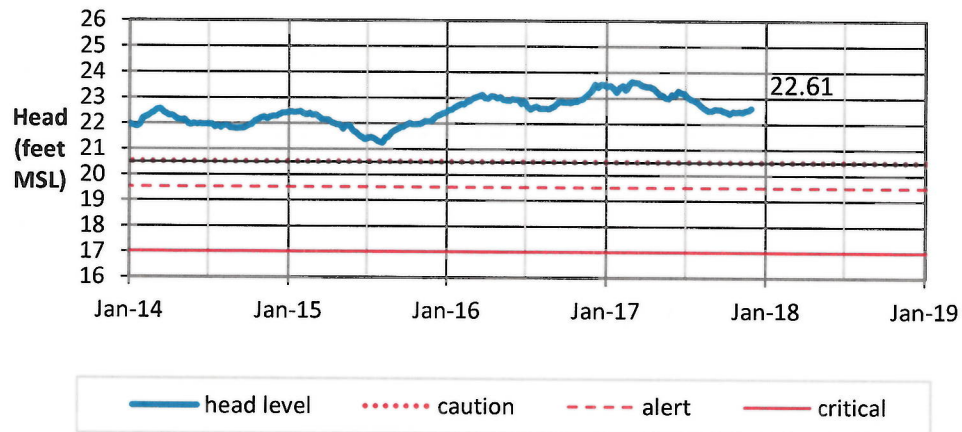
Kaimuki 12/05/17



Beretania 12/04/17

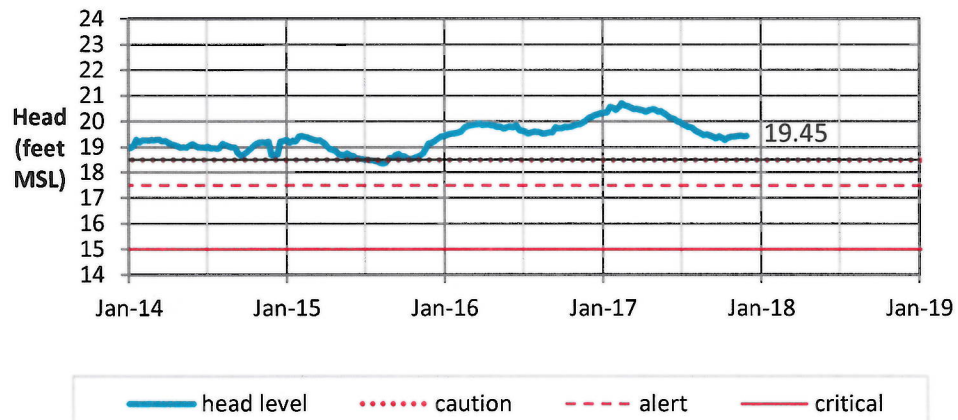


Kalihi 12/04/17

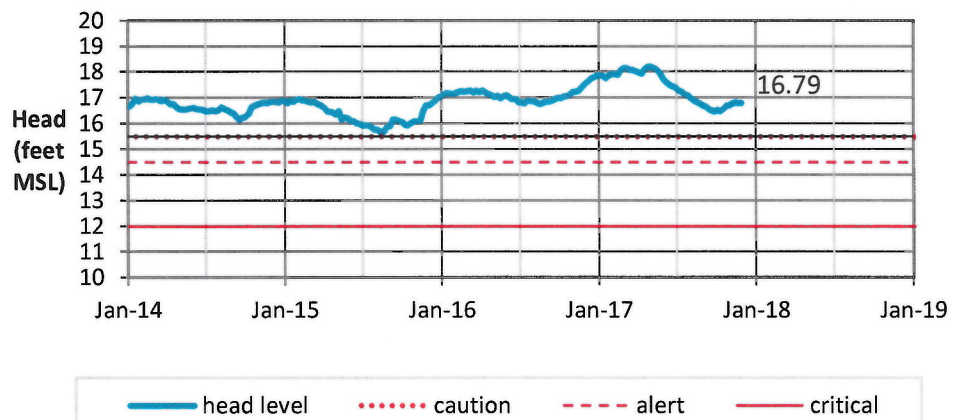


