BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843
www.boardofwatersupply.com

October 19, 2021

NOTICE

The Board of Water Supply, City and County of Honolulu, will hold a Regular Meeting on Monday, October 25, 2021, at 2:00 p.m. in the Boardroom, Public Service Building, 630 South Beretania Street, Honolulu, Hawaii.

Pursuant to the Emegency Proclamation issued by Governor David Y. Ige on October 1, 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 or faxed to (808) 748-5079. Testimony is due by Monday, October 25, 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.
- Mail written testimony to Board of Water Supply, 630 S. Beretania St., Honolulu, HI 96843. Testimony is due by Monday, October 25, 2021, at noon.
- On-line testimony will be accepted at boardofwatersupply.com/testimony Fill out the testimony form. Due by Monday, October 25, 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.

VIEWING THE MEETING

The meeting will be viewable via live streaming on:
(1) the BWS website: 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 (808) 748-5172 or email your request to board@hbws.org **at least three business days prior to the meeting date**.

The agenda for the October 25, 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 September 27, 2021

2. To Determine the Role of the Board in the Redevelopment of the Beretania Complex and Creation of a Permitted Interaction Group Pursuant to Section 92-2.5(b), Hawaii Revised Statutes

ITEMS FOR INFORMATION

1. Proposed Development of a Petition for the Designation of a Ground Water Management Area, Waianae, Oahu, Hawaii

2. Update on 2018-2022 Board of Water Supply Strategic Plan Performance Metrics

3. Update on Fiscal Year 2021 Water Master Plan Performance Metrics

4. Recruitment Status

5. Status Update of Groundwater Levels at All Index Stations

6. Water Main Repair Report for September 2021

EXECUTIVE SESSION

1. Approval of the Minutes of the Executive Session Held on August 23, 2021

2. Approval of the Minutes of the Executive Session Held on September 27, 2021

3. To Consult with the Board's Attorney on Questions and Issues Pertaining to the Board of Water Supply's Proposed Settlement of Civil Case No. 18-1-1989-12 (JPC), Relating to Property Damages at 40 South School Street, Honolulu, Hawaii Following a 24" Cast Iron Main Break at 40 South School Street, Honolulu, Hawaii, on December 12, 2016 [HRS §92-5(a)(4)]

4. To Consult with the Board's Attorney on Questions and Issues Pertaining to the Board's Powers, Duties, Privileges, Immunities, and Liabilities Pertaining to Matters Concerning the Red Hill Bulk Fuel Storage Facility [HRS §92-5(a)(4)]

MINUTES

THE REGULAR MEETING OF THE
BOARD OF WATER SUPPLY

October 25, 2021

At 2:00 PM on October 25, 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
Kapua Sproat, Vice Chair via WebEx
Max J. Sword, Board Member
Ray C. Soon, Board Member
Na'alehu Anthony, Board Member via WebEx
Jade T. Butay, Board Member, Ex-Officio via WebEx
Roger Babcock, Jr., Board Member, 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
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 via Vimeo
Jason Nikaido, Acting Program Administrator, Field Operations Division via WebEx
Joseph Cooper, Waterworks Controller, Finance Division via Vimeo
Michele Thomas, Executive Assistant I, Human Resources Office via WebEx
Henderson Nuuhiwa, Program Administrator, Information Technology Division via Vimeo
Michael Matsuo, Land Administrator, Land Division via WebEx
Erwin Kawata, Program Administrator, Water Quality Division via Vimeo
Barry Usagawa, Program Administrator, Water Resources Dvision via WebEx
Nancy Matsumoto, Hydrologist-Geologist VI, Water Resources Division via WebEx
Kevin Ihu, Program Administrator, Water System Operations Division via Vimeo

Kathy Mitchell, Administrative Services Officer
via Vimeo
Deanna Thyssen, Manager's Secretary via WebEx
Joy Cruz-Achiu, Board Secretary
Steven Norstrom, Information Specialist II,
Communications Office via WebEx
Stella Bernardo, Information Specialist II,
Communications Office via WebEx
Blaine Fergerstrom, Information Specialist II,
Communications Office via WebEx
Jonathan Scheuer, Ph. D, Kahālāwai Consulting Inc.
Bianca Isaki, Ph. D, Esq., Kahālāwai Consulting Inc.

Others Present:

Jeff Lau, Deputy Corporation Counsel
via WebEx Call
Jessica Wong, Deputy Corporation Counsel
via WebEx Call

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. Vice Chair Kapua Sproat, aye; Board Member Ray Soon, aye; and Board Member Max Sword, aye.

At 2:01 PM Chair Andaya acknowledged that Board Member Na'alehu Anthony and Board Member Jade Butay joined the Board Meeting and following at 2:02 PM Board Member Roger Babcock joined the Board Meeting. Chair stated that all Board Members were present and met quorum.

Chair Andaya introduced those present in the Boardroom, Manager Ernest Lau and Board Secretary Joy Cruz-Achiu.

Chair Andaya announced that Steven Norstrom, Information Specialist II from the Communications Office would be monitoring public testimony via WebEx. Also joining via WebEx from the City and County Corporation Counsel were Deputy Jeff Lau and Deputy Jessica Wong.

Chair Andaya requested all attendees calling in or video conferencing to please mute their microphones when not speaking to the audience. When intending to speak, unmute their microphone and identify themselves before speaking. He announced if anyone on WebEx should encounter any technical issues during the meeting to please use the WebEx chat to connect with the Board of Water Supply (BWS) support team.

Chair Andaya stated under the Emergency Proclamation issued by Governor David Ige on October 1, 2021, to follow public participation in a matter consistent with COVID-19 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, 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, which were all due on Monday, October 25, 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.

Chair Andaya also announced the Board Meeting is broadcasted live on the BWS website at www.boardofwatersupply.com/live.

APPROVAL OF MEETING	Approval of the Minutes of the Regular Meeting Held on September 27, 2021.
MOTION TO APPROVE	Max Sword and Ray Soon motioned and seconded, respectively, to approve the Minutes of the Regular Meeting of September 27, 2021. The motion was unanimously carried.

