

## BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU  
630 SOUTH BERETANIA STREET  
HONOLULU, HI 96843  
[www.boardofwatersupply.com](http://www.boardofwatersupply.com)



March 23, 2021

RICK BLANGIARDI, MAYOR

BRYAN P. ANDAYA, Chair  
KAPUA SPROAT, Vice Chair  
RAY C. SOON  
MAX J. SWORD  
NA'ALEHU ANTHONY

JADE T. BUTAY, Ex-Officio  
ROGER BABCOCK, Jr., Ex-Officio

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

ELLEN E. KITAMURA, P.E.  
Deputy Manager and Chief Engineer

### NOTICE

The Board of Water Supply, City and County of Honolulu, will hold a Regular Meeting on Monday, March 29, 2021, at 2:00 p.m. in the Boardroom, Public Service Building, 630 South Beretania Street, Honolulu, Hawaii.

Pursuant to the Eighteenth Supplementary Proclamation issued by Governor David Y. Ige on February 12, 2021, related to the COVID-19 emergency, in order to allow public participation in a manner consistent with social distancing practices, the following procedures are in effect for the meeting.

Some Board members may be participating in the meeting by interactive conference technology from remote locations.

### TESTIMONY

Testimony can be submitted as follows:

- Written testimony may be emailed to [board@hbws.org](mailto:board@hbws.org) or faxed to (808) 748-5079. Testimony is due by Monday, March 29, 2021, at noon. Written testimonies should include the submitter's address, email address, and phone number. Written testimony will be posted to the BWS website at [boardofwatersupply.com](http://boardofwatersupply.com).
- Mail written testimony to Board of Water Supply, 630 S. Beretania St., Honolulu, HI 96843. Testimony is due by Monday, March 29, 2021, at noon.
- On-line testimony will be accepted at [boardofwatersupply.com/testimony](http://boardofwatersupply.com/testimony). Fill out the testimony form. Due by Monday, March 29, 2021, at noon.
- Telephone testimony will be accepted during the meeting at (808) 748-6040. Callers will be placed in a queue and brought up to testify one at a time.
- In-person testimony will not be accepted.

Testimony is limited to two (2) minutes and shall be presented by the registered speaker only.

### MATERIALS AVAILABLE FOR INSPECTION

Meeting materials ("board packet" under HRS Section 92-7.5) are accessible at [www.boardofwatersupply.com/boardmeetings](http://www.boardofwatersupply.com/boardmeetings).

### VIEWING THE MEETING

The meeting will be viewable via live streaming on:

(1) the BWS website: [www.boardofwatersupply.com/live](http://www.boardofwatersupply.com/live). Video will appear on screen. You may have to click the arrow on video to start it. You may have to unmute audio as muted audio tends to be the default setting.

### **SPECIAL REQUESTS AND ACCOMMODATIONS**

If you require special assistance, an auxiliary aid or service, and/or an accommodation due to a disability to participate in this meeting (i.e., sign language interpreter; interpreter for language other than English, or wheelchair accessibility), please call 748-5172 or email your request to [board@hbws.org](mailto:board@hbws.org) at least three business days prior to the meeting date.

The agenda for the March 29, 2021, Regular Meeting of the Board of Water Supply is as follows:

**ITEMS REQUIRING BOARD ACTION**

1. Approval of the Minutes of the Regular Meeting Held on February 22, 2021
2. Adoption of Resolution No. 922, 2021, Acceptance of Gifts to the Board of Water Supply from Various Donors in Support of the 2021 Water Conservation Week Program

**ITEMS FOR INFORMATION**

1. Results of the Sale of Board of Water Supply Water System Revenue Bonds, Series 2021A and Series 2021B
2. COVID-19 Mitigation Efforts and Board of Water Supply Updates
3. Status Update of Groundwater Levels at All Index Stations
4. Satellite Imagery Leak System Analysis and Leak Detection Services Project
5. Water Main Repair Report for February 2021

**EXECUTIVE SESSION**

1. Approval of the Minutes of the Executive Session Held on February 22, 2021
2. To Consider the Evaluation of the Chief Engineer, Where Consideration of Matters Affecting Privacy Will be Involved [HRS § 92-5(a)(2)]
3. To Consult with the Board's Attorney on Questions and Issues Pertaining to the Board's Powers, Duties, Privileges, Immunities, and Liabilities Pertaining to the Authorization to Join the City's Legal Action Against Fossil Fuel Companies to Recover Climate Change-Related Costs [HRS § 92-5(a)(4)]

## MINUTES

### THE REGULAR MEETING OF THE BOARD OF WATER SUPPLY

March 29, 2021

At 2:01 PM on March 29, 2021, 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  
Ray C. Soon, Board Member via WebEx  
Max J. Sword, Board Member via WebEx  
Na'alehu Anthony, Board Member via WebEx  
Jade T. Butay, Board Member, Ex-Officio via WebEx  
Roger Babcock, Jr., Ex-Officio via WebEx

Also Present: Ernest Lau, Manager and Chief Engineer  
Ellen Kitamura, Deputy Manager and Chief Engineer  
via WebEx  
Jason Takaki, Program Administrator,  
Capital Projects Division via Vimeo  
Jadine Urasaki, Assistant Program Administrator,  
Capital Projects Division via WebEx  
Jennifer Elflein, Program Administrator,  
Customer Care Division via Vimeo  
Kathleen Elliott-Pahinui, Information Officer,  
Communications Office via Vimeo  
Raelynn Nakabayashi, Executive Assistant I,  
Executive Support Office  
Michael Fuke, Program Administrator,  
Field Operations Division  
Jason Nikaido, Assistant Program Administrator,  
Field Operations Division  
Joseph Cooper, Waterworks Controller,  
Finance Division  
Michele Thomas, Executive Assistant I,  
Human Resources Office  
via Vimeo  
Henderson Nuuhiwa, Program Administrator,  
Information Technology Office  
via Vimeo  
Michael Matsuo, Land Administrator,  
Land Division via WebEx  
Erwin Kawata, Program Administrator,  
Water Quality Division via WebEx  
Barry Usagawa, Program Administrator,  
Water Resources Division  
Marc Chun, Assistant Program Administrator,  
Water Resources Division



Kevin Ihu, Program Administrator, Water System  
Operations Division via Vimeo  
Kathy Mitchell, Administrative Services Officer  
via Vimeo  
Deanna Thyssen, Executive Secretary via WebEx  
Joy Cruz-Achui, Board Secretary  
Steven Norstrom, Information Specialist II,  
Communications Office

Others Present: Jeff Lau, Deputy Corporation Counsel  
via WebEx Call  
Jessica Wong, Deputy Corporation Counsel  
via Conference Call

Absent: Kapua Sproat, Vice Chair

## REGULAR MEETING

Chair Bryan Andaya requested a roll call for the Regular Meeting. Chair Andaya asked each Board Member to respond verbally when their names were called. Board Member Ray Soon, aye; Board Member Na'alehu Anthony, aye; and Board Member Jade Butay, aye.

Chair Andaya asked if there were any other Board Members present on WebEx that he didn't call on. He stated he would acknowledge other Board Members as they joined.

At 2:02 PM, Chair Andaya stated Board Member Roger Babcock, Jr. joined the Board Meeting via WebEx and confirmed the Board meeting had quorum.

Chair Andaya requested all attendees calling in or video conferencing to please mute their microphone when not speaking to the audience. When intending to speak, unmute their microphone and identify themselves before speaking.

Chair Andaya also introduced those present in the Boardroom, Manager Ernest Lau, Board Secretary, Joy Cruz-Achui, Information Specialist Steven Norstrom. Joining from the City and County Corporation Counsel was Deputy Jeff Lau via WebEx and Deputy Jessica Wong via Conference Call.

Chair Andaya stated under the Eighteenth Supplementary Proclamation issued by Governor David Ige on February 12, 2021, to follow public participation in a matter consistent with social distancing practices. The following procedures are in effect for the meeting:

Board Members are participating from remote locations via WebEx.

Chair Andaya shared the various ways to submit testimony: Written testimony may be submitted by email to [board@hbws.org](mailto:board@hbws.org), by fax to (808) 748-5079; mailed to Board of Water Supply, 630 S. Beretania St., Honolulu, HI 96843; or online at the [boardofwatersupply.com/testimony](https://boardofwatersupply.com/testimony), which were all due on Monday, March 29, 2021, at noon. However, late testimony will be accepted by email, fax, or mail. Telephone testimony is accepted by calling (808)748-6040, where you will be put in the queue and allowed to testify one at a time. Unfortunately, due to the pandemic, in-person testimony is suspended. Pursuant to HRS Section 92-7.5, Board Meeting materials are available to view on our website at [www.boardofwatersupply.com/boardmeeting](https://www.boardofwatersupply.com/boardmeeting).

Chair Andaya also announced the Board Meeting is broadcasted live on the BWS website at [www.boardofwatersupply.com/live](https://www.boardofwatersupply.com/live).

APPROVAL OF MEETING	Approval of the Minutes of the Regular Meeting held on February 22, 2021.
---------------------	---

MOTION TO APPROVE	Roger Babcock, Jr. and Na'alehu Anthony motioned and seconded, respectively, to approve the Minutes of the Regular Meeting of February 22, 2021.
-------------------	--

Chair Andaya asked if there was any discussion on the minutes from the Board Members. Since there was no discussion, Chair Andaya asked Mr. Norstrom, is there was anyone to testify by telephone. Mr. Norstrom responded there were no telephone testifiers. Chair Andaya asked Board Secretary Ms. Cruz-Achui, were there any written testimony. Ms. Cruz-Achui responded there was no written testimony.

In lieu of a roll call vote, Chair Andaya requested a voice vote on the motion and requested that Board Members in favor of the motion say "Aye." The Board members present responded with a verbal "Aye." Chair Andaya then inquired if any Board Members would like to object or vote "Nay" on the motion. There were no objections or "Nay" votes. Chair Andaya announced that the motion was unanimously carried.

At 2:35 PM, Board Member Max Sword joined the Regular Board meeting via WebEx.

THE MINUTES OF THE REGULAR MEETING HELD ON FEBRUARY 22, 2021, WERE APPROVED AT THE MARCH 29, 2021 BOARD MEETING			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT			ABSENT
RAY C. SOON	X		
MAX J. SWORD			ABSENT
NA'ALEHU ANTHONY	X		
JADE T. BUTAY	X		
ROGER BABCOCK, JR.	X		

"March 29, 2021

ADOPTION OF  
RESOLUTION  
NO. 922, 2021,  
ACCEPTANCE  
OF GIFTS TO  
THE BOARD  
OF WATER  
SUPPLY FROM  
VARIOUS  
DONORS IN  
SUPPORT OF  
THE 2021 WATER  
CONSERVATION  
WEEK PROGRAM

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

Chair and Members:

Subject: Adoption of Resolution No. 922, 2021, Acceptance of Gifts  
to the Board of Water Supply from Various Donors in  
Support of the 2021 Water Conservation Week Program

We recommend the adoption of the attached Resolution No. 922, 2021,  
that accepts the proposed gifts to the Board of Water Supply (BWS), City  
and County of Honolulu, in support of the 2021 Water Conservation Week  
(WCW) Program. The donors' total value of these gifts is \$10,500.00.

<u>Donor Name</u>	<u>Amount</u>
Friends of Halawa Xeriscape Garden	\$ 2,000.00
Hawaiian Financial Federal Credit Union	\$ 2,000.00
Times Supermarkets	\$ 2,000.00
Aloha Pacific Federal Credit Union	\$ 2,000.00
Alexander and Baldwin, Incorporated	\$ 1,000.00
Hawaii Energy	\$ 1,000.00
Pasha Hawaii	\$ 500.00
TOTAL	\$10,500.00

The WCW program is in its 43<sup>rd</sup> year of existence. This well-established, successful public education program reaches out to Oahu's students in grades Kindergarten through 12 to inspire them to value the island's finite drinking water supply and conserve water when they use it. Studies have shown that youth who adopt water conservation practices at an early age are likely to encourage their parents to be water-efficient and later raise their own water-smart families. Through this program, the BWS intends to motivate more customers to adopt behaviors that support water conservation.

Sponsor gifts will help offset the department's costs for the program that include the printing of about 20,000 copies of the 2022 Water Conservation Calendar that features winning entries of this year's poster and poetry contests. The calendars are distributed to all Oahu schools, elected officials, and the general public.

We deeply appreciate the continued support of this Board for this very valuable and worthwhile public education program. All participants in our WCW program are encouraged to always embrace their roles as responsible stewards of our island's precious water resource.

Respectfully submitted,

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

Attachment”

**DISCUSSION:** Kathleen Elliott-Pahinui, Information Officer, Communications Office, gave the report.

Chair Andaya thanked Ms. Elliott-Pahinui for her presentation and asked the Board Members if there were any questions.

Board Member Na’alehu Anthony inquired how does the Board of Water Supply (BWS) solicit funding.

Ms. Elliott-Pahinui stated most of the BWS’s sponsors had supported the Water Conservation Week (WCW) Program for five years or more. Funding received from sponsors is deposited directly into the BWS accounts, which offsets the BWS calendars printing cost. She mentioned, the BWS is open to new ideas and to soliciting new sponsors.

Board Member Anthony stated he has some ideas and would reach out to Ms. Elliott-Pahinui.

**MOTION TO ADOPT**

Jade Butay and Roger Babcock, Jr. motioned and seconded, respectively, the Adoption of Resolution No. 922, 2021, Acceptance of Gifts to the Board of Water Supply from Various Donors in the 2021 Water Conservation Week Program.

In lieu of a roll call vote, Chair Andaya requested a voice vote on the motion and requested that Board Members in favor of the motion say “Aye.” The Board members present responded with a verbal “Aye.” Chair Andaya then inquired if any Board Members would like to object or vote “Nay” on the motion. There were no objections or “Nay” votes. Chair Andaya announced that the motion was unanimously carried.