Weekly Head Report

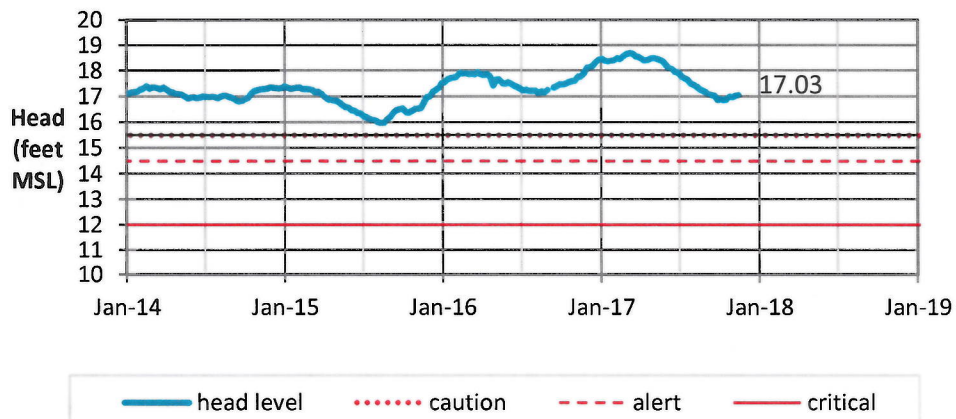
Moanalua 12/04/17



Halawa 12/04/17

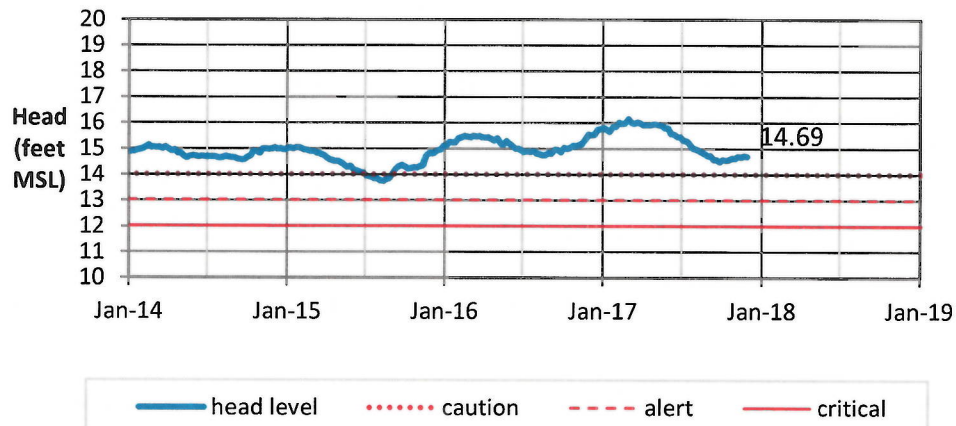