THE MINUTES OF THE REGULAR MEETING HELD ON SEPTEMBER 27, 2021, WERE APPROVED AT THE OCTOBER 25, 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	X		
ROGER BABCOCK, JR.	X		

"October 25, 2021

TO DETERMINE THE ROLE OF THE BOARD IN THE REDEVELOPMENT OF THE BERETANIA COMPLEX AND CREATION OF A PERMITTED INTERACTION GROUP PURSUANT TO SECTION 92-2.5(b), HAWAII REVISED STATUTES

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

Chair and Members:

Subject: To Determine the Role of the Board in the Redevelopment of the Beretania Complex and Creation of a Permitted Interaction Group Pursuant to Section 92-2.5(b), Hawaii Revised Statutes

We recommend the formation of a new Permitted Interaction Group pursuant to the Hawaii Revised Statutes (HRS) Section 92-2.5 (b) for the visioning and redevelopment of the Board of Water Supply Beretania Complex.

The relevant part of HRS Section 92-2.5 (b) states that two (2) or more members of a board, but less than the number of members which would constitute a quorum for the board, may be assigned to:

(1) Investigate a matter relating to the official business of their board; provided that:

(A) The scope of the investigation and the scope of each member's authority are defined at a meeting of the board;

(B) All resulting findings and recommendations are presented to the board at a meeting of the board; and

(C) Deliberation and decision making on the matter investigated, if any, occurs only at a duly noticed meeting of the board held subsequent to the meeting at which the findings and recommendations of the investigation were presented to the board

The involvement of the Board in this effort is an important opportunity to ensure the long-term use of the Beretania Complex adequately serves the needs of the department and its ratepayers.

Respectfully Submitted,

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

Attachment"

The foregoing was for information only.

DISCUSSION: Chair Bryan Andaya recognized Manager Ernest Lau and Michael Matsuo, Land Administrator, Land Division.

Manager Lau stated that in a previous Board Meeting, the Board Members discussed the creation of a new Permitted Interaction Group (PIG) to establish a vision for the redevelopment of the BWS Beretania complex. The creation of a PIG is an important opportunity to ensure the long-term use of the Beretania complex which would serve the needs of the department and the BWS ratepayers.

Board Member Ray Soon shared that the use of the PIG for the redevelopment project would be a multi-step process that would include first, creation of the vision; second, recommendations on how to implement the vision; and third, approval by the Board on the recommendations. Board Member Soon felt that the Board should vote on the vision recommended by the PIG before continuing with the second step and inquired if this interactive approval process could be used by the PIG.

Manager Lau asked that Board Corporation Counsel Jessica Wong respond and provide her thoughts.

Ms. Wong stated that typically, a PIG is given an issue to investigate, the PIG meets to research the issue, then reports their recommendations to the Board. In general, once the PIG presents their report to the Board, the PIG is terminated. She stated the PIG may present their findings to the Board to get guidance before doing more research, however, the PIG must avoid becoming a standing committee. She recommended that the PIG limit the interim discussions with the full Board to no more than twice.

Board Member Soon appreciated the explanation that Ms. Wong provided.

Board Member Sword motioned to create a PIG to explore the various visions that the Board could pursue for the redevelopment of the Beretania complex.

Board Member Soon clarified that the role of the PIG should include a process for the Board to determine the long-term vision for the Beretania complex. Once the Board agrees on the vision, the PIG would develop and investigate the steps necessary to implement the vision, then present recommendations to the Board for consideration. Based on this feedback, the PIG would develop and present a final proposal the Board to achieve the vision.

Board Member Sword indicated that based on Ms. Wong's advice, the first PIG will be created to develop and present to the Board the long-term vision. The first PIG will be dissolved, then a second PIG will be created to take the recommendations approved by the Board to implement the vision.

Board Member Soon commented that he believed that Ms. Wong indicated that the entire process could be completed using one PIG.

Ms. Wong recommended that she provide a written summary of the PIG process. She explained that the Board must define the scope of what is being investigated and the scope of each member's authority at the time the PIG is created with the Board's approval. Based on current discussions, Ms. Wong was not certain that the Board was ready to create the PIG at this meeting.

Chair Andaya asked Ms. Wong if she recommends deferring taking action on the creation of a PIG to determine the role of the Board in the redevelopment of the Beretania complex so that a more precise role for the PIG can be defined.

Ms. Wong agreed that she would recommend that the action be deferred. She explained that according to the Office of Information Practices (OIP) guidance, three meetings have to occur before the Board can take action on a matter investigated by the PIG.

Board Member Sword asked for clarification that the PIG must meet three times before reporting to the Board.

Ms. Wong responded that the PIG must meet three times before the PIG gives their recommendations to the Board. She explained that in the first meeting the PIG is formed, the scope of the investigation and the scope of each member's authority is defined. The second meeting, the PIG, presents its findings and recommendations; however, the Board cannot discuss or act on the report. At the third meeting, the Board can discuss and deliberate and make any decisions on the PIG's report.

Board Member Soon explained to Ms. Wong that current PIG could not propose recommendations for the redevelopment of the Beretania complex because it lacked a vision. He felt that all Board Members should be involved in the development of the vision. Board Member Soon was concerned that with using more than one PIG with the three meeting approval requirement would extend the redevelopment process. He asked Ms. Wong what would be the best tool to expeditiously develop and implement the vision.

Board Member Sword commented that he had been involved in many PIGs but doesn't recall having three meetings before agreeing to a conclusion.

Ms. Wong stated that the rules governing the PIG are based on OIP guidance.

Chair Andaya reiterated and Ms. Wong agreed that when a PIG is used there are three meetings before the full Board. The first meeting includes the formation of a PIG and the definition of the PIG's role. At the second meeting, the PIG reports back to the Board with recommendations. At the third meeting, the Board takes action on the recommendations of the PIG.

Chair Andaya commented that the Board can create a PIG at this meeting but would need to be able to define what the scope of the PIG's investigation would be and the role of the members of the PIG would be.