Chair Andaya asked Ms. Elliott-Pahinui to convey the BWS’s gratitude for the various sponsors’ generous gift.

RESOLUTION NO. 922, 2021, ACCEPTANCE OF GIFTS TO THE BOARD OF WATER SUPPLY FROM VARIOUS DONORS IN SUPPORT OF THE 2021 WATER CONSERVATION WEEK PROGRAM ADOPTED MARCH 29, 2021			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT			ABSENT
RAY C. SOON	X		
MAX J. SWORD			ABSENT
NA’ALEHU ANTHONY	X		
JADE T. BUTAY	X		
ROGER BABCOCK, JR.	X		

**BOARD OF WATER SUPPLY  
CITY AND COUNTY OF HONOLULU**

**RESOLUTION NO. 922, 2021**

**ACCEPTANCE OF GIFTS TO THE BOARD OF WATER SUPPLY  
FROM VARIOUS DONORS IN SUPPORT OF THE  
2021 WATER CONSERVATION WEEK PROGRAM**

WHEREAS, the Board of Water Supply's (BWS) Water Conservation Week program is an annual endeavor that features a poster and poetry contest to educate Oahu's youth about the importance of using water efficiently to develop this ethic in them, and also publishes the winning and honorable mention entries in an annual Water Conservation Calendar; and

WHEREAS, the BWS may solicit gifts to the Department as long as it does not provide special consideration, treatment, advantage, privilege, or exemption for or coerces a potential donor; and

WHEREAS, the BWS will solicit for gifts on its agency website, which is available for access by any interested person or business; and

WHEREAS, the Friends of Halawa Xeriscape Garden; Hawaiian Financial Federal Credit Union; Board of Water Supply Branch; Times Supermarkets; Aloha Pacific Federal Credit Union; Alexander and Baldwin, Incorporated; Hawaii Energy; and Pasha Hawaii are offering monetary gifts totaling \$10,500.00 in support of the 2021 Water Conservation Week program; and

WHEREAS, a gift to the BWS benefits the Department because it assists outreach efforts, such as the BWS's Water Conservation Week public education program, and lessens the need for ratepayer funds to support the program's key components; and

WHEREAS, the gifts will be used to offset reasonable and necessary costs of the printing and delivery of about 20,000 Water Conservation Calendars featuring the contests' winning entries and efforts to reveal and recognize the student winners and honorable mentions; now, therefore

BE IT RESOLVED that the Board of Water Supply hereby accepts the various gifts valued at \$10,500.00 and directs the Manager and Chief Engineer, or his delegate, to accept and thank the various donors for these gifts.

ADOPTED:



**BRYAN P. ANDAYA**  
Chair

Honolulu, Hawaii  
March 29, 2021

RESOLUTION NO. 922, 2021, ACCEPTANCE OF GIFTS TO THE BOARD OF WATER SUPPLY FROM VARIOUS DONORS IN THE 2021 WATER CONSERVATION WEEK PROGRAM, ADOPTED ON MARCH 29, 2021			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT			ABSENT
RAY C. SOON	X		
MAX J. SWORD			ABSENT
NA'ALEHU ANTHONY	X		
JADE T. BUTAY	X		
ROGER BABCOCK, JR.	X		

**ITEM FOR INFORMATION NO. 1**

**"March 29, 2021**

**RESULTS OF  
THE SALE OF  
BOARD OF  
WATER SUPPLY  
WATER SYSTEM  
REVENUE  
BONDS, SERIES  
SERIES 2021A  
AND SERIES  
2021B**

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

**Chair and Members:**

**Subject:        Results of the Sale of Board of Water Supply Water System  
Revenue Bonds, Series 2021A and Series 2021B**

Pursuant to Board of Water Supply Resolution No. 921, 2021, authorizing the issuance of water system revenue bonds, the Board issued a total of \$93,535,000 principal amount of Board of Water Supply Water System Revenue Bonds, Series 2021A and Series 2021B dated March 25, 2021. The Board and our customers will realize approximately \$458,561 annually in debt service savings. In addition, the refund of the past bonds will provide a combined net present value saving of \$3,209,930 will be realized with the refunding.

The proceeds of the Series 2021A and Series 2021B bonds will be used: (1) to pay the cost of improvements authorized in the capital budget of the Board; (2) to pay the costs of issuance of the Series 2021A and Series 2021B bonds; and (3) to fund a trust fund to provide for the refunding and redemption of all or a portion of the Board's Water System Revenue Bonds, Series 2012A and Series 2014A.

The bonds were assigned underlying ratings of AAA, stable outlook, from S & P Global Ratings and AA+, positive outlook, from Fitch Ratings. The Series 2021A and Series 2021B bonds were sold on March 9, 2021 at a true interest cost of 2.49 percent. The bonds were issued at a total premium of \$11,292,598.

Net proceeds for the new bonds (Series 2021A) of \$61,006,091 was deposited into the BWS Improvement Fund and \$45,442,808 from the Series 2021B was deposited into escrow funds to defease the refunded bonds. The refunding bond issue is structured to match the terms of the refunded bonds. The cost to issue both series is \$556,864.

Bank of America Securities served as lead underwriter, Stifel, Nicolaus & Company as co-manager, and Orrick, Herrington & Sutcliffe LLP served as bond counsel to the Board.

**Respectfully Submitted,**

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

The foregoing was for information only.

**DISCUSSION:** Joseph Cooper, Waterworks Controller, Finance Division, gave the report.

Chair Andaya asked the Board Members if they have any questions.

Manager Ernest Lau recognized Mr. Cooper for the excellent job of building a solid team and selling the BWS bonds annually. He also expressed his gratitude to the Board Members for their support on the various financial policies and the Long-Range Financial Plan (LRFP) that made a difference and allowed the BWS to obtain a AAA rating.

Board Member Ray Soon inquired the BWS is saving \$2 million but what makes up the cost of half a million dollars to issue the bonds?

Mr. Cooper explained the breakdown of half a million dollars covered the cost for the following: \$150,000 Bond Counsel, \$50,000 Underwriter Counsel, Underwriter \$200,000, and \$100,000 rating agency fees, advertisement on Blue Sky, notices, and publishing and printing documents.

Board Member Soon asked how does the BWS maintain AAA rating?

Mr. Cooper stated governance, response to the COVID pandemic, various BWS financial policies and planning, and long range financial planning (LRFP) all have been a part of maintaining the AAA rating. He also mentioned with the board's support in providing the necessary resources, the BWS was able to retain the AAA rating.

Chair Andaya stated that the BWS AAA rating has a lot to do with the LRFP that the Board adopted. He stated some key factors that bond rating agencies look at: the policies set, the debt and operating ratios, and the reserves, such as the 60-day working capital.

Manager Lau added that governance is vital to the bond rating agencies. Bond rating agencies pay great attention to how the utility is governed and the ability of the policymakers and utility's willingness to raise rates and invest in water system infrastructure. The BWS' approach is to lessen the impact to ratepayers by making minimal yearly increases.

Manager Lau mentioned that this year the Fitch rating agency gave BWS an upgrade. For many years, BWS received an AA+ rating with a stable outlook. This year, BWS continued to receive an AA+ rating however the outlook was upgraded to positive. This was a pleasant surprise and Manager Lau indicated that if BWS continued the good work, it's possible they may upgrade the rating to AAA.

Board Member Soon thanked Manager Lau and Mr. Cooper for their efforts and the positive results from the rating agencies.



**ITEM FOR INFORMATION NO. 2**

**"March 29, 2021**

**COVID-19  
MITIGATION  
EFFORTS AND  
BOARD OF  
WATER  
SUPPLY  
UPDATES**

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

**Chair and Members:**

**Subject:       COVID-19 Mitigation Efforts and Board of Water Supply  
                  Update**

**Raelynn Nakabayashi, Executive Assistant I, Executive Support Office, will  
provide information on COVID-19 Mitigation Efforts and BWS Updates.**

**Respectfully submitted,**

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

**Attachment"**

**The foregoing was for information only.**

**DISCUSSION:**

**Raelynn Nakabayashi, Executive Assistant I, Executive Support Office,  
gave the report.**

**Chair Andaya asked the Board Members if they had any questions.**

**Board Member Anthony asked what practices, procedures, safety routines,  
and new COVID guidelines may continue to be used past the pandemic?**

**Ms. Nakabayashi replied the BWS had made a lot of technology updates  
externally for our ratepayers and also internally for BWS processes. For  
convenience and to better assist our ratepayers, the BWS has added the  
Interactive Voice Response (IVR) system to the phone system and updated  
the BWS website for better access online. The BWS has also made a few  
changes in-house, adding electronic and digital signatures using Adobe  
Sign, increased remote and virtual meeting capabilities, and teleworking.**

**Manager Lau discussed an article that someone shared with him from the  
Harvard Business Review regarding liminal experiences; the term is used  
culturally to describe the practices of young people transitioning from  
childhood into adulthood. In a way, the BWS had to go through this as the  
BWS was forced, for over one year now, to break from the traditional way  
of operating the utility and learn to operate in the new norm. He stated that  
the pandemic had brought many valuable life lessons and hopes to  
continue building on the changes and updates that have already been put  
into place. The one word that comes to Manager Lau is "nimble"; to**

survive in the prolonged stress of the pandemic, everyone has had to become more nimble.

Manager Lau stated at the beginning of the pandemic, the rate of change was almost weekly. There was a lot of new information being released that required the BWS to adjust to new protocols and policies. He said Ms. Nakabayashi and Ms. Michele Thomas, Executive Assistant I, Human Resources Office, diligently worked together to implement policies as new information and developments became available from Governor David Ige, former Mayor Kirk Caldwell, and Mayor Rick Blangiardi's office. Manager Lau recognized both Ms. Nakabayashi and Ms. Thomas for all their hard work throughout this pandemic. Manager Lau would like to share the lessons that the BWS learned throughout the pandemic.

Board Member Anthony mentioned that conversations are happening about how the bureaucracy can be shifted across city and state departments to develop more efficient processes. He agreed the increased use of technology and getting rid of paper processes reflect this. He encouraged the BWS to continue to move forward to eliminate some of the waste that can occur over time from being set in our ways.

Chair Andaya thanked Ms. Nakabayashi for the report.

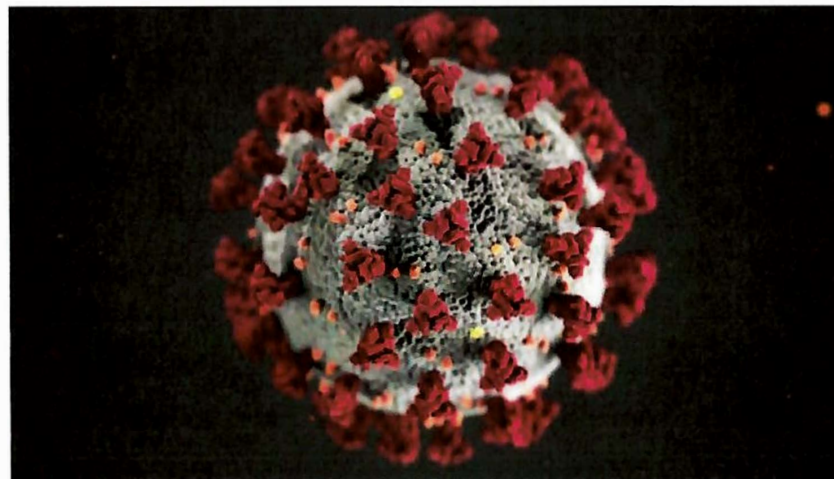
WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

# COVID-19 Mitigation Efforts and BWS Updates



March 29, 2021





# BWS Continues to Manage and Mitigate COVID-19 Challenges

- ✓ We've been able to sustain all operations with **no disruptions in service due to COVID-19**
- ✓ We've implemented process and policy changes to **keep our workers safe**
- ✓ We've embraced change and continue to **quickly adapt** to the "new COVID-19" landscape
- ✓ We continue to **protect our ratepayers** and make fiscally prudent decisions





# WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

## O'AHU COVID-19 UPDATE

MAR. 23

**New Cases: 28**

Reported Deaths: 0

7-day average daily cases:

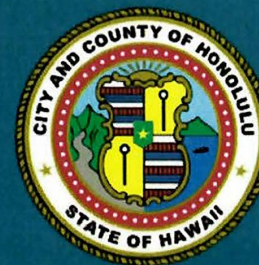
**42**

7-day average positivity rate:

**1.6%**

**WE ARE ONE O'AHU.** [ONEOAHU.ORG](https://oneoahu.org)

Numbers reflect only [O'ahu](https://oneoahu.org) COVID-19 data, not the statewide totals.



### Honolulu Reopening Strategy Tracker

**TIER 3**

7-day rolling averages:

Case Count

**22**

**27**

**30**

Test Positivity

**0.9%**

**1%**

**1%**

We  
are  
here



**Tier 4**

Week 1

2/25/21 - 3/3/21

Week 2

3/4/21 - 3/10/21

Week 3

3/11/21 - 3/17/21

Week 4

3/18/21 - 3/24/21

Additional Time

if rolling 7-day average does not meet Tier 4 criteria

# WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

## Emergency Order 2021-03

“The City is currently within Tier 3 of Honolulu’s COVID-19 Reopening Framework but based on the recent number of daily COVID-19 cases and associated test positivity rates, it appears ***additional safe business and community activity can resume***. This Order will become effective immediately upon signing and will continue through April 30, 2021”

## Tier 3 Amendments

City and County of Honolulu

Outdoor organized team sports allowed to operate beginning April 12 (masks required, no spectators). Indoor sports can operate in limited capacity in Tier 4.



Funerals no longer restricted to 25-person limit.

Bars allowed to operate in same manner as restaurants. Cut-off time extended from 10 pm until midnight.

Capacity restrictions on commercial gyms, recreational boating relaxed in Tier 4 from 50% to 75%

Added category "Structured Events at Venues" that allows venues to host low-risk events like seminars, graduations.