Kalauao 12/05/17

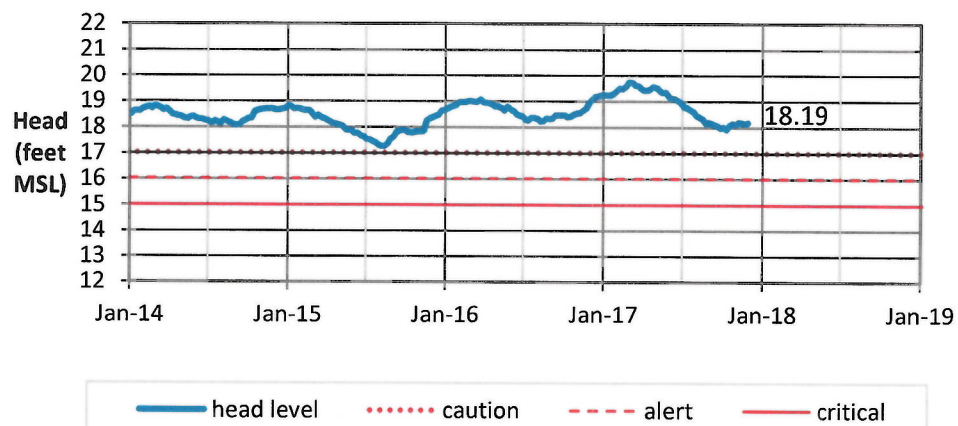


Weekly Head Report

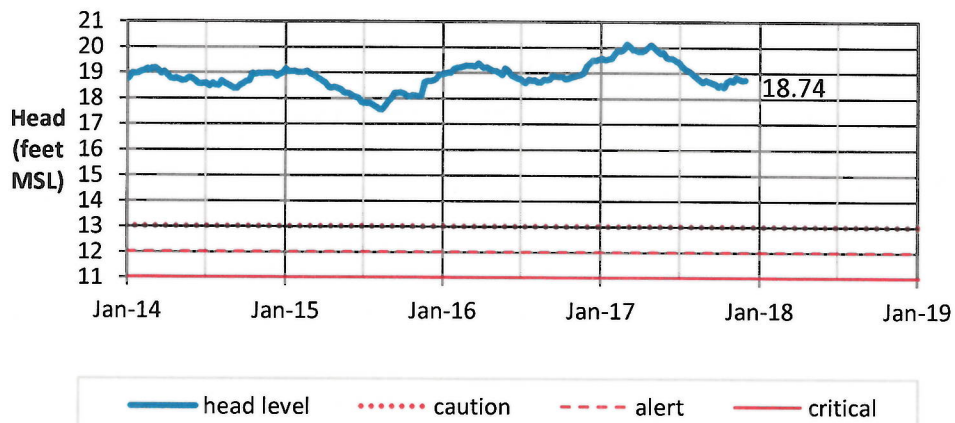
Pearl City 12/05/17



Waipahu 12/04/17