However, if the Board as a whole would like to be included in the visioning process a PIG would not be the proper route.

Manager Lau commented that maybe it would not be appropriate to create a PIG at this time. He suggested working with Board Member Soon to come up with a process such as a visioning workshop. Manager Lau stated that it would be similar to the budget workshop where all Board Members would be able to discuss and exchange feedback without taking any action at that time. The benefit of the workshop is that it is open to the public. The Board can then decide if the creation of a PIG would be appropriate to achieve the redevelopment of the Beretania complex. The plan would be voted on by the whole Board at a future date.

Board Member Soon replied that including the public is a healthy practice and a visioning workshop with the full Board on the redevelopment of the Beretania complex may negate the need for the PIG. Board Member Soon agreed to Manager Lau's offer to meet to develop a process.

Chair Andaya suggested that during the interim between October and November Board meetings Manager Lau and some Board Members would collaborate on the process that will be used to develop the vision for the redevelopment of the Beretania complex.

Manager Lau asked Ms. Wong if it would be possible for up to two Board Members to participate in formulating a vision process recommendation. The BWS and the Board must abide by the Sunshine law.

Ms. Wong replied that she would need to look into it but believed it would be ok.

Board Member Soon suggested that an attorney should sit in the meeting.

Chair Andaya announced that the action on Determining the Role of the Board in the Redevelopment of Beretania Complex and Creation of a PIG would be deferred to the next meeting.

ITEM FOR INFORMATION NO. 1

"October 25, 2021

PROPOSED DEVELOPMENT OF A PETITION FOR THE DESIGNATION OF A GROUND WATER MANAGEMENT AREA, WAIANAE, OAHU, HAWAII

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

Subject: Proposed Development of a Petition for the Designation of a Ground Water Management Area, Waianae, Oahu, Hawaii

We inform the Board that we intend to petition the State Commission on Water Resources Management to designate the Wai`anae Aquifer Sector as a Ground Water Management Area to increase protection and management of groundwater resources equal to the same level of protection and management as the rest of O`ahu aquifers. Climate change is causing decreasing rainfall trends affecting groundwater levels and stream flows in Wai`anae while growth and increasing temperatures will drive up water demand as evapotranspiration rates increase. As supply diminishes and demand increases, water conservation efficiencies in Wai`anae will become increasingly important.

More than ½ of Wai`anae's drinking water is imported from the Pearl Harbor aquifer and if climate change and associated resource management and regulatory actions require a reduction in BWS Waianae source production, major transmission and storage infrastructure in Wai`anae and new Pearl Harbor sources will be needed to compensate. Designation will serve to provide more clarity on climate change impacts and the resource management and infrastructure challenges and difficult decisions needed to mitigate those risks and uncertainties.

The BWS is initiating a comprehensive outreach effort to gain important feedback for the development of the petition and to elevate community awareness of the benefits and requirements of designation. Water Resources will present the designation approach.

/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 Soon inquired if any specific users would be impacted by the new designation regulations. He also asked what has prevented Waianae to be consistent with other parts of the island.

Barry Usagawa replied that all well owners will need to submit water use permit applications, including developers and the military. Before the Water Code was adopted in 1987, North Shore, Pearl Harbor, and Honolulu were called groundwater control areas. After 1987, Windward was designated in 1992. The Waianae area was never designated.

Board Member Soon wondered why the Waianae area was not designated. He suggested the BWS include homesteaders and the Department of Hawaiian Home Lands (DHHL) commission during the outreach.

Mr. Usagawa agreed with Board Member Soon's suggestion.

Mr. Usagawa responded that the DHHL owns a lot of vacant lands in Waianae, Lualualei, and Nanakuli and we will fully understand how much water will be needed and where the supply would come from. Importing water is not a simple solution due to the limited capacity in the Ewa, Kunia, and Waipahu systems. Therefore, the BWS is pursuing a seawater desalination plant located in Campbell Industrial Park to increase the water supply for Ewa.

Board Member Sword asked Mr. Usagawa and Jonathan Scheuer how many private wells are located in Lualualei.

Dr. Scheuer responded that there were 160 wells in the entire sector, some of which have since been abandoned. The BWS wells provide the majority of the water, a few large wells provide for the military.

Manager Lau stated that knowing how many wells are in the area is important. It is important because unused wells need to be properly sealed and abandoned, or unused wells could potentially become pathways for contamination or wasting water.

Board Member Sword agreed with Manager Lau's statement. He expressed his concern about being able to differentiate each well to determine how each well would be handled if the wells become the BWS's 'kuleana' or responsibilities.

Dr. Scheuer provided more information regarding the wells located in the Waianae area. The Commission on Water Resources Management (CWRM) identified 146 smaller wells that have had reporting issues, six wells that need to be contacted, 82 wells lost, and 42 other wells whose owners need to be contacted since they have not responded to outreach efforts.

Board Member Sword inquired if the designation for Waianae is approved is the BWS going to be responsible for privately owned wells, expressing his concern about potential liability.

Mr. Usagawa replied that each well owner is responsible for their wells.

Manager Lau also replied that the BWS would only be responsible for BWS wells. The Water Coded establishes CWRM with the responsibility to regulate all wells including those that are abandoned and sealed.

Manager Lau reassured Board Member Sword that the BWS would only be responsible for BWS wells, noting that with the water code responsibility is under the CWRM.

Manager Lau expressed his concern for wells that are lost and cannot be found as they could pose a safety hazard.

Vice Chair Kapua Sproat thanked the staff for being proactive and taking the initiative during these times of climate threats that are being faced.

Vice Chair Sproat responded to Board Member Soon regarding his question why water was not designated in Waianae when other parts of the island were. She answered, because it was not petitioned, it wasn't on the CWRM's radar, or there weren't any organized advocates seeking proactive protection. But it is time that the BWS address the issue.

Vice Chair Sproat asked what was the timetable for instream flow standard (IFS) for Kaupuni Stream? And, did the BWS consider co-petitioners when deciding to petition for the designation of groundwater management for Waianae.