Categories for transportation, tours, helicopter/plane tours and skydiving being adjusted for consistency with other categories and associated risk levels to address issues raised by FAA.

  @govhawaii



# WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

## Where Are **You** in the Vaccine Timeline?



### In Progress

Phase 1a

- Healthcare personnel
- Long-term care facility residents

#### Essential Workers:

Workers who are in sectors essential to the functioning of society and are at substantially higher risk of getting COVID-19



### In Progress

Phase 1b

- First responders
- Frontline essential workers
- Adults 70+ years of age



### In Progress

Phase 1c

- Adults age 65 to 69 years
- Persons 16 to 64 years with high-risk medical conditions
- Essential workers not included in the previous group



Details on vaccine distribution and supply are being regularly updated with new guidelines from the CDC and other authorities. Please keep informed by visiting [HawaiiCOVID19.com/vaccine](https://hawaiiCOVID19.com/vaccine)



May 2021

Phase 2

- Persons 16 years and older not in other categories

Rev. 3/12/21

BWS Employees are  
“Essential Workers” in  
the 1b & 1c Category.

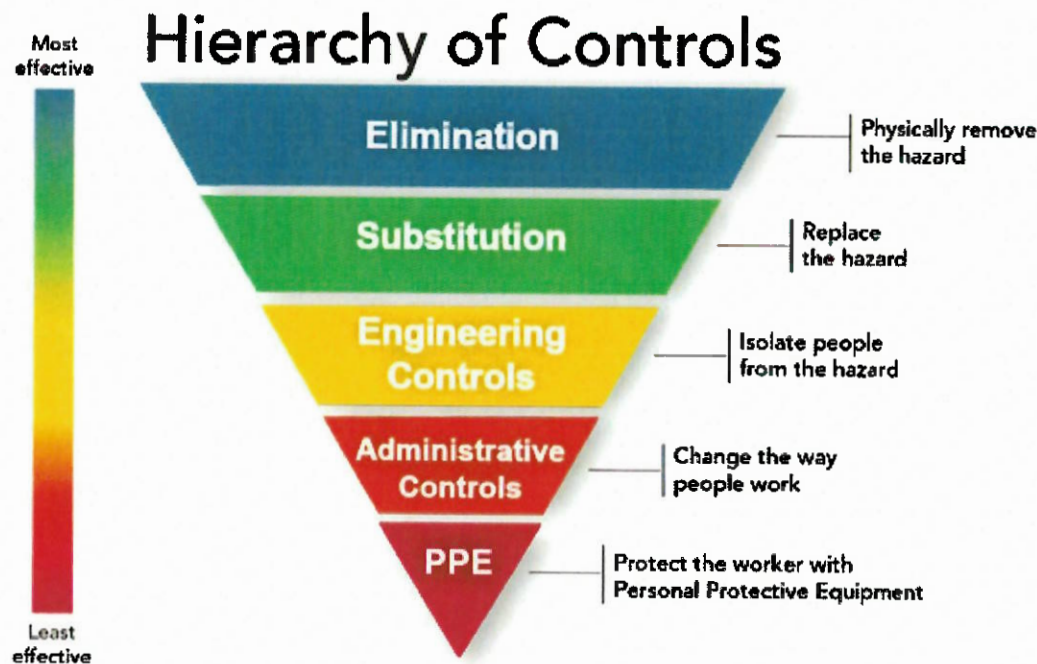
Vaccines were offered  
to all BWS Employees.

**Approximately 70% of  
our employees have  
received at least their  
1<sup>st</sup> Vaccine Shot thru  
the City’s Designated  
POD**



*OSHA Guidance Posted January 29, 2021*

## PROTECTING WORKERS: GUIDANCE ON MITIGATING AND PREVENTING THE SPREAD OF COVID-19 IN THE WORKPLACE





# WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

## Board of Water Supply – COVID-19 Pandemic Safety Plan

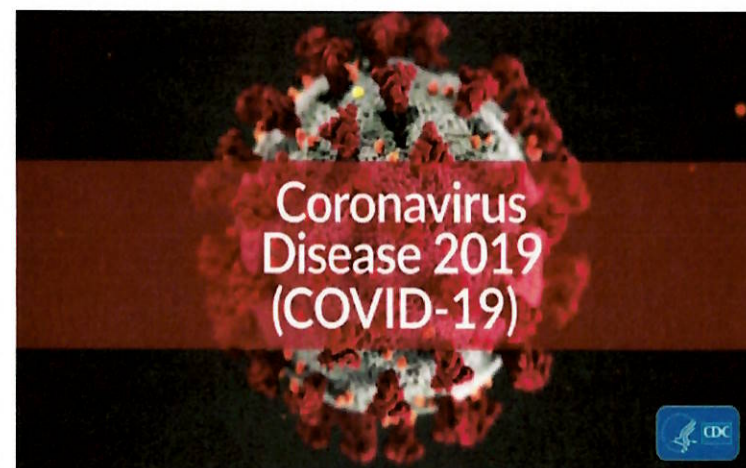
### Table of Contents

	PAGE
PURPOSE	2
POLICY	2
OBJECTIVES	2
RESPONSIBILITIES	3
PRACTICES	7
POTENTIAL EXPOSURE PROTOCOL	12
ATTACHMENT 1: City DHR COVID-19 Incident Report	
ATTACHMENT 2: Sick EE's with COVID-19 Symptoms & EE Responsibilities	
ATTACHMENT 3: Basic Tips for Vehicle Usage During COVID-19	
ATTACHMENT 4: Message Regarding Mayor's Emergency Order 20-18	
ATTACHMENT 5: Checklists	

### Version Control\*

DATE	VERSION	CHANGE(S)	DISTRIBUTION
10/01/2020	1.0		BWS - All

***Assignment of a workplace coordinator*** who will be responsible for COVID-19 issues on the employer's behalf.



# WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

## ***Identification of where and how workers might be exposed to COVID-19 at work.***

This includes a thorough hazard assessment to identify potential workplace hazards related to COVID-19. This assessment will be most effective if it involves workers (and their representatives) because they are often the people most familiar with the conditions they face.

Division/Section: \_\_\_\_\_ Date of Inspection: \_\_\_\_\_ Name: \_\_\_\_\_

**PANDEMIC CLEAN OFFICE CHECKLIST**

Criteria	(Check One)		Comments
	Yes	No	
Work site has access to soap and water OR 60% alcohol-based hand sanitizer.			
Meeting areas are cleaned before and after each use.			
Employee congregation in eating and/or meeting areas is limited to enable social distancing practices			
Disinfecting wipes/sprays are accessible to staff. If workers share tools and equipment, wipes or spray must be made available for them to use.			
Common or high traffic areas including, but not limited to the following, are cleaned regularly by custodial staff:			

- Drinking fountains
- Handrails
- Door handles and locks
- Doorknobs
- Lunch tables and chairs
- Conference room tablet audio/visual controls
- Light switches
- Restrooms

Personal workstations and eq including but not limited to the cleaned regularly by employer

- Shared office equipment (printer, phones)
- Computer equipment
- Desks, phones and oth computer equipment

ADDITIONAL REMARKS:

Division/Section: \_\_\_\_\_ Date of Inspection: \_\_\_\_\_ Name: \_\_\_\_\_

**PANDEMIC CLEAN JOBSITE CHECKLIST**

Criteria	(Check One)		Comments
	Yes	No	
Work site has access to soap and water OR 60% alcohol-based hand sanitizer.			
Frequent cleaning and disinfection of portable toilets is occurring.			
Eating and meeting areas are cleaned before and after each use.			
Employee congregation in eating and/or meeting areas is limited to enable social distancing practices			
Disinfecting wipes/sprays are accessible to staff. If workers share tools and equipment, wipes or spray must be made available for them to use.			
Shared work site high touch areas and equipment, including but not limited to the following, are cleaned regularly by employees:			

- Tools and Equipment
- Gang box handles and locks
- Storage room/container door handles/locks
- Access gates and doors
- Vehicle and heavy equipment controls, seats and seatbelts
- Mobile computer equipment and peripherals (including phones)

Additional tools, equipment and or PPE are available based on identified Job Hazards.

This may include, but is not limited to:

- Barrier tape, stanchions, cones or other temporary barricading methods
- Disposable gloves

ADDITIONAL REMARKS:



## ***Identification of a combination of measures that will limit the spread of COVID-19 in the workplace, in line with the principles of the hierarchy of controls.***

This should include a combination of eliminating the hazard, engineering controls, workplace administrative policies, personal protective equipment (PPE), and other measures, prioritizing controls from most to least effective, to protect workers from COVID-19 hazards

**Occupational Risk Pyramid  
for COVID-19**



OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

## **CORONAVIRUS DISEASE 2019 (COVID-19)**

### **Hierarchy of Controls**



[cdc.gov/coronavirus](https://cdc.gov/coronavirus)

# WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

## Eliminating the Hazard



For Immediate Release  
January 6, 2021



### Board of Water Supply Offers Automated 24/7 Pay-by-Phone Service

HONOLULU – The Board of Water Supply (BWS) is offering an automated service for its customers to access account information and pay their bills\* 24/7 via their touch-tone phone.



#### ACCESS MY ACCOUNT

Please provide your log in credentials to access your account.

We're making improvements to our Online Billing site. We hope you like the new look! We've made additional information available to help you manage your billing more quickly and easily.

User Name

First time user?

Click the New User button to register.

New User

Password (case sensitive)

Sign in





# WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

## Eliminating the Hazard

### COVID-19 Health Screening Questionnaire

 Honolulu Board of Water Supply



#### PLEASE ANSWER THESE QUESTIONS BEFORE ENTERING

Only business critical visitors are allowed to enter BWS facilities at this time. Customers who need to pay their bill are encouraged to review alternative payment options at <https://www.bws.org>.

In an effort to reduce the risk of COVID-19 exposure to our workforce and visitors, we are conducting a health screening and/or temperature screening prior to allowing access to our facilities. Answering these questions and/or submitting to a temperature screening is required and is important to help us take precautionary measures to protect you and everyone in this facility. Thank you for your time.

**In the past fourteen (14) days, have you or a member of your immediate household:**

1. Experienced a fever or flu like symptoms?
2. Experienced a recent onset of *any* of the following symptoms: Cough, Shortness of Breath, Fever, Chills, Muscle Pain, Sore Throat, New Loss of Taste or Smell?
3. Traveled off island?
4. Come into close personal contact with anyone with a confirmed COVID-19 infection?
5. Been asked to self-quarantine by any doctor, hospital, or health agency because of COVID-19?

If you answered YES to any of the questions above or have a temperature in **EXCESS of 100.4F**, **ACCESS TO THIS FACILITY IS DENIED AT THIS TIME.**

You may call 748-5000 or email [contactus@bws.org](mailto:contactus@bws.org) to obtain information about scheduling an appointment on a future date when you are no longer a potential risk. If you have a medical condition or disability that may cause coughing, breathing difficulties, other symptoms or an elevated temperature that appear similar to but are unrelated to COVID-19, please let us know.

### Mandatory Temperature Check



TEMPERATURE READING  
MUST BE **UNDER 100.4F**

ALL ANSWERS MUST BE **“NO”**

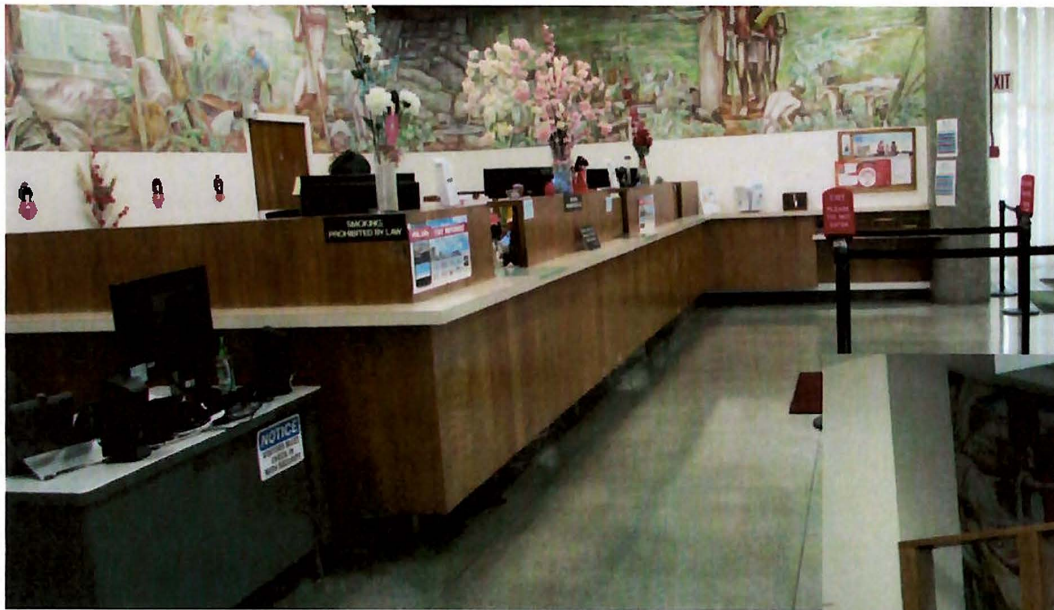
WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