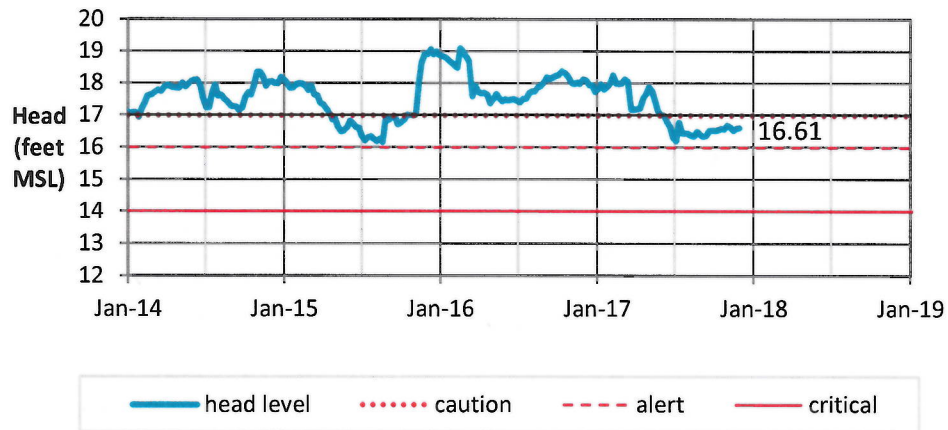


Hoeaee-Kunia 12/04/17

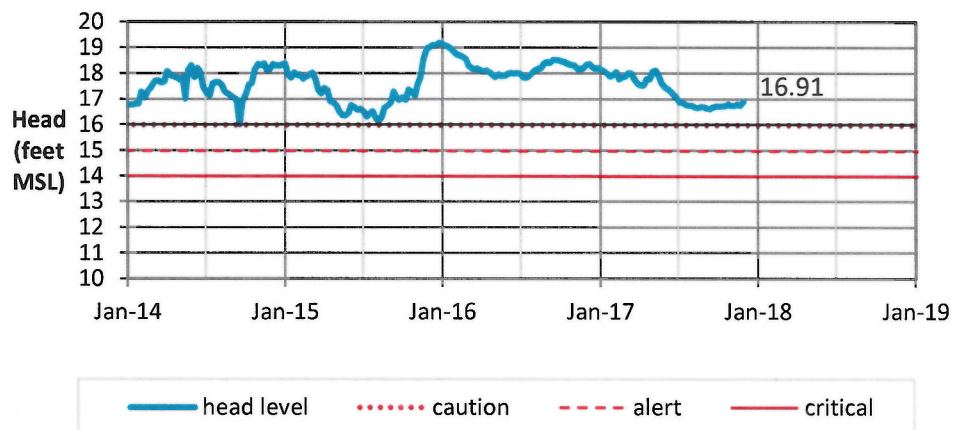


Weekly Head Report

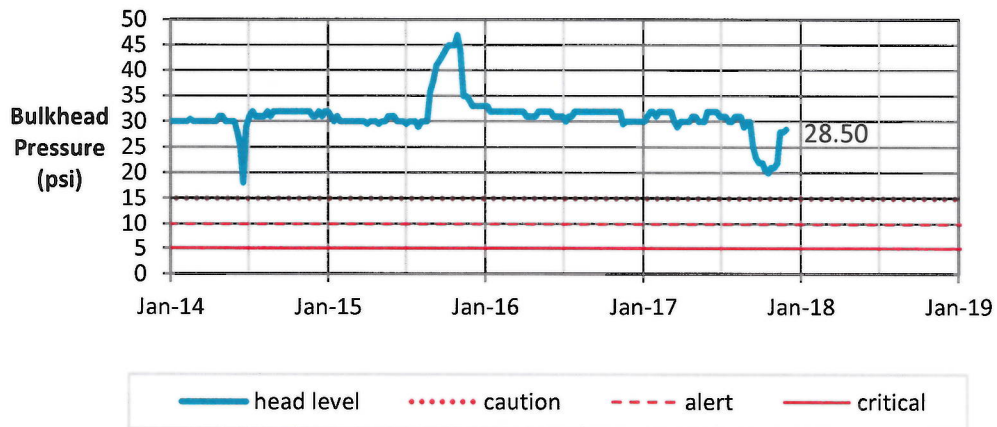