Mr. Usagawa responded to Vice Chair Sproat's first question. The CWRM did not provide a specific timeline on Kaupuni Stream Interim Instream Flow Standard (IIFS) but is currently working around the island. He mentioned that Haiku and Kawainui were previously worked on and are currently working on the Kii Kii streams on the North Shore. All the information gathered from the CWRM's research should be available on their website. In response to Vice Chair Sproat's second question, Mr. Usagawa suggested to Dr. Scheuer that during outreach to ask about co-petitioners.

Dr. Scheuer shared from personal experience in Waianae with Dr. Bianca Isaki that co-petitioners are something that may be of interest to the community members and CWRM therefore should be included early in the outreach.

Board Member Roger Babcock suggested including the One Water Panel and Committee on Climate Change, Sustainability, and Resilience during the outreach.

Mr. Usagawa and Manager Lau agreed to Board Member Babcock's suggestion to extend the outreach to the One Water Panel. BWS is a member of the panel.

Board Member Na'alehu Anthony expressed his appreciation for the detailed report. He asked a few questions: 1) Who at the BWS is responsible for tracking water data such as the aquifers and pipes and how

it affects the public; and 2) Whose data is being used to look into the future of water.

Mr. Usagawa replied it's the Water Resources Divisions' responsibility. He asked Manager Lau to share his thoughts.

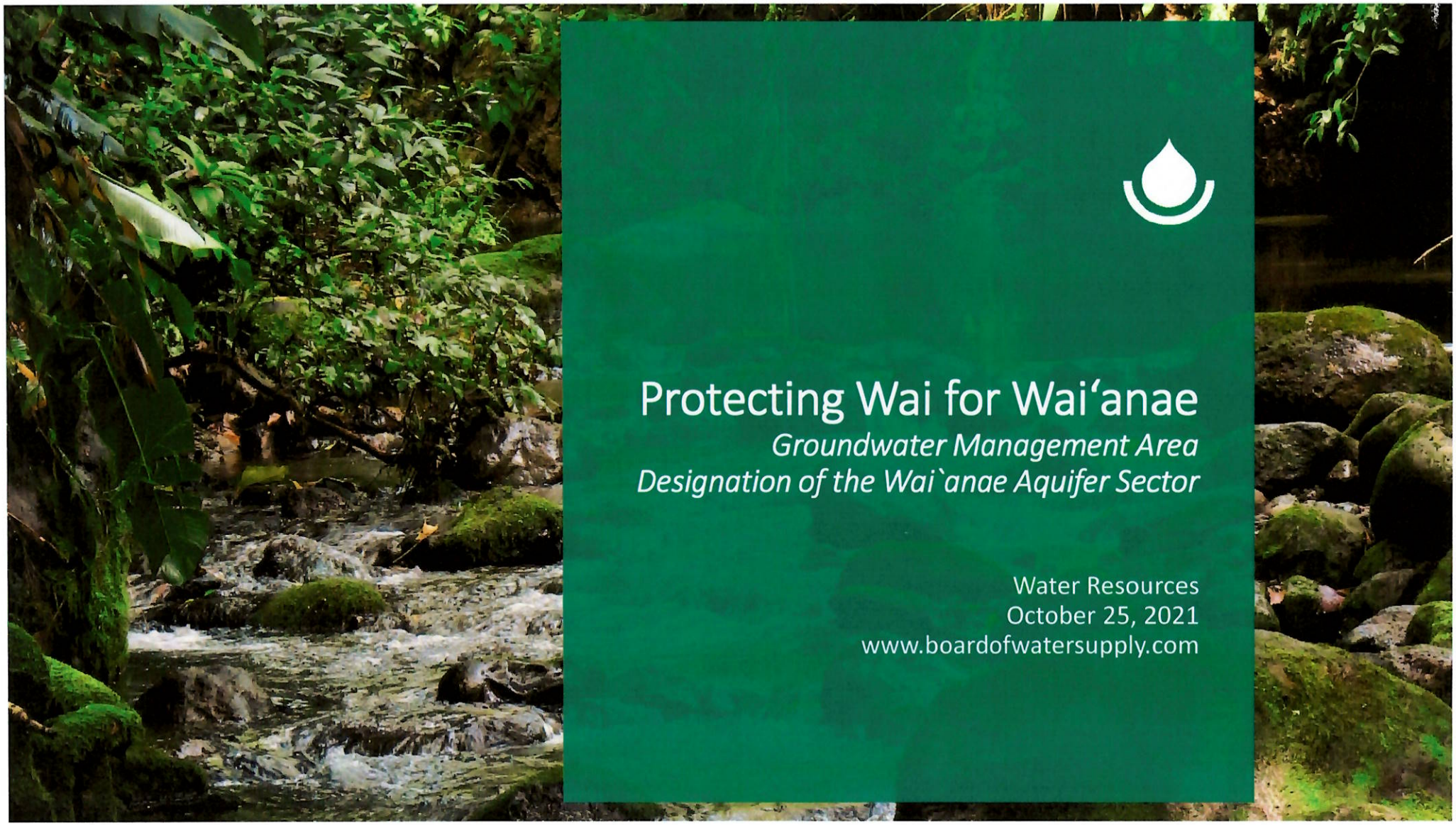
Manager Lau replied that the primary lead in research and study on the water is the Water Resources Division who works closely with the United States Geological Survey (USGS) and the University of Hawaii (UH), Water Resources Research Center, Tom Giambelluca in efforts to collect and collaborate information that has been gathered and studied. He also mentioned that other BWS Divisions are included such as Capital Projects Division when water system standards change, the Field Operations Division makes repairs on main breaks amid rising sea levels, but as an entirety, it is a team effort, all divisions at the BWS are responsible.