# Eliminating the Hazard



BEFORE

AFTER





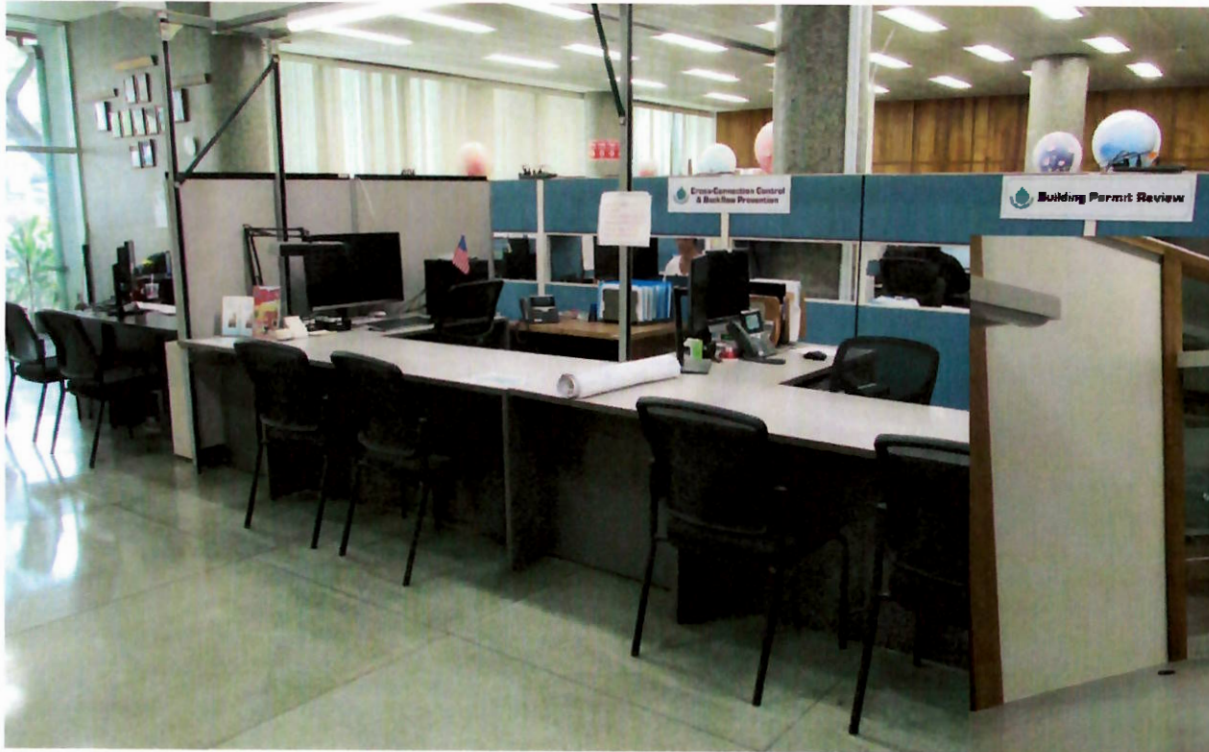
WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

# Eliminating the Hazard



BEFORE

AFTER





WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

# Eliminating the Hazard



24x40 modular building





[illegible]



# WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

## Workplace Administrative Policies

### UPDATES



Honolulu Board of Water Supply

**DATE:** February 24, 2021

**TO:** All BWS Employees

**FROM:** Ernest Y.W. Lau, P.E., Manager and Chief Engineer

**SUBJECT:** Sick Employees with COVID-19 Symptoms & Employee Responsibilities In Response to COVID-19 (REVISED)



# WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

# Workplace Administrative Policies

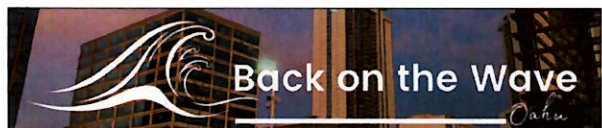


DEPARTMENT INFORMATION NEWS & INFORMATION FORMS IT HELP HUMAN RESOURCES

## CORONAVIRUS

### Coronavirus (COVID-19) Updates

See coronavirus updates from the City and County of Honolulu (CCHNL) and the Board of Water Supply (BWS).



### Dept of Health: COVID-19 Updates

Check out recent updates from the Department of Health (DOH) regarding the coronavirus, COVID-19. You may sign up to receive these updates by email, which is generally distributed in the late afternoon to early evening, Monday through Friday.

- Monday, March 01, 2021
- Tuesday, March 02, 2021 (none)
- Wednesday, March 03, 2021
- Thursday, March 04, 2021
- Friday, March 05, 2021

Visit the DOH website to read past COVID-19 updates.

### Sick Employees with COVID-19 Symptoms & Employee Responsibilities in Response to COVID-19 (REVISED)

WEDNESDAY, FEB. 24, 2021 – The BWS is updating its "Sick Employees with COVID-19 Symptoms & Employee Responsibilities in Response to COVID-19 (REVISED)"; this memorandum supersedes the memorandum issued on December 31, 2020.



CENTERS FOR DISEASE CONTROL AND PREVENTION

### CDC Weblinks

- CDC.gov/nCoV
- Coronavirus.gov
- COVID-19 FAQ
- Deciding to Go Out
- How to Select Masks

### CDC Info Flyers (PDFs)

- COVID-19 Symptoms
- Face Covering Fact Sheet
- How to Wear Face Covering
- Please Wear a Mask
- Stop the Spread of Germs

### TELEWORKLOG

Telework Log Days

NAKABAYASHI, RAELENN

Daily Hours: 8

Start: Mon - End: Wed - Thurs - Fri - Sat

Default Start Time: 07:45 AM  
End

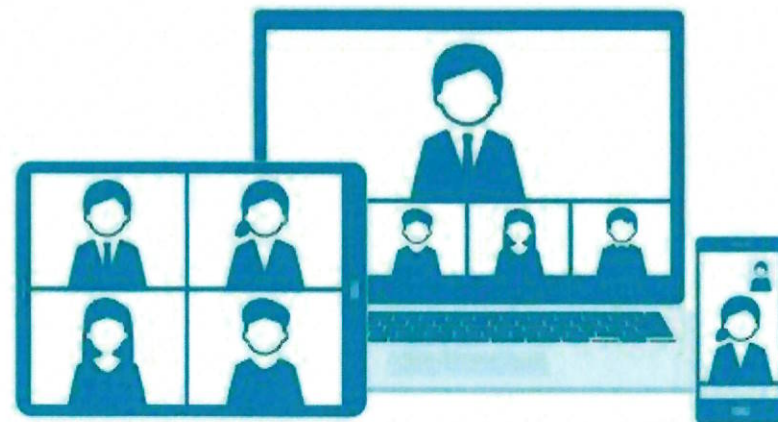
Pay Period: 03-01-2021 to 03-15-2021

Not Ready for Approval

82.75 / 88 Hours

1 OT Hours

Day	Telework Hours	Telework OT Hours	Office Hours	Office OT Hours	Other Hours	Leave Without Pay	Daily Hours	Overtime Hours
MON 03-01-2021	3.75 Hours						3.75 / 8 Hours	
TUE 03-02-2021							Not Scheduled	
WED 03-03-2021							Not Scheduled	
THU 03-04-2021	8 Hours	1 Hours					8 / 8 Hours	1 Hours
FRI 03-05-2021	8 Hours						8 / 8 Hours	
SAT 03-06-2021	3 Hours				5 Hours		8 / 8 Hours	
SUN 03-07-2021	4.5 Hours		3.5 Hours				8 / 8 Hours	
MON 03-08-2021	8 Hours		8 Hours				8 / 8 Hours	
TUE 03-09-2021								
WED 03-10-2021	5.75 Hours		3.25 Hours				9 / 8 Hours	
THU 03-11-2021	3.75 Hours		4.25 Hours				8 / 8 Hours	
FRI 03-12-2021	4.5 Hours		3.5 Hours				8 / 8 Hours	
SAT 03-13-2021	8 Hours						8 / 8 Hours	
SUN 03-14-2021	8 Hours						8 / 8 Hours	





# WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

## Hygiene Supplies, Mandatory Masking & Social Distancing



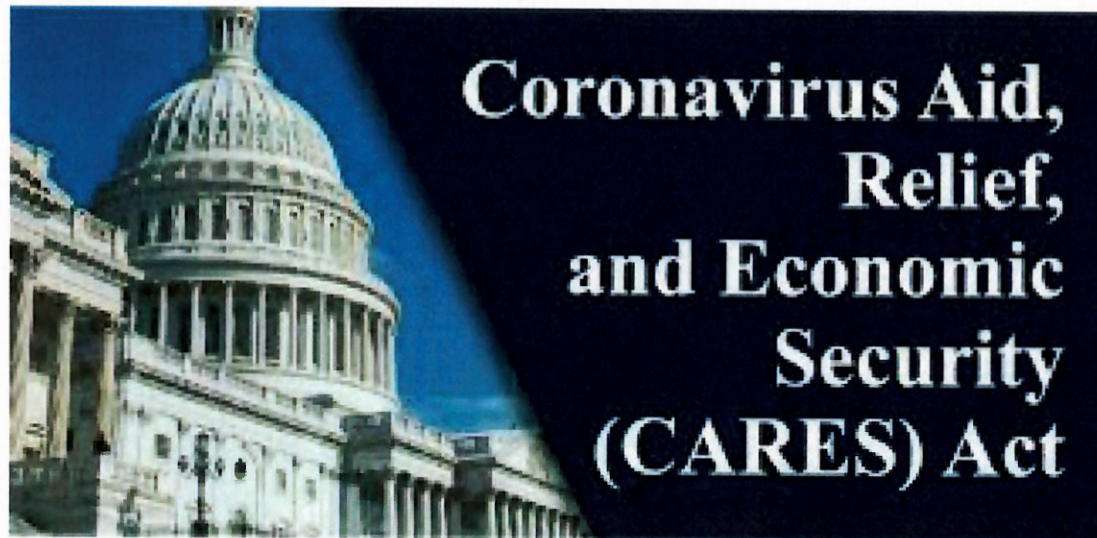
**WATER FOR LIFE**

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



**Board of Water Supply**  
City and County of Honolulu

# **CARES Funding Updates**



**PAID to BWS by City: \$915,359.19**

**PENDING: \$507,750.21**







## Other Federal Stimulus Funds



Emergency Rental  
Assistance  
Program

The Emergency Rental Assistance program makes available \$25 billion to assist households that are unable to pay rent and utilities due to the COVID-19 pandemic.

- Up to \$114 Million is available to the City and County of Honolulu from the Federal Government and the State
- Program is under development thru the City's Office of Economic Recovery (OER)
- **BWS is working with OER to ensure qualifying customers can benefit from this program**



AMERICAN RESCUE PLAN ACT OF 2021

A \$1.9 trillion package of COVID-19 response legislation that will infuse billions of dollars into programs that can offer aid to water systems and their low-income ratepayers

- Will deliver \$350 billion in aid for state, local, tribal, and territorial governments
  - Some of these funds may be used to **support water system operations, essential worker pay, and water infrastructure investments**





## Monitoring Our Finances

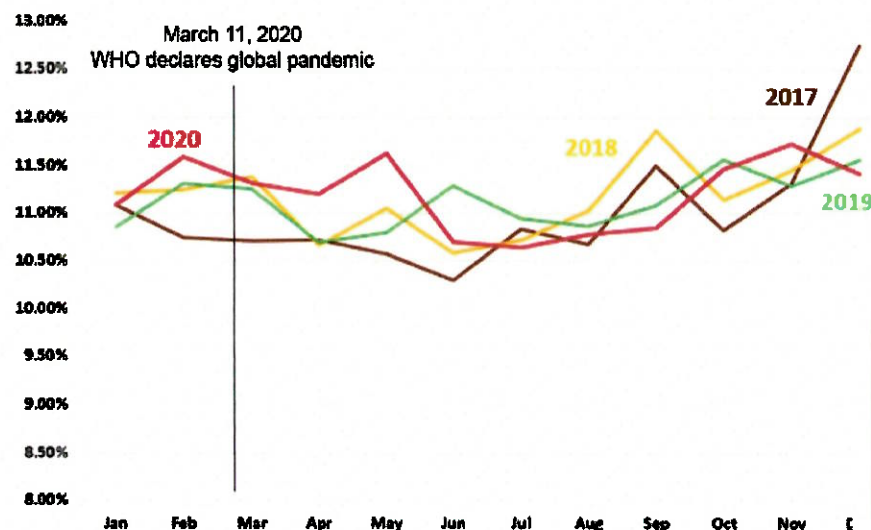


Figure 3-18. Percentage of Water Accounts 30 days Past Due, 2017 to 2020

At an annual level, currently-projected impacts appear to be relatively minor and may be mitigated to some extent in the future by COVID-19 stimulus funds that may be made available. However, it is imperative to recognize that, as of this report date, the COVID-19 global pandemic is not over and the conditions necessary for comprehensive economic recovery have not been met. Moreover, there continues to be high uncertainty in the timing of when these conditions will be met.

While the number of delinquent accounts in April and May 2020 appears a little higher than historical, by June the number of accounts has dropped to the lower end of the range

### Section 3 • Trends and Sensitivity Analysis Update

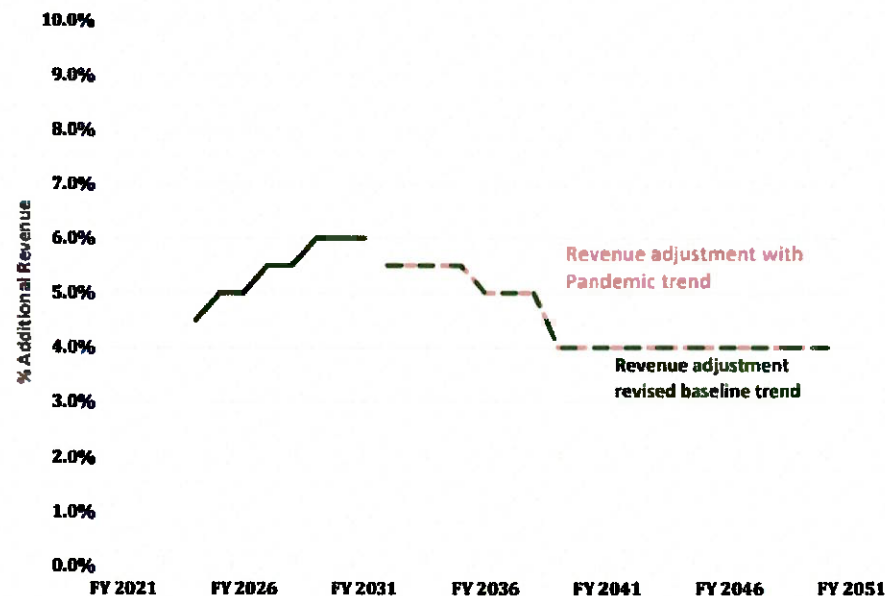


Figure 3-26. Additional Revenue Needs Trend as a Percent of Existing Rate-Based Revenue, Pandemic

# WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

## BWS continues to temporarily suspended water shut-off due to nonpayment through Wednesday, June 30, 2021.

### REQUEST A PAYMENT ARRANGEMENT

If you are unable to pay your bill in full, please pay what you can and contact us as soon as possible. A customer service representative will work with you to develop a payment arrangement.