Punaluu 12/04/17



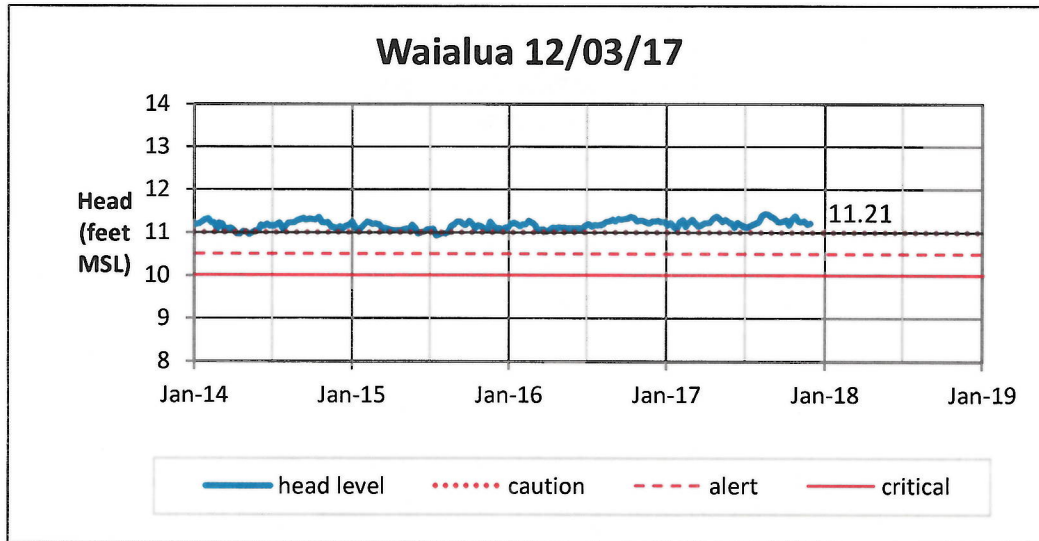
Kaluauui 12/03/17

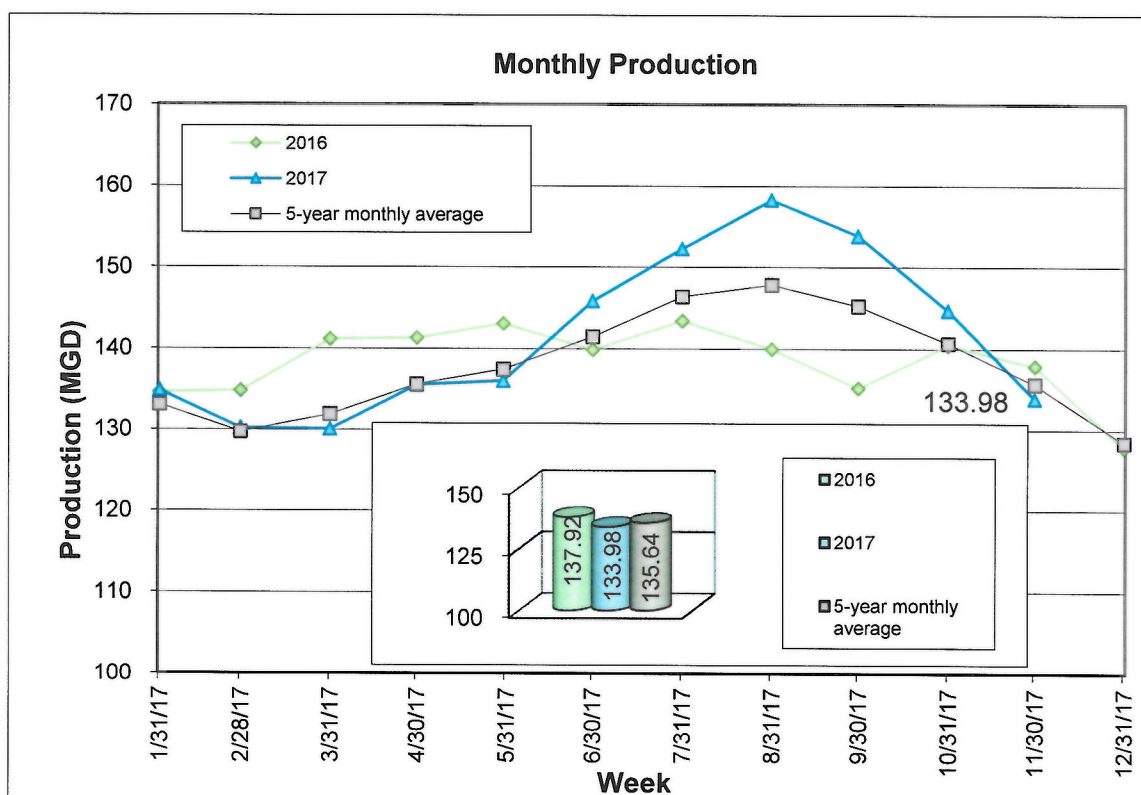
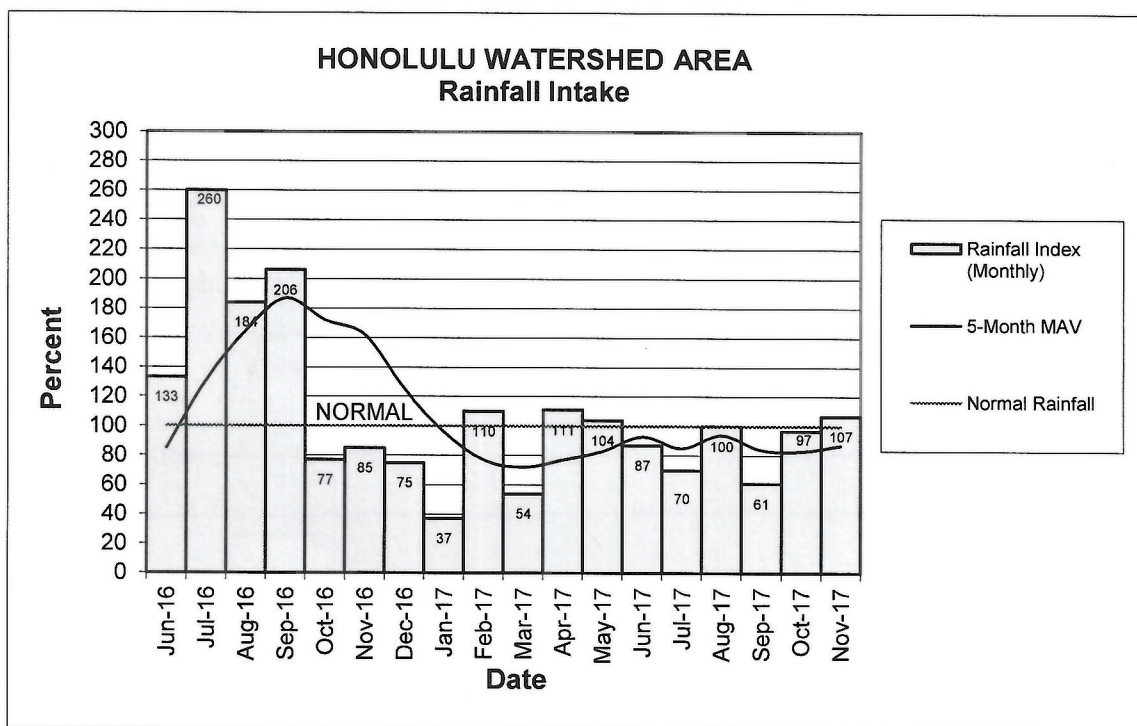