Mr. Usagawa added that the BWS intends to coordinate and collaborate with UH and USGS on directed research needs that would inform on future forecasts and adjust the BWS long range plans accordingly. Mr. Usagawa applauded UH and USGS for producing telescope climate models of future rainfall. He mentioned that the BWS has begun adding climate vulnerability data collected from the Water Research Foundation to the BWS long range planning that includes dry and wet scenarios to 2100. He shared that the BWS is researching Makaha evapotranspiration in the native forest to determine what kind of long term impacts rainfall reduction would have on recharge in cooperation with the assistance of Dr. Tom Giambelluca and Dr. Chip Fletcher with tracking tidal water levels and looking into any opportunities that could provide directed research data to better manage the future climate impacts to water resources.

Board Member Anthony shared that he has had the opportunity to view Dr. Fletcher's presentation program and is very alarmed. He mentioned that he is curious to learn how aquifers and the water table are affected, which makes tidal readings very important. Board Member Anthony expressed his appreciation for all the efforts.

Chair Andaya expressed his appreciation to the BWS for being proactive on such a very important issue.

Chair Andaya asked if there were any further questions. Hearing none, Chair Andaya moved to the next information item.



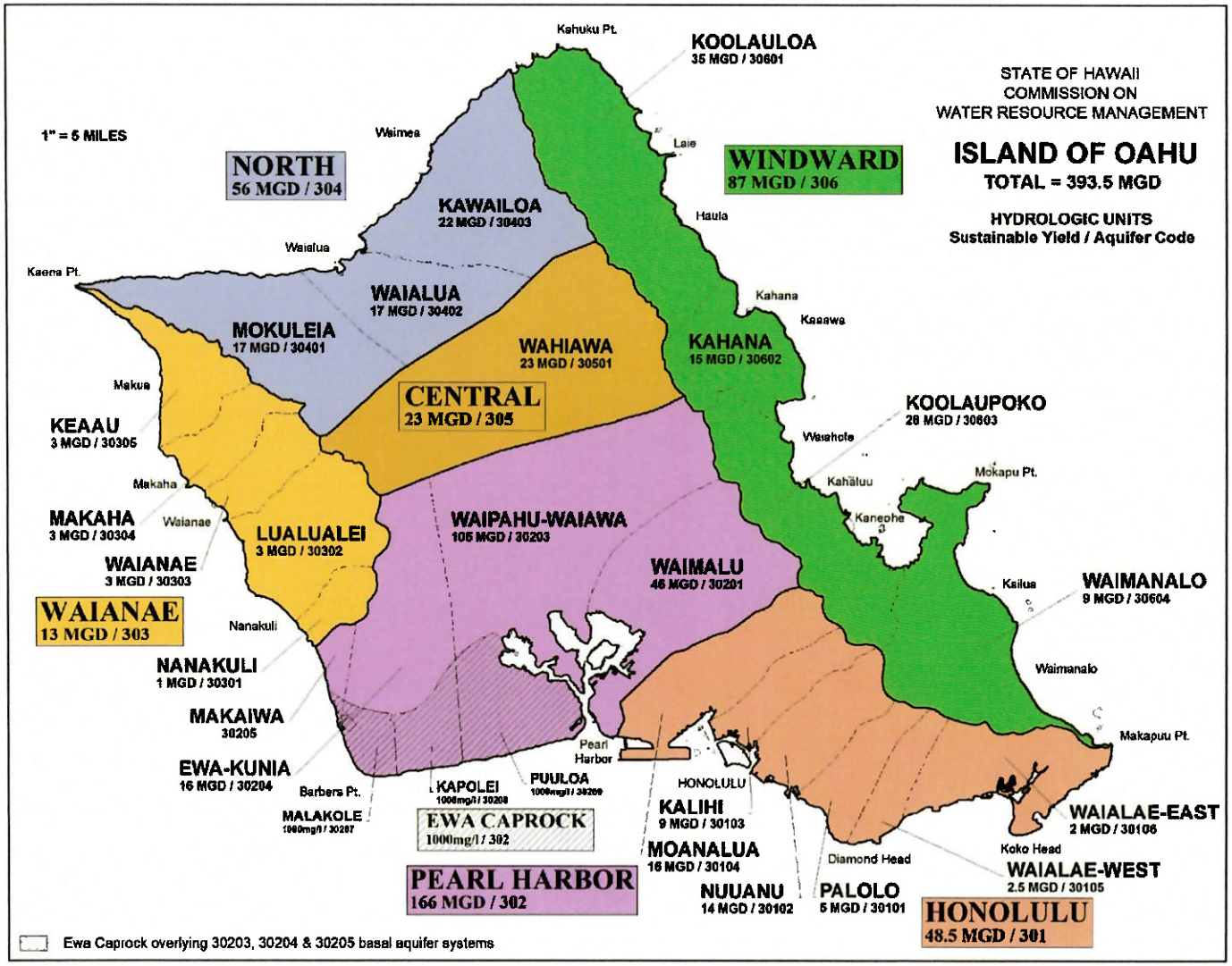
Protecting Wai for Wai‘anae

Groundwater Management Area
Designation of the Wai`anae Aquifer Sector

Water Resources
October 25, 2021
www.boardofwatersupply.com

PRESENTATION OUTLINE:
GROUNDWATER MANAGEMENT AREA
DESIGNATION OF THE WAI`ANAE AQUIFER SECTOR

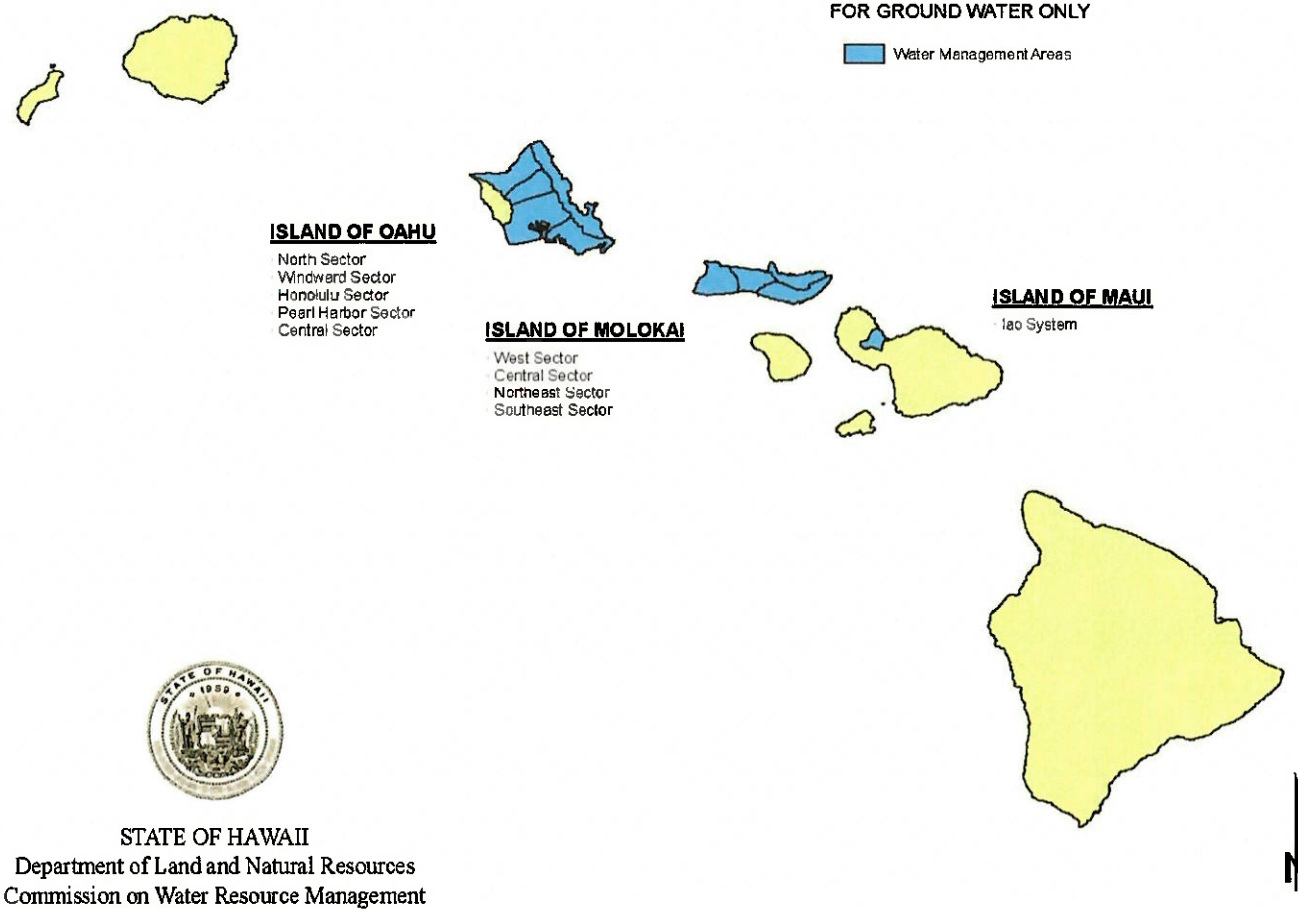
- What is Being Proposed
- Why is Designation Needed
- Who will BWS Outreach to
- What Happens if CWRM Approves Designation


STATE OF HAWAII
COMMISSION ON
WATER RESOURCE MANAGEMENT
ISLAND OF OAHU
TOTAL = 393.5 MGD
HYDROLOGIC UNITS
Sustainable Yield / Aquifer Code
1" = 5 MILES
NORTH
56 MGD / 304
KAWAILOA