#### How to Request a Payment Arrangement

- Call: (808) 748-5070
- Email: [collections@hbws.org](mailto:collections@hbws.org)
- Complete a Request Form: [Online Request Form](#) | [Fillable PDF](#)

### FINANCIAL SUPPORT PROGRAMS

The following information is provided as a courtesy for BWS customers. Programs and information are subject to change without notice. Please check back often with the following organizations:

#### ALOHA UNITED WAY (AUW)

Aloha United Way (AUW) continues to be a valuable community resource. Get information about how AUW connects people to the resources they need: <http://www.auw211.org/>.

#### ONE OAHU

The City and County of Honolulu set up One Oahu as a centralized resource for accurate advice and information for Oahu residents and businesses during the COVID-19 outbreak. Information and links on [oneoahu.org](http://oneoahu.org) are from trusted sites and will be regularly updated. You may also email [covidresponse@honolulu.gov](mailto:covidresponse@honolulu.gov) or call 768-CITY.

- **COVID-19 Hardship Relief Program:** Eligible payments may include rent, mortgage, certain utilities, childcare providers recognized by the Department of Human Services, and other emergency expenses - but NOT water and waste water. We hope that the assistance received by qualified individuals through this program for those other important bills will help ease the burden so they can make payment toward their water and waste water bill with BWS.

### WATER & WASTE WATER BILL ASSISTANCE - UPDATED

FRIDAY, SEPTEMBER 18, 2020 -- BWS is aware that funds may still be available for water and waste water bills through the following agencies for qualifying individuals. Contact them for details.

ORGANIZATION NAME & ADDRESS	CONTACT INFORMATION
<b>ALEA Bridge</b> 123 Mango St., Wahiawa	Phone: (808) 379-2532 (customers will be forwarded to a case manager) Website: <a href="http://aleabridge.org">aleabridge.org</a>
<b>Gregory House Programs</b> 200 N. Vineyard Blvd., Ste A310, Honolulu	Phone: (808) 592-9022 Website: <a href="http://gregoryhouse.org">gregoryhouse.org</a>
<b>Parents &amp; Children Together</b> 1485 Linapuna St., Ste 105, Honolulu	Phone: (808) 841-6177 (ask for Family Division Center) Website: <a href="http://pachewell.org">pachewell.org</a>
<b>Salvation Army</b> Various	Phone: (808) 841-5565 Website: <a href="http://hawaii.salvationarmy.org">hawaii.salvationarmy.org</a>





# Remaining True to Our Mission Through Challenging Times

- ✓ The service we provide is critical to our Island Residents. We will continue to ensure **no disruptions in service due to COVID-19**
- ✓ The employees of the BWS are the reason we can achieve our mission. We're doing everything we can, with all available resources and knowledge, to **keep our workers safe**
- ✓ We will continue to make sound financial decisions that **protect our ratepayers**



WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

# Questions?

Thank you!



ITEM FOR INFORMATION NO. 3

"March 29, 2021

STATUS  
UPDATE OF  
GROUNDWATER  
LEVELS AT  
ALL INDEX  
STATIONS

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 were two aquifer index stations in low groundwater condition for the production month of February 2021. Waialua is Caution Status, and Punaluu is in Alert status. The monthly production average for February 2021 was 124.77 million gallons per day, which is below the 5-year monthly average.

The Board of Water Supply rainfall index for the month of February 2021 was 110 percent of normal, with a 5-month moving average of 98 percent. As of March 2, 2021, the Hawaii Drought Monitor shows abnormally dry conditions along the leeward coast of Oahu from Ewa Beach to Makaha. The National Weather Service is forecasting La Nina conditions continuing through the spring months, with potential above-normal rainfall through June 2021.

Most monitoring wells (except for January 2021) have continued to exhibit decreasing trends during the Winter season, possibly due to below average rainfall from April to December 2020. Production during the same time period has usually been consistent with previous years. However, average monthly Production for February 2021 was below the previous year and the 5-year monthly average.

Respectfully Submitted,

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

Attachment"

The foregoing was for information only.

DISCUSSION:

Barry Usagawa, Program Administrator, Water Resources Division, gave the report.

Board Member Jade Butay asked if Waialua and Punaluu were still in caution and alert status with the severe rain Oahu previously had.

Chair Andaya inquired if the March rainfall data is being presented in today's Board meeting.

Mr. Usagawa responded that the data presented in March is for February. March head levels will be shown in the April Board meeting. He stated that Waialua groundwater level was in the caution stage and Punaluu in alert by less than 1/10 of a foot.

Board Member Butay asked if the March rainfall would show how much water was recharged into aquifers?

Mr. Usagawa replied that the rainfall would eventually increase water levels but will take several months to recharge into the aquifers. He mentioned that in January, Oahu had a lot of rainfall as well.

Manager Lau stated the BWS would monitor and see what the next few month's reports will indicate.

Mr. Usagawa stated during heavy storms there is a lot runoff; therefore, doesn't necessarily recharge the aquifers.

Manager Lau stated the best rainfall for recharging the aquifers is a steady drizzle. However, any rainfall is good, Wai (water) is precious. He hopes the BWS will have a better March report for Punaluu.

**PRODUCTION, HEAD AND RAINFALL REPORT  
MONTH OF FEBRUARY 2021**

**POTABLE**

STATION	MGD
HONOLULU (1)	
KULIOUOU	0.02
WAILUPE	0.09
AINA KOA	0.08
AINA KOA II	0.35
MANOA II	0.53
PALOLO	1.03
KAIMUKI HIGH	0.91
KAIMUKI LOW	1.36
WILDER	6.94
BERETANIA HIGH	6.16
BERETANIA LOW	0.12
KALIHI HIGH	0.00
KALIHI LOW	0.00
KAPALAMA	1.57
KALIHI SHAFT	7.76
MOANALUA	1.34
HALAWA SHAFT	7.79
KAAMILO	0.88
KALAUAO	5.09
PUNANANI	10.39
KAAHUMANU	0.25
HECO WAIU	2.66
MANANA	0.27
WELLS SUBTOTAL:	55.56
MANOA TUNNEL	0.17
PALOLO TUNNEL	0.00
GRAVITY SUBTOTAL:	0.17
HONO. SUBTOTAL:	55.73

STATION	MGD
WINDWARD (2)	
WAIMANALO II	0.19
WAIMANALO III	0.00
KUOU I	0.55
KUOU II	0.05
KUOU III	0.61
LULUKU	0.89
HAIKU	0.00
IOLEKAA	0.00
KAHALUU	0.69
KAHANA	0.97
PUNALUU I	0.00
PUNALUU II	2.28
PUNALUU III	0.82
KALUANUI	1.30
MAAKUA	0.23
HAUULA	0.26
WELLS SUBTOTAL:	8.84
WAIM. TUNNELS I & II	0.00
WAIM. TUNNELS III&IV	0.19
WAIHEE INCL. WELLS	0.13
WAIHEE TUNNEL	4.09
LULUKU TUNNEL	0.16
HAIKU TUNNEL	0.84
KAHALUU TUNNEL	1.68
GRAVITY SUBTOTAL:	7.10
WIND. SUBTOTAL:	15.94

STATION	MGD
NORTH SHORE (3)	
KAHUKU	0.27
OPANA	0.06
WAIALEE I	0.44
WAIALEE II	0.54
HALEIWA	0.00
WAIALUA	1.67
N.SHORE SUBTOTAL:	2.98

STATION	MGD
MILILANI (4)	
MILILANI I	1.33
MILILANI II	0.00
MILILANI III	0.54
MILILANI IV	2.12
MILILANI SUBTOTAL:	3.99

STATION	MGD
WAIHAWA (5)	
WAIHAWA	0.96
WAIHAWA II	1.88
WAIHAWA SUBTOTAL:	2.84

STATION	MGD
PEARL CITY-HALAWA (6)	
HALAWA 277	0.56
HALAWA 550	0.00
AIEA	1.11
AIEA GULCH 497	0.30
AIEA GULCH 550	0.20
KAONOHII	1.05
WAIMALU I	0.00
NEWTOWN	0.79
WAIU	0.54
PEARL CITY I	0.79
PEARL CITY II	1.02
PEARL CITY III	0.24
PEARL CITY SHAFT	0.93
PEARL CITY-HALAWA SUBTOTAL:	7.52

STATION	MGD
WAIPAHU-EWA (7)	
WAIPIO HTS.	1.48
WAIPIO HTS. I	0.83
WAIPIO HTS. II	0.26
WAIPIO HTS. III	1.24
WAIPAHU	5.46
WAIPAHU II	2.56
WAIPAHU III	1.66
WAIPAHU IV	2.85
KUNIA I	2.55
KUNIA II	1.82
KUNIA III	1.42
HOAEAE	5.82
HONOULIULI I	0.00
HONOULIULI II	4.17
MAKAKILO	0.13
WAIPAHU-EWA SUBTOTAL:	32.24

STATION	MGD
WAIANAE (8)	
MAKAHA I	0.08
MAKAHA II	0.13
MAKAHA III	0.26
MAKAHA V	0.24
MAKAHA VI	0.00
MAKAHA SHAFT	0.00
KAMAILE	0.04
WAIANAE I	0.17
WAIANAE II	0.29
WAIANAE III	0.69
WELLS SUBTOTAL:	1.90
WAI. C&C TUNNEL	1.40
WAI. PLANT. TUNNELS	0.22
GRAVITY SUBTOTAL:	1.62
WAIANAE SUBTOTAL:	3.52

**NONPOTABLE**

NONPOTABLE	MGD
KALAUAO SPRINGS	0.45
BARBERS POINT WELL	0.99
GLOVER TUNNEL NP	0.30
NONPOTABLE TOTAL:	1.74

**RECYCLED WATER (JANUARY 2021)**

RECYCLED WATER	MGD
HONOULIULI WRF R-1	5.39
HONOULIULI WRF RO	1.18
RECYCLED WATER TOTAL:	6.57



**PRODUCTION, HEAD AND RAINFALL REPORT  
MONTH OF FEBRUARY 2021**

**PRODUCTION SUMMARIES**

TOTAL WATER	MGD
PUMPAGE	115.87
GRAVITY	8.89
POTABLE TOTAL:	124.77
NONPOTABLE	1.74
RECYCLED WATER	6.57
TOTAL WATER:	133.08

CWRM PERMITTED USE AND BWS ASSESSED YIELDS FOR BWS				
POTABLE SOURCES				
WATER USE DISTRICTS		A	B	C
		PERMITTED USE/ BWS YLDS	FEB 2021	DIFF. A-B
1	HONOLULU	82.93	55.58	27.37
2	WINDWARD	25.02	11.72	13.30
3	NORTH SHORE	4.70	2.98	1.72
4	MILILANI	7.53	3.99	3.54
5	WAIHAWA	4.27	2.84	1.43
6	PEARL CITY-HALAWA	12.25	7.52	4.73
7	WAIPAHU-EWA	50.63	32.24	18.39
8	WAIANAE	4.34	1.90	2.44
TOTAL:		191.67	118.75	72.92

CWRM PERMITTED USE FOR BWS				
NONPOTABLE SOURCES				
WATER USE DISTRICTS		A	B	C
		PERMITTED USE	FEB 2021	DIFF. A-B
7	WAIPAHU-EWA (BARBERS POINT WELL)	1.00	0.99	0.01
TOTAL:		1.00	0.99	0.01

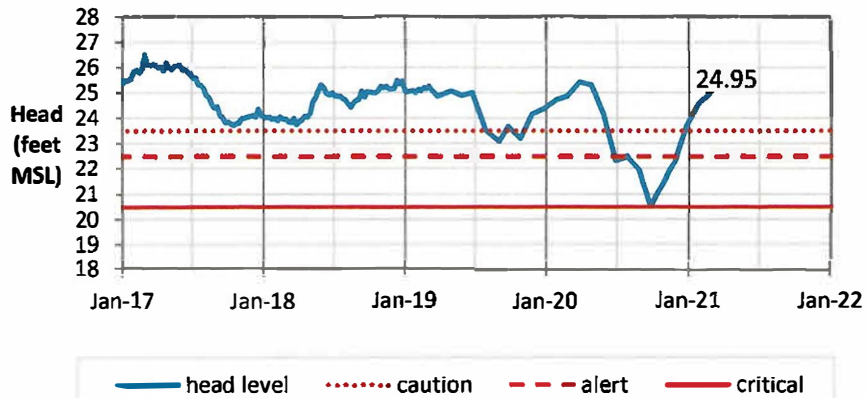
**EFFECTIVE WATER DEMAND PER DISTRICT**

IMPORT/EXPORT BETWEEN WATER USE DISTRICTS			
FROM	TO		MGD
2	1	WINDWARD EXPORT	1.14
7	8	BARBERS PT LB	5.49

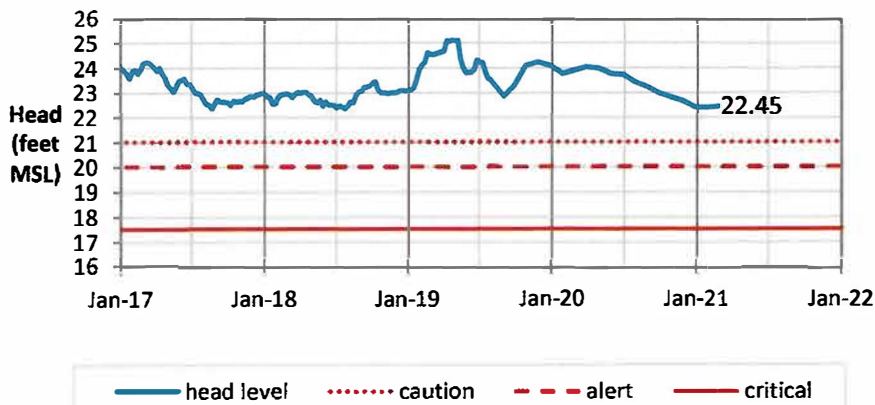
WATER USE DISTRICTS		SUBTOTAL	IMPORT	EXPORT	EFFECTIVE WATER DEMAND
1	HONOLULU	55.56	1.14	-	56.70
2	WINDWARD	11.72	-	1.14	10.58
3	NORTH SHORE	2.98	-	-	2.98
4	MILILANI	3.99	-	-	3.99
5	WAIHAWA	2.84	-	-	2.84
6	PEARL CITY-HALAWA	7.52	-	-	7.52
7	WAIPAHU-EWA	32.24	-	5.49	26.75
8	WAIANAE	1.90	5.49	-	7.38
TOTAL:		118.75	6.63	6.63	118.75