Waihee Tunnel 12/05/17



Weekly Head Report



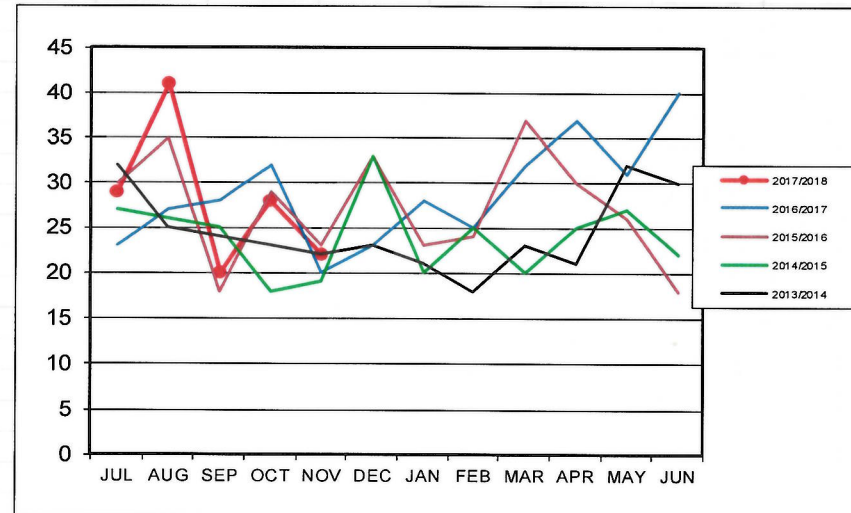


ITEM FOR INFORMATION NO. 4

WATER MAIN REPAIR REPORT for November 2017

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	Total
2017/2018	29	41	20	28	22								140
2016/2017	23	27	28	32	20	23	28	25	32	37	31	40	346
2015/2016	30	35	18	29	23	33	23	24	37	30	26	18	326
2014/2015	27	26	25	18	19	33	20	25	20	25	27	22	287
2013/2014	32	25	24	23	22	23	21	18	23	21	32	30	294