22 MGD / 30403
WAIALUA
17 MGD / 30402
MOKULEIA
17 MGD / 30401
KEAAU
3 MGD / 30305
MAKAHA
3 MGD / 30304
WAIANAE
3 MGD / 30303
WAIANAE
13 MGD / 303
NANAKULI
1 MGD / 30301
MAKAIWA
30205
EWA-KUNIA
16 MGD / 30204
MALAKOLE
1000mg/l / 30207
CENTRAL
23 MGD / 305
WAHIAWA
23 MGD / 30501
LUALUALEI
3 MGD / 30302
WAIPAHU-WAIAWA
105 MGD / 30203
KAPOLEI
1000mg/l / 30208
PUULOA
1000mg/l / 30209
EWA CAPROCK
1000mg/l / 302
PEARL HARBOR
166 MGD / 302
WAIMALU
46 MGD / 30201
KALIHI
9 MGD / 30103
MOANALUA
16 MGD / 30104
NUUANU
14 MGD / 30102
PALOLO
5 MGD / 30101
WINDWARD
87 MGD / 306
KOOLAULOA
35 MGD / 30601
KAHANA
15 MGD / 30602
KOOLAUPOKO
28 MGD / 30603
WAIMANALO
9 MGD / 30604
WAIALAE-EAST
2 MGD / 30106
WAIALAE-WEST
2.5 MGD / 30105
HONOLULU
48.5 MGD / 301
Kahuku Pt.
Waimea
Laie
Haula
Waialua
Kaena Pt.
Kahana
Kaaawa
Makua
Waiahole
Kahaluu
Mokapu Pt.
Makaha
Waianae
Kaneohe
Kailua
Nanakuli
Waimanalo
Pearl Harbor
Makapuu Pt.
HONOLULU
Barbers Pt.
Diamond Head
Koko Head
Ewa Caprock overlying 30203, 30204 & 30205 basal aquifer systems
06/20/2018
Map Projection: Universal Transverse Mercator

WATER MANAGEMENT AREAS

FOR GROUND WATER ONLY

Water Management Areas



ISLAND OF OAHU

North Sector
Windward Sector
Honolulu Sector
Pearl Harbor Sector
Central Sector

ISLAND OF MOLOKAI

West Sector
Central Sector
Northeast Sector
Southeast Sector

ISLAND OF MAUI

Iao System

STATE OF HAWAII
Department of Land and Natural Resources
Commission on Water Resource Management

Map Projection: Universal Transverse Mercator, North American Datum 1983 01/27/2005

WHAT IS BEING PROPOSED

- BWS and its consultant Kahālāwai Consulting are preparing to petition the State Commission on Water Resources Management to designate the Wai`anae Aquifer Sector as Ground Water Management Area to increase protection and management of groundwater resources equal to the same level as the rest of O`ahu aquifers.
- Currently, and only in Wai`anae, any landowner can drill a well and pump groundwater for any use with limited regulatory approvals on the amount of use or despite potential detrimental impacts to groundwater resources or streams.