## Head Report

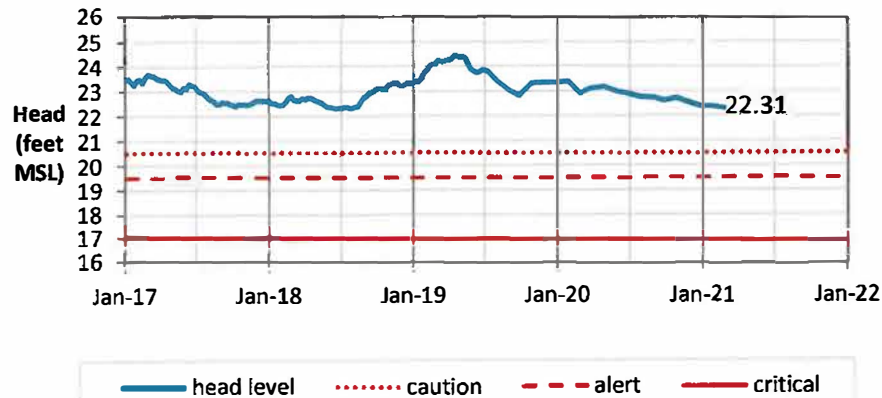
### Kaimuki 03/01/21



### Beretania 03/01/21

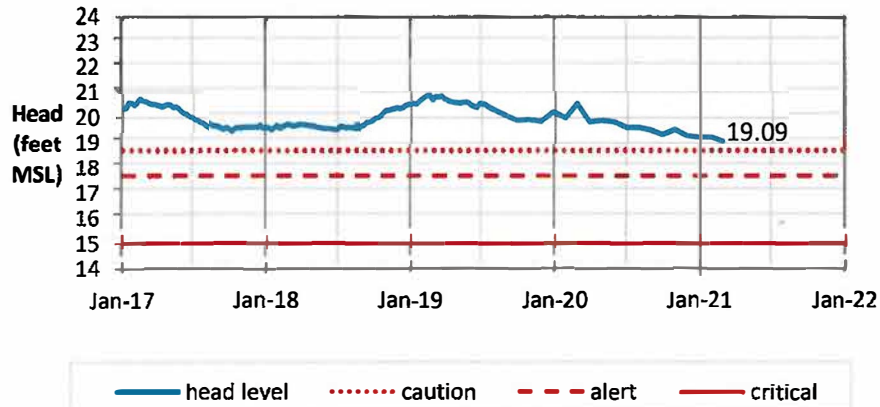


### Kalihi 03/01/21

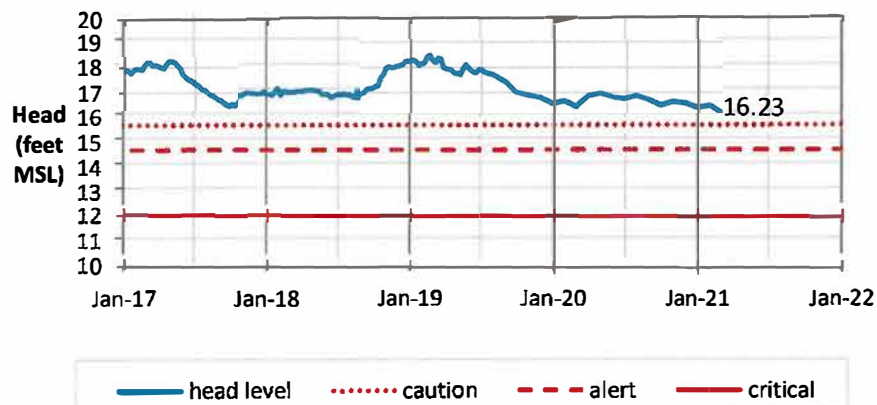


## Head Report

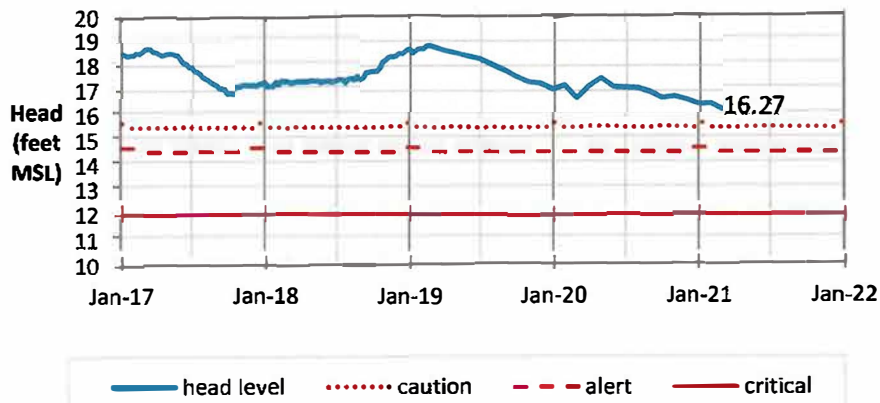
### Moanalua 03/01/21



### Halawa 03/05/21

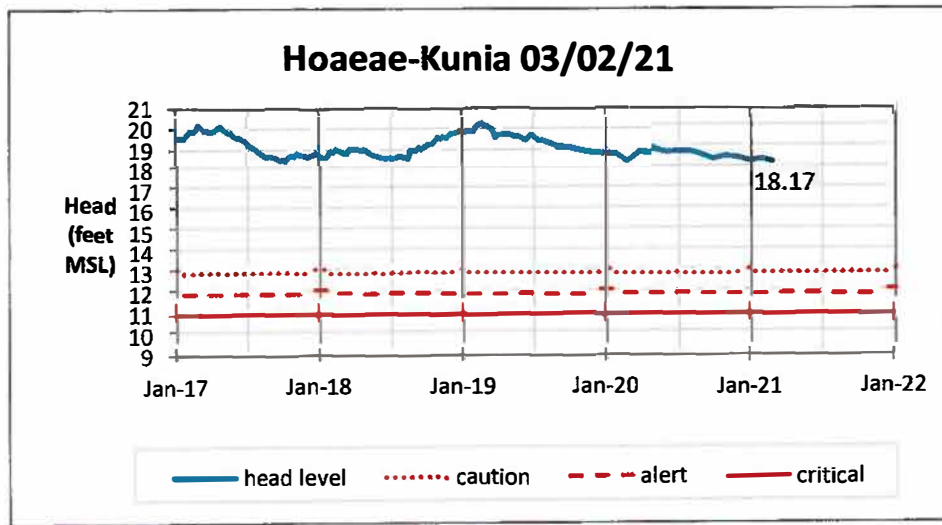
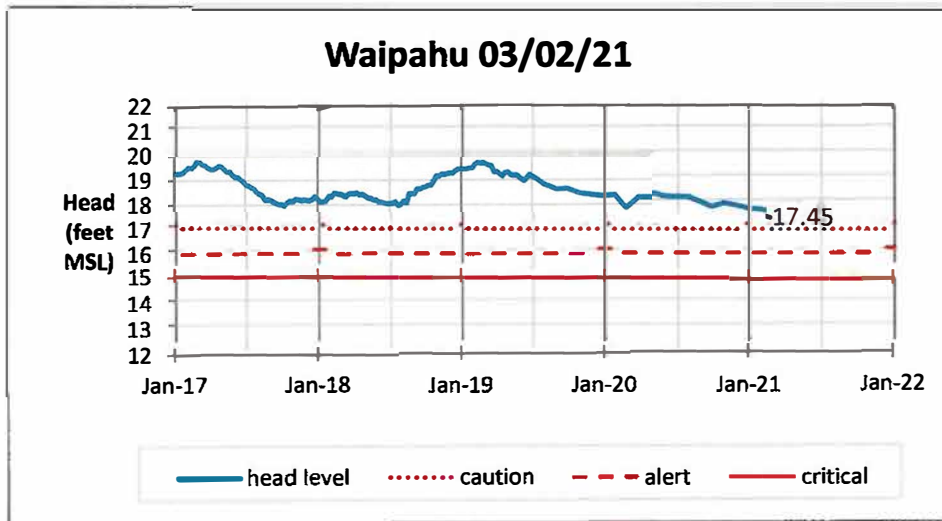
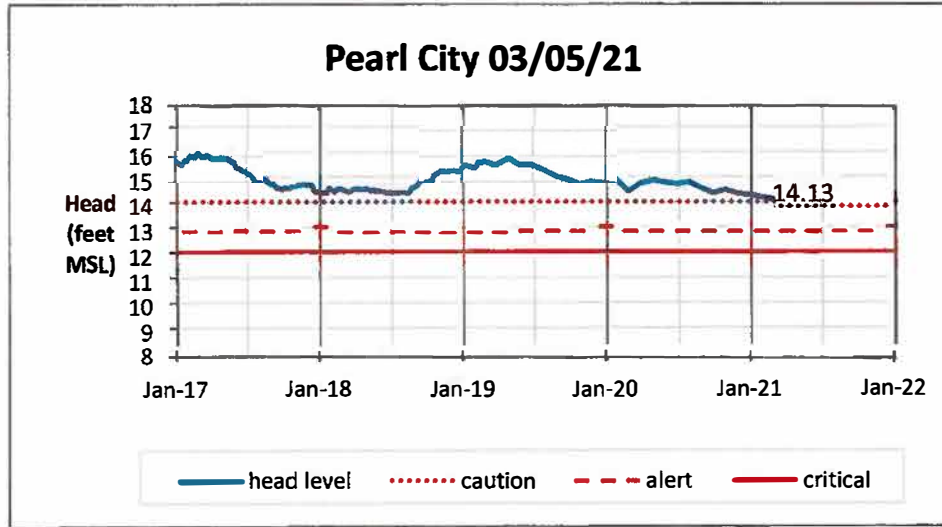


### Kalauao 03/05/21

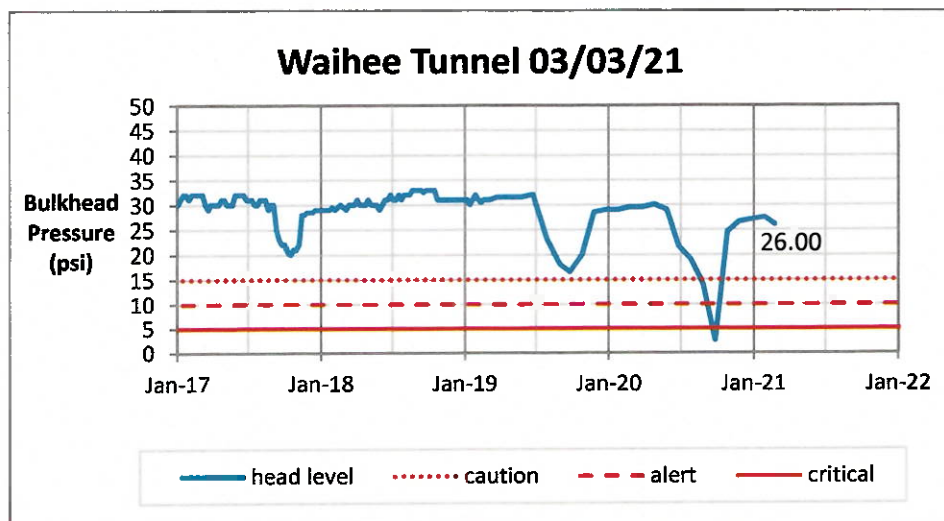
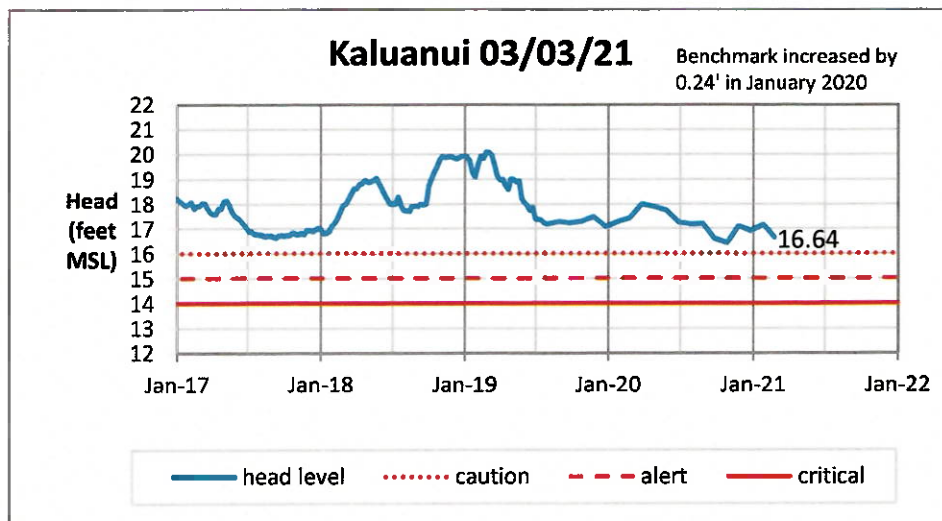
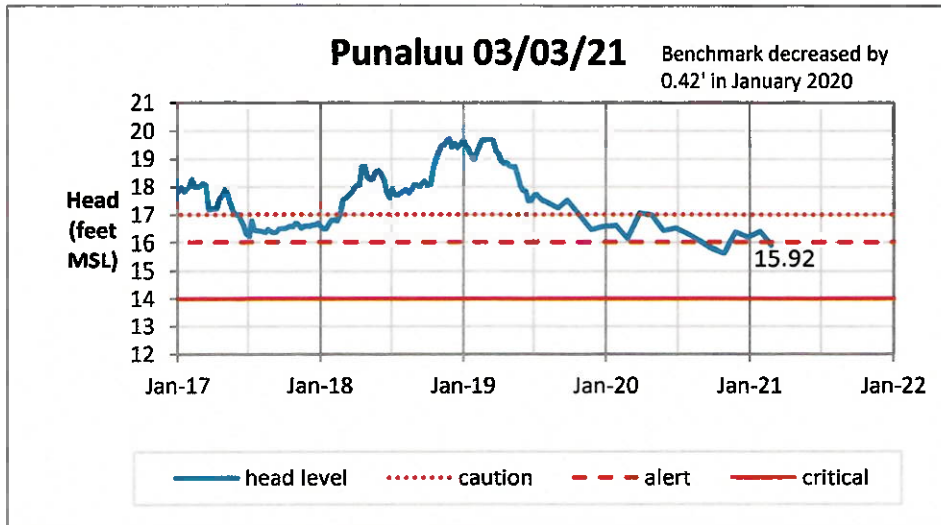