Date	Address	Size (In)	Pipe Type
11/1/2017	3840 MARIPOSA DR, HONOLULU	8	CI
11/2/2017	142 AIKAHI LP, KAILUA	8	AC
11/2/2017	965 N NIMITZ HWY, HONOLULU	12	CI
11/3/2017	812 KAUAI ST, HONOLULU	4	CI
11/3/2017	59-603 ALAPIO RD, HALEIWA	8	CI
11/4/2017	94-839 FARRINGTON HWY, WAIPAHU	8	CI
11/4/2017	41-208 KAUHOLOKAHIKI ST, WAIMANALO	8	DI
11/5/2017	99-143 UAH ST, AIEA	6	CI
11/6/2017	1241 10TH AVE, HONOLULU	12	PVC
11/8/2017	94-111 PUPUKAHI ST, WAIPAHU	8	AC
11/9/2017	364 AUWINALA RD, KAILUA	6	CI
11/10/2017	2720 WAIWAI LP, HONOLULU	6	CI
11/11/2017	45 KAILUANA PL, KAILUA	8	CI
11/11/2017	87-350 KULAWAE ST, WAIANAE	8	PVC
11/12/2017	45-910 KAM HWY, KANEOHE	8	CI
11/13/2017	2201 AULII ST, HONOLULU	8	CI
11/18/2017	47-635 MELEKULA RD, KANEOHE	8	CI
11/19/2017	3672 DIAMOND HEAD CIR, HONOLULU	8	CI
11/22/2017	2232 KOMO MAI DR, PEARL CITY	8	CI
11/25/2017	1366 DILLINGHAM BLVD, HONOLULU	12	CI
11/27/2017	3161 BEAUMONT WOODS PL, HONOLULU	8	CI
11/29/2017	46-018 KAMEHAMEHA HWY, KANEOHE	8	CI



66 miles of pipelines were surveyed by the Leak Detection Team in the month of November.

DISCUSSION:

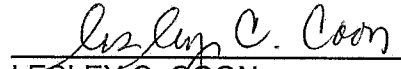
Michael Fuke, Field Operations Division Acting Program Administrator, gave the report. Mr. Fuke stated that there were 22 main breaks in the month of November. He stated that the most problematic main break occurred on November 2nd at the intersection of Nimitz Highway and Alakawa Street. Although the size of the main was small, petroleum products found during excavation was problematic. Eighty thousand gallons of water was captured and had to be properly disposed. Mr. Fuke also stated that 66 miles of pipeline were surveyed by the Leak Detection Team, and seven leaks were found and repaired.

MOTION TO
ADJOURN

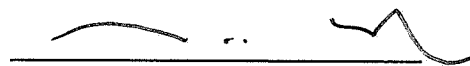
There being no further business Chair Andaya at 3:11 PM called for a motion to adjourn the Open Session. Ray Soon so moved; seconded by Jade Butay and unanimously carried.

Respectfully submitted,

THE MINUTES OF THE REGULAR SESSION BOARD MEETING ON DECEMBER 18, 2017 WERE APPROVED AT THE JANUARY 22, 2018 BOARD MEETING			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT	X		
DAVID C. HULIHEE	X		
KAY C. MATSUI	X		
RAY C. SOON	X		
ROSS S. SASAMURA	X		
JADE T. BUTAY			ABSENT


LESLEY C. COON

APPROVED:


BRYAN P. ANDAYA
Chair of the Board

JAN 22 2018

Date