WHAT IS BEING PROPOSED

- Designation provides a formal public process to discuss Wai`anae's competing water issues including, but not limited to, potential decreases in sustainable yields, water availability for affordable housing, Department of Hawaiian Home Lands and agriculture, water conservation and reuse to reduce freshwater use, forest management, stream habitat, traditional and customary practices, to balance water resource protection and management in the context of watershed health.

STATE WATER CODE, HRS §174C-41

"When it can be reasonably determined, after conducting scientific investigations and research, that the water resources in an area may be threatened by existing or proposed withdrawals or diversions of water, the commission shall designate the area for the purpose of establishing administrative control over the withdrawals and diversions of ground and surface waters in the area to ensure reasonable beneficial use of the water resources in the public interest."

CWRM CONSIDERS EIGHT CRITERIA THAT CAN TRIGGER GROUNDWATER DESIGNATION

1. **Whether an increase in water use or authorized planned use may cause the maximum rate of withdrawal from the ground water source to reach 90% of the sustainable yield of the proposed ground water management area;**
2. There is an actual or threatened water quality degradation as determined by the Department of Health;
3. **Whether regulation is necessary to preserve the diminishing ground water supply for future needs, as evidenced by excessively declining ground water levels;**
4. Whether the rates, times, spatial patterns, or depths of existing withdrawals of ground water are endangering the stability or optimum development of the ground water body due to upconing or encroachment of salt water;
5. Whether the chloride contents of existing wells are increasing to levels which materially reduce the value of their existing uses;
6. Whether excessive preventable waste of ground water is occurring;
7. **Serious disputes respecting the use of ground water resources are occurring;**
8. Whether water development projects that have received any federal, state, or county approval may result, in the opinion of the commission, in one of the above conditions.

Bold=applicable criteria

TABLE OF AQUIFER SUSTAINABLE YIELDS AND GROUNDWATER PRODUCTION - 2016

Aquifer System Area	Sustainable Yield (SY) (mgd)	Production Average (mgd)	SY Minus Production (mgd)	Existing Water Use as a % of SY
Nānākuli	1	NRU	NRU	
Lualualei	3	0.13	2.87	4.3%
Waiʻanae	3	2.77	0.23	92.3%
Mākaha	3	2.68	0.32	89.3%
Keaʻau	3	0	3	0.0
Total	**13**	**5.58**	**6.42**	