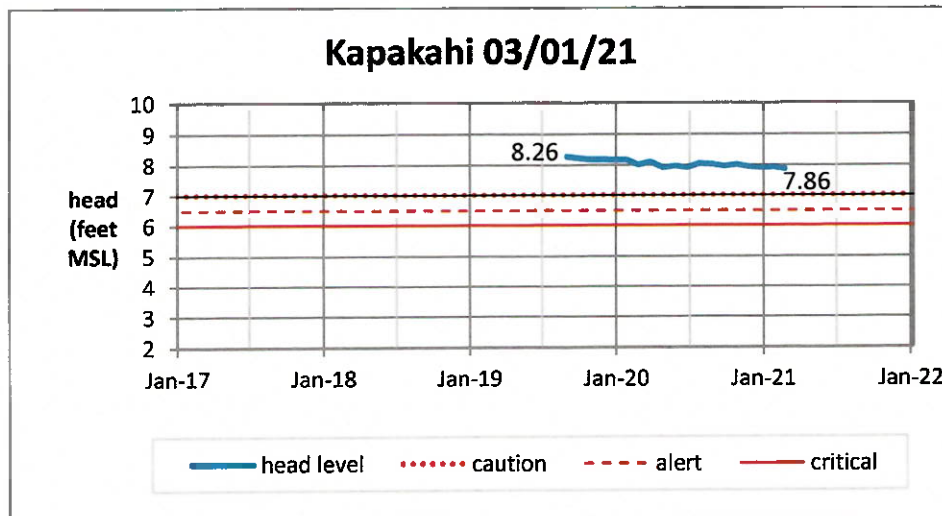
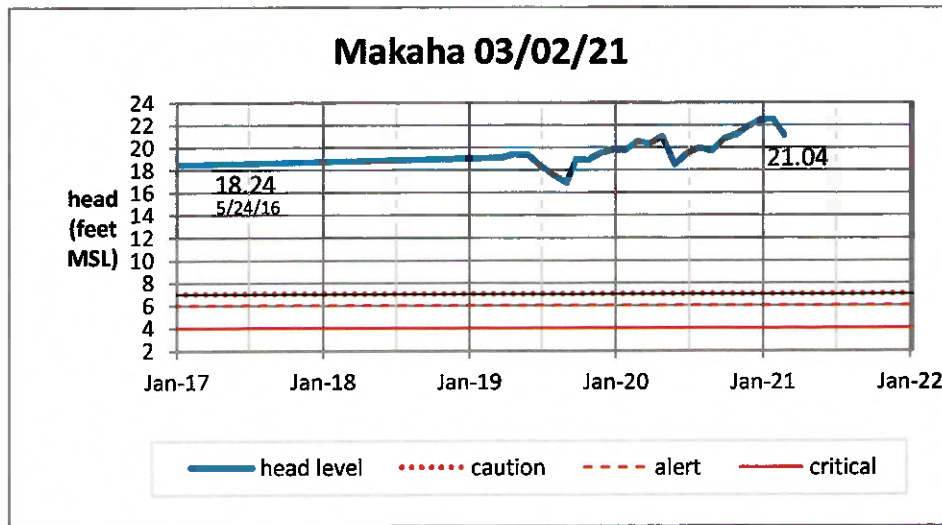
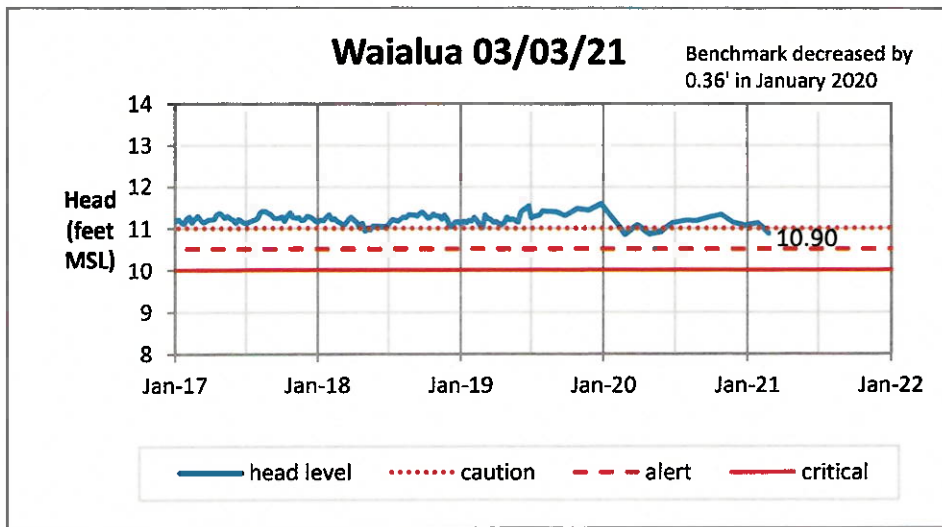
## Head Report

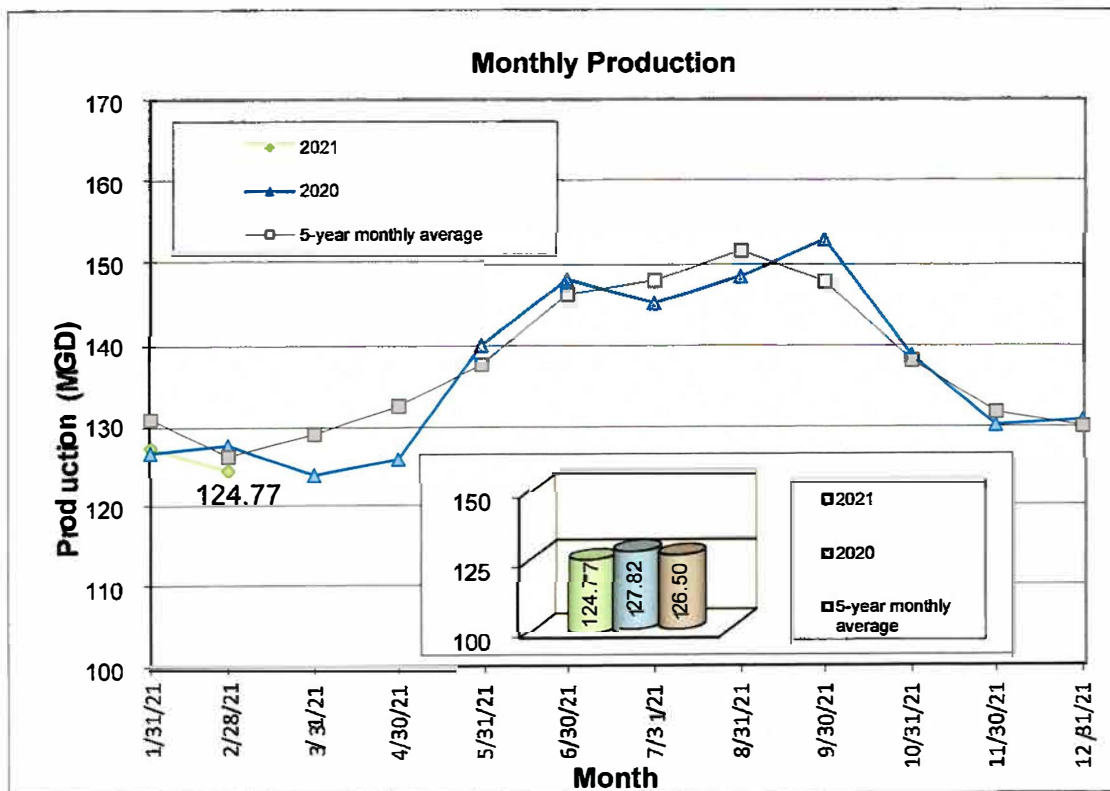
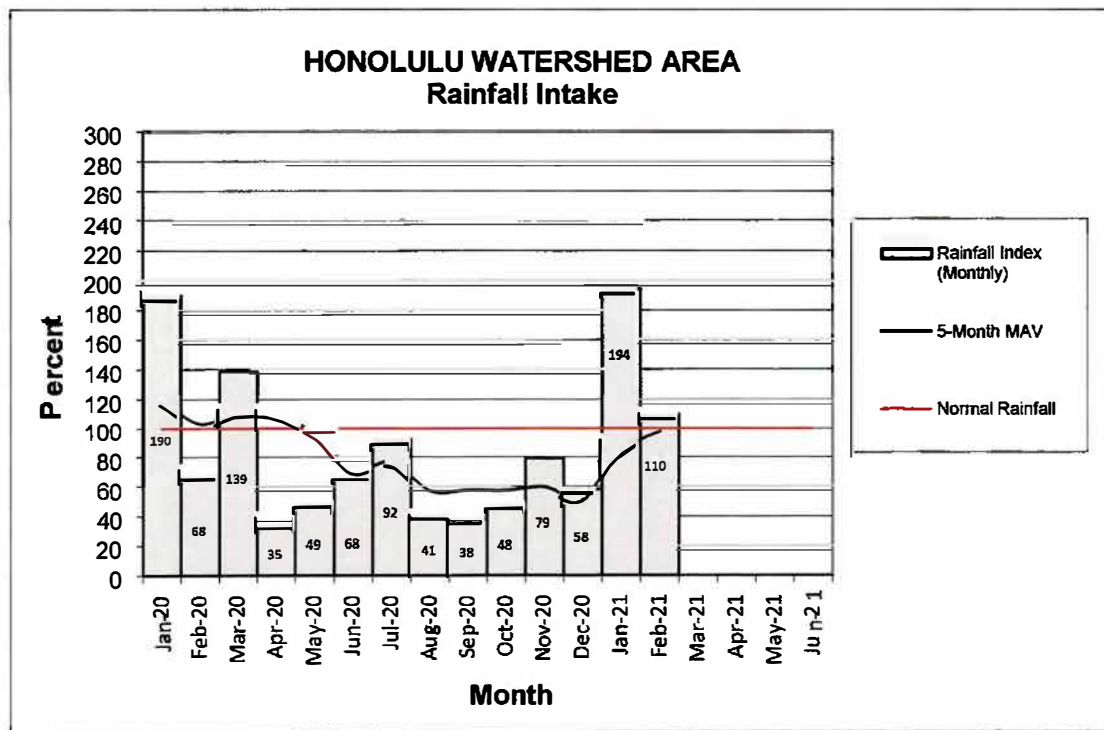


## Head Report



# Head Report





**ITEM FOR INFORMATION NO. 4**

**"March 29, 2021**

**SATELLITE  
IMAGERY  
LEAK SYSTEM  
ANALYSIS  
AND LEAK  
DETECTION  
SERVICES  
PROJECT**

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

**Chair and Members:**

**Subject:        Satellite Imagery Leak System Analysis and Leak Detection  
Services Project**

**Marc Chun, Assistant Program Administrator, Water Resources Division,  
and Jason Nikaido, Assistant Program Administrator, Field Operations  
Division, will report on the Satellite Imagery Leak System Analysis and  
Leak Detection Services Project.**

**Respectfully submitted,**

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

**Attachment"**

**The foregoing was for information only.**

**DISCUSSION:**

**Marc Chun, Assistant Program Administrator, Water Resources Division,  
and Jason Nikaido, Assistant Program Administrator, Field Operations  
Division, gave the report.**

**Board Member Max Sword asked if the BWS's non-revenue water loss  
ranged between 10% to 15% and if BWS was planning to use this  
technology to reduce the water loss.**

**Manager Lau confirmed that the non-revenue water loss is between 10 –  
15%. Manager Lau added that this is the second year that the BWS is  
using Utilis and the BWS has increased efficiencies by fourfold with the  
same amount of resources, staffing, and equipment. The BWS is working  
to quantify the benefits by determining how much cost savings this new  
technology will help customers.**

**Board Member Sword stated if the non-revenue water loss can be reduced  
to 10% with the use of Utilis, it is well worth the money.**

**Chair Andaya inquired is the BWS quantifying how much can be saved with  
the increase of efficiency using Utilis.**

**Mr. Nikaido replied yes, with the use of Utilis, the BWS can increase  
efficiency and save.**



Manager Lau mentioned that he first saw this new technology in the exhibit hall at the Annual Conference & Exposition (ACE) and Annual Conference for the American Water Works Association (AWWA). He learned that a satellite could detect chlorinated water using a spectral imaging signature and thought this might be too good to be true. It was at the Elemental Accelerator Program that the BWS was introduced to Utilis. Mr. Usagawa, Mr. Chun, Mr. Fuke, and Mr. Nikaido, the BWS, have since implemented the program. Manager Lau stated it is crucial for a utility to stay current with new technology and expressed his appreciation to Mr. Chun and Mr. Nikaido for the great teamwork and presentation.

Chair Andaya echoed Manager Lau's comments on staying current with new technology. He thanked the BWS for quantifying the results of technology to help make better decisions.

**WATER FOR LIFE**

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



**Board of Water Supply**  
City and County of Honolulu

# **Satellite Imagery Leak System Analysis and Leak Detection Services**

**March 29, 2021**

**Marc Chun, HBWS**

**Jason Nikaido, HBWS**





## Pilot Project

- Vendor: Utilis Inc.
- Cost: \$307,000 over 2 fiscal years
- Scope of Work:
  - Acquire satellite imagery
  - Analyze data
  - Prepare leakage report





## Pilot Project

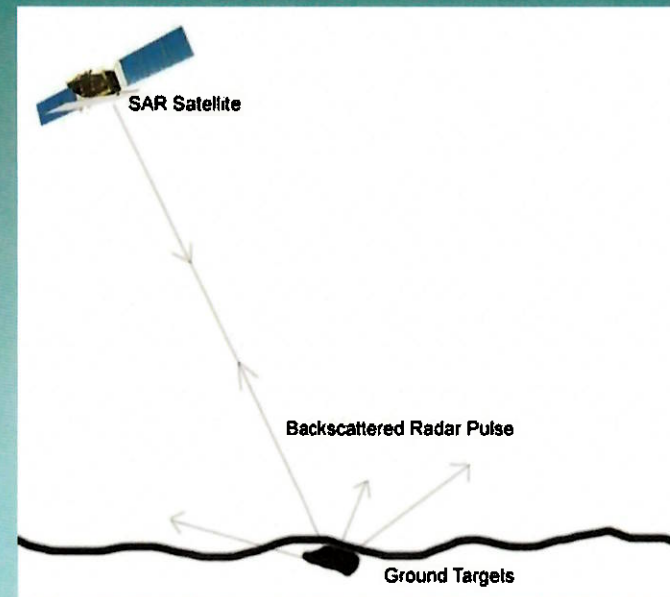
- Goals:
  - Verify technology
  - Reduce non-revenue water
  - Increase leak detection efficiency





## Synthetic Aperture Radar Satellites

- All weather capability
- Day/night operation
- Sensitive to dielectric properties
- Subsurface penetration
- The radar pulse is scattered by the ground targets, with some back to the antenna

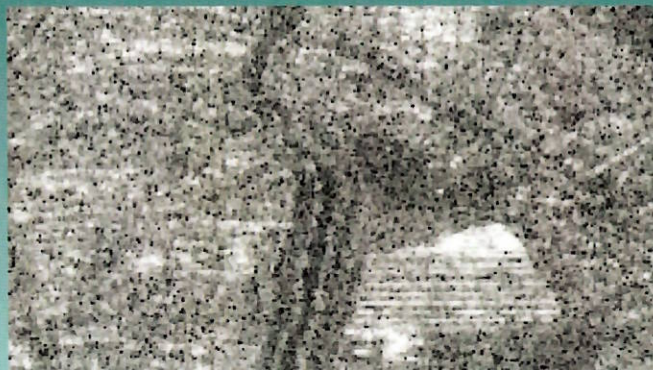




*Safe, dependable, and affordable water now and into the future*



## The received signal



## The data pixel values

[illegible]





## Identify Point of Interests (POIs)





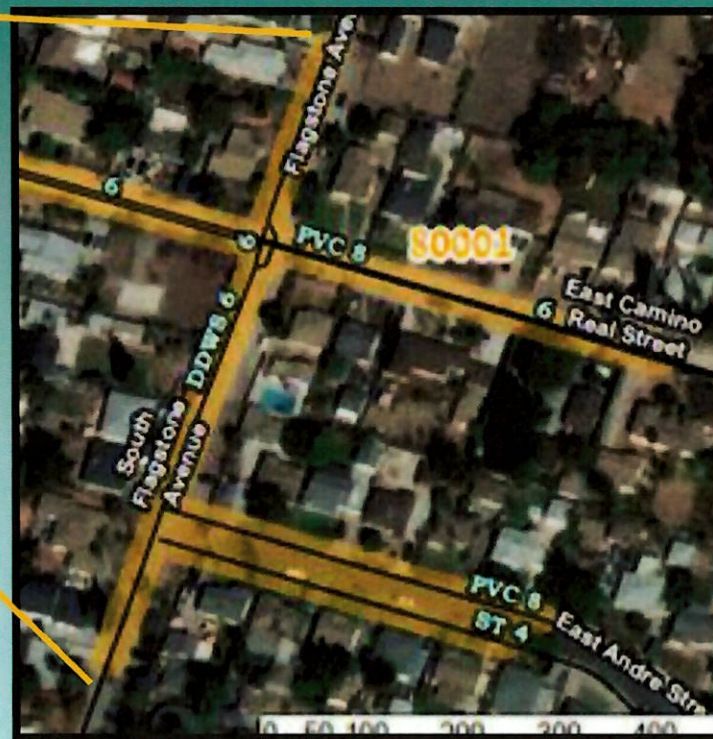
# WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

## Utilis survey method







## Images and Analysis

Image	Miles	Image Date	POIs
1	2,100	Dec. 13, 22, 2019	728
2	500	June 13, 2020	190
3	613	Sept. 13, 2020	201

999 total POIs



**Legend**

**POI\_Centroids**

Custom

- Top - Not Investigated
- ★ Top - Leak
- Top - Quiet
- ◆ Top - Suspected
- ▼ Top - Unfeasible
- High - Not Investigated
- ☆ High - Leak
- High - Quiet
- ◇ High - Suspected
- ▽ High - Unfeasible
- Moderate - Not Investigated
- ★ Moderate - Leak
- Moderate - Quiet
- ◆ Moderate - Suspected
- ▼ Moderate - Unfeasible
- Low - Not Investigated
- ★ Low - Leak
- Low - Quiet
- ◆ Low - Suspected
- ▼ Low - Unfeasible
- Other





## Results

	<b>2019 Traditional</b>	<b>2020 Utilis Satellite Guided</b>
Miles investigated	358	120
Leaks Found	255	344
Leaks per Mile	0.7	2.9









## Pilot Project

- Goals:
  - Verify technology ✓
  - Reduce non-revenue water ✓
  - Increase leak detection efficiency ✓





## BWS Next Steps

- “Pilot” program continues
- Proceed to “Year Two”
- Re-Image areas to look for improvements
- Evaluate results to determine long term implementation plans



# WATER FOR LIFE

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



Board of Water Supply  
City and County of Honolulu

## Questions?



ITEM FOR INFORMATION NO. 5

"March 29, 2020

WATER MAIN  
REPAIR  
REPORT FOR  
FEBRUARY 2021

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

Chair and Members:

Subject: Water Main Repair Report for February 2021.

Michael Fuke, Program Administrator, Field Operations Division, will report on water main repair work for the month of February 2021.

Respectfully submitted,

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

Attachment"

The foregoing was for information only.

DISCUSSION: Chair Andaya recognized Mr. Michael Fuke.

Chair Andaya inquired if the 14 miles of pipeline surveyed by the leak detection team refers to the points of interest detected by Utilis.

Mr. Fuke confirmed that Utilis was used to determine the areas to be surveyed and added that 14 miles may seem like a very small amount, but the BWS' leak detection efforts are more efficient with this new technology. Before Utilis, the BWS crew would survey the water mains by large geographic areas; therefore, the miles surveyed would be more significant. Now, the leak detection team can focus on specified areas detected by Utilis, lowering the miles surveyed. Mr. Fuke stated the efficiency of using Utilis is worth it even if only half the number of miles is covered. He used the 30-inch main break near Hawaii Kai Golf Course as an example, the BWS team cross-checked their work with Utilis and found a possible leak on the only 30-inch main. It is possible that the main break could have been averted if the leak detection team was sent out to investigate the potential leak identified by Utilis. He commented Utilis seems to very useful and promising and agrees with Manager Lau that it would be interesting to see what it will be able to do in the future.

Mr. Fuke gave his Water Main Repair Report for February 2021, reporting 18 breaks, which consisted of three, four, six, and eight-inch main breaks that took approximately 14 hours to repair. The leak detection team surveyed 14 miles and found two water main leaks. The BWS team also found 31-meter coupling leaks.

Chair Andaya asked if the coupling meters were customer meters that would affect a customer's bill.

Manager Lau stated it would depend on what side of the meter was affected.

Mr. Fuke explained if the leak is on the inlet side or before the meter, it will not impact the customer. However, if the leak is on the outlet side or passed through the meter, this would impact the customer.

Manager Lau stated billing adjustments could be made to customer bills for meter leaks.

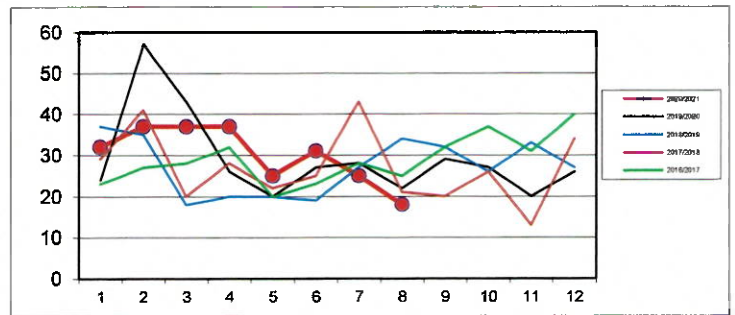
Chair Andaya thanked Mr. Fuke for his report.



## WATER MAIN REPAIR REPORT for February 2021

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	Total
2020/2021	32	37	37	37	25	31	25	18					242
2019/2020	24	57	43	26	20	27	28	22	29	27	20	26	349
2018/2019	37	35	18	20	20	19	27	34	32	26	33	27	328
2017/2018	29	41	20	28	22	25	43	21	20	26	13	34	322
2016/2017	23	27	28	32	20	23	28	25	32	37	31	40	346

Date	Address	Size (In)	Pipe Type
2/1/2021	87-125 Kulakumu Pl, Waianae	8	DI
2/1/2021	86-277 Kawili St, Waianae	8	PVC
2/2/2021	98-1780 Ipualea Loop, Aiea	8	CI
2/5/2021	501 Halekou Rd, Kaneohe	6	CI
2/8/2021	95-179 Waikalani Dr, Mililani	6	CI
2/10/2021	41-202 Kalanianaʻole Hwy, Waimanalo	30	CC
2/10/2021	41-774 Mokulama St, Waimanalo	4	CI
2/10/2021	92-585 Makakilo Dr, Kapolei	16	CI
2/11/2021	92-678 Palailai St, Kapolei	4	CI
2/11/2021	87-124 Maaloa St, Waianae	8	CI
2/12/2021	1476 Kealia Dr, Honolulu	6	CI
2/13/2021	1530 Kealia Dr, Honolulu	6	CI
2/17/2021	98-120 Hekaha St, Aiea	8	PVC
2/17/2021	44-553 Kaneohe Bay Dr, Kaneohe	8	CI
2/18/2021	44-701 Nanamoana Pl, Kaneohe	4	CI
2/21/2021	3145 Alika Ave, Honolulu	8	PVC
2/23/2021	928 9th Ave, Honolulu	6	CI
2/25/2021	1448 Alewa Dr, Honolulu	4	CI



14 miles of pipeline were surveyed by the Leak Detection Team in the month of February.

**MOTION TO  
RECESS INTO  
EXECUTIVE  
SESSION**

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

Upon unanimous approved motion, the Board recessed into Executive Session Pursuant to [HRS § 92-5 (a)(4)] at 3:16 PM to Consider Issues Pertaining to Matters Posted for Discussion at an Executive Session.

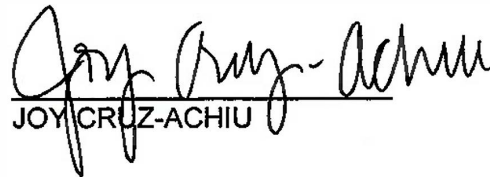
**OPEN  
SESSION**

The Board reconvened in Open Session at 4:02 PM.

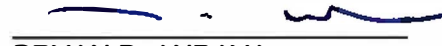
**MOTION TO  
ADJOURN**

There being no further business Chair Andaya at 4:03 PM called for a motion to adjourn the Open Session. Jade Butay so moved; seconded by Max Sword and unanimously carried.

The minutes of the Regular Meeting held on March 29, 2020 are respectfully submitted,

  
JOY CRUZ-ACHIU

APPROVED:

  
BRYAN P. ANDAYA  
Chair of the Board  
APR 26 2021  
\_\_\_\_\_  
Date

THE MINUTES OF THE REGULAR SESSION BOARD MEETING HELD ON MARCH 29, 2021 WERE APPROVED AT THE APRIL 26, 2021 BOARD MEETING			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT	X		
RAY C. SOON	X		
MAX J. SWORD	X		
NA'ALEHU ANTHONY	X		
JADE T. BUTAY			ABSENT
ROGER BABCOCK JR.	X		