2019 WRPP. Data will be updated.
NRU = No Reported Use
BWS reduced Mākaha production in 2020

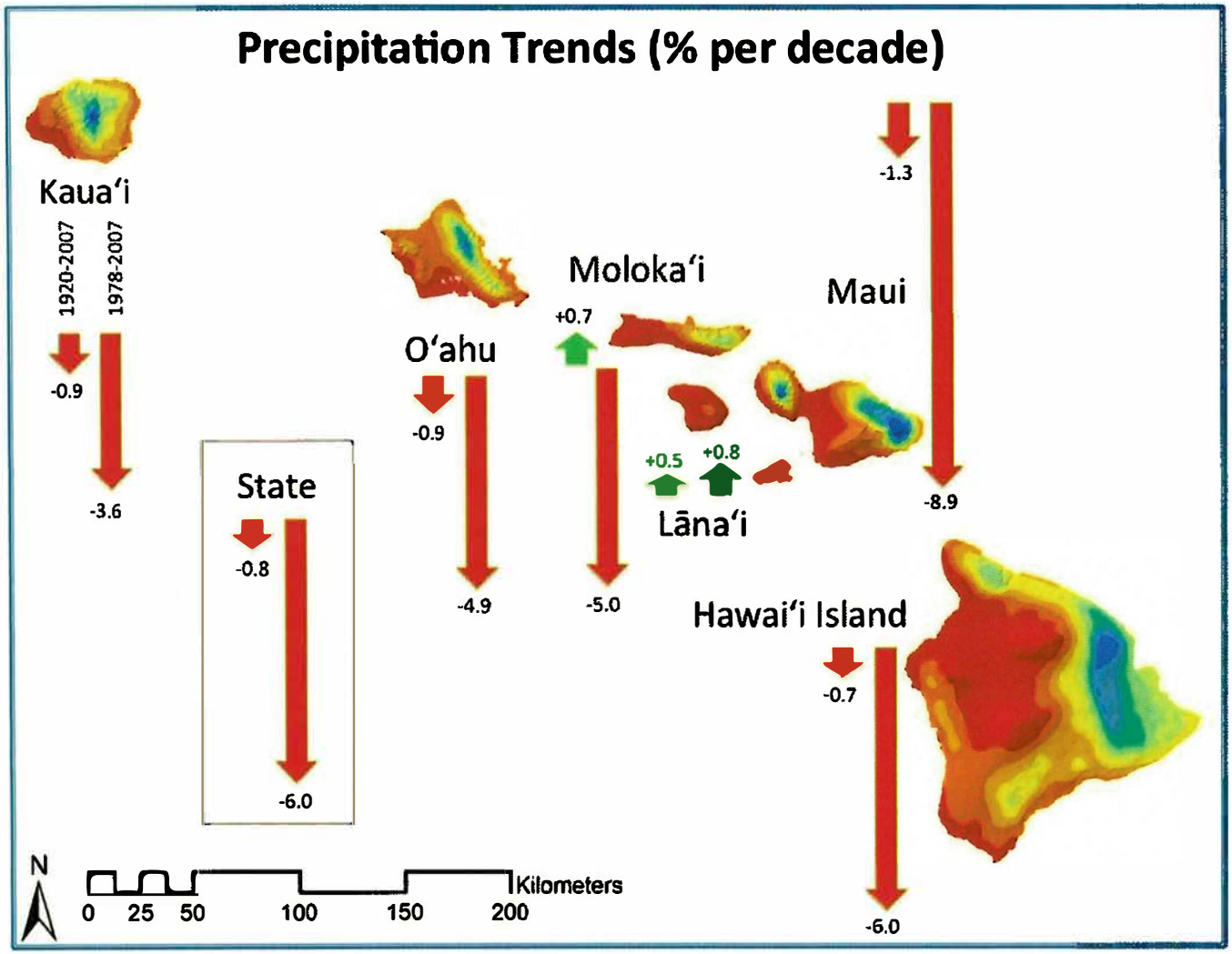
WHY IS DESIGNATION NEEDED

- Designation is essential to elevate protection and management of groundwater resources in Wai`anae equal to the rest of O`ahu. This would sustain the BWS vision of Safe, Dependable and Affordable Water, Now and Into the Future.

  Specifically, designation is needed because:

  - Wai`anae aquifer production meets the 90% criteria. Although BWS decreased Mākaha source production in 2020, authorized planned use in Mākaha could increase pumpage to 90% of sustainable yield.
  - Climate change is causing decreasing rainfall trends affecting groundwater levels and stream flows, despite production levels below the adopted aquifer sustainable yields.
  - Increasing temperatures drive up water demand as evapotranspiration rates increase.
  - BWS seeks to be responsive to the Wai`anae community advocating for designation to proactively avoid serious conflicts.

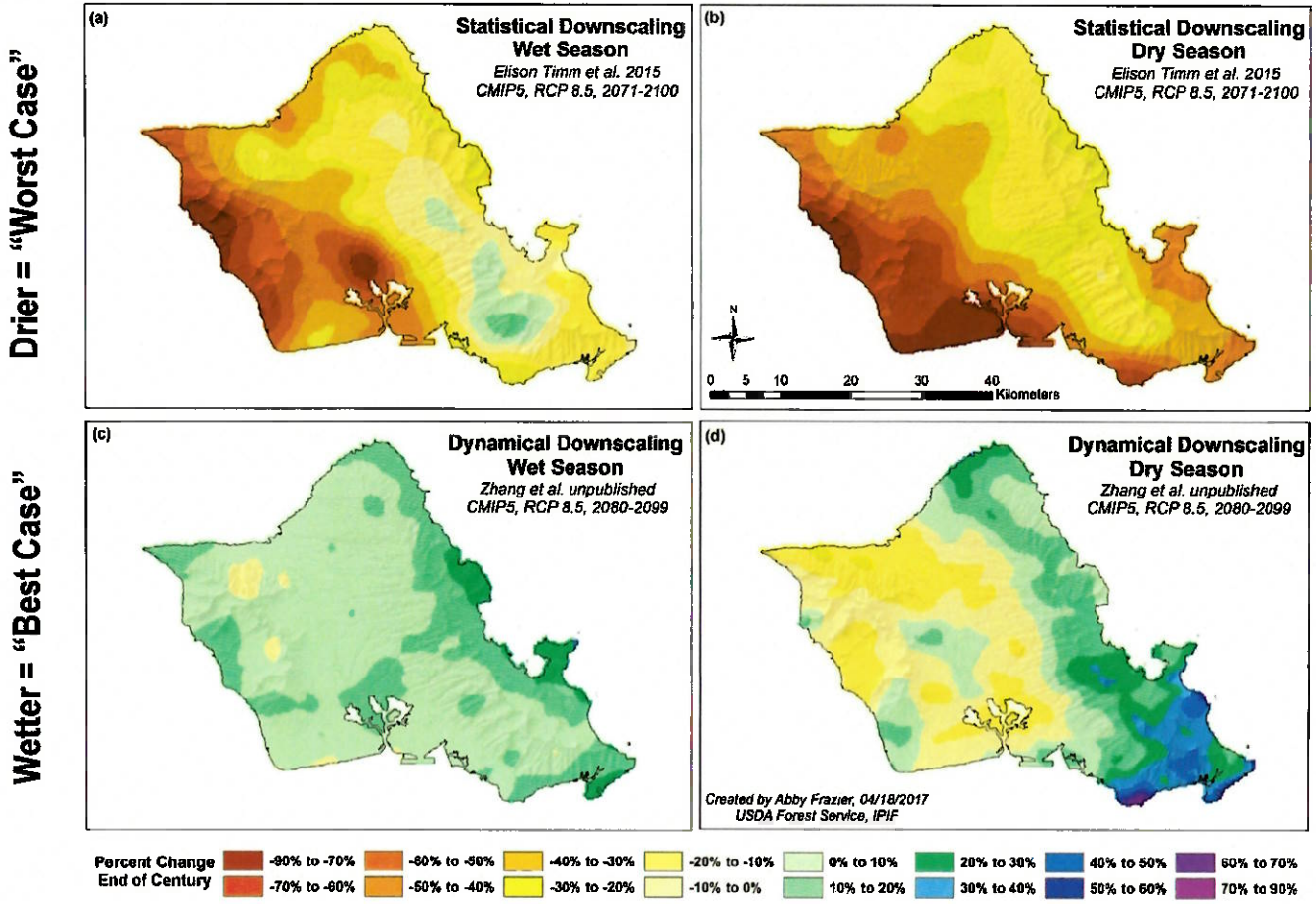
- Designation will serve to provide more clarity on climate change impacts and the resource management and infrastructure challenges and difficult decisions needed to mitigate climate risks and uncertainties.



Giambelluca et al. 2011. Regional climate trends in Hawai'i. American Geophysical Union Fall Meeting, Abstract GC21B-0898.

Mean Annual Rainfall has decreased in Waianae 1970's – 2011 from 100" to 65",

UH 2100 rainfall forecasts using 2 downscaled climate models show decreasing rainfall in Wai`anae. In the worst-case statistical model, rainfall could decrease an average of 65% in important mauka recharge areas, reducing the amount of water that can be sustainably withdrawn from the aquifer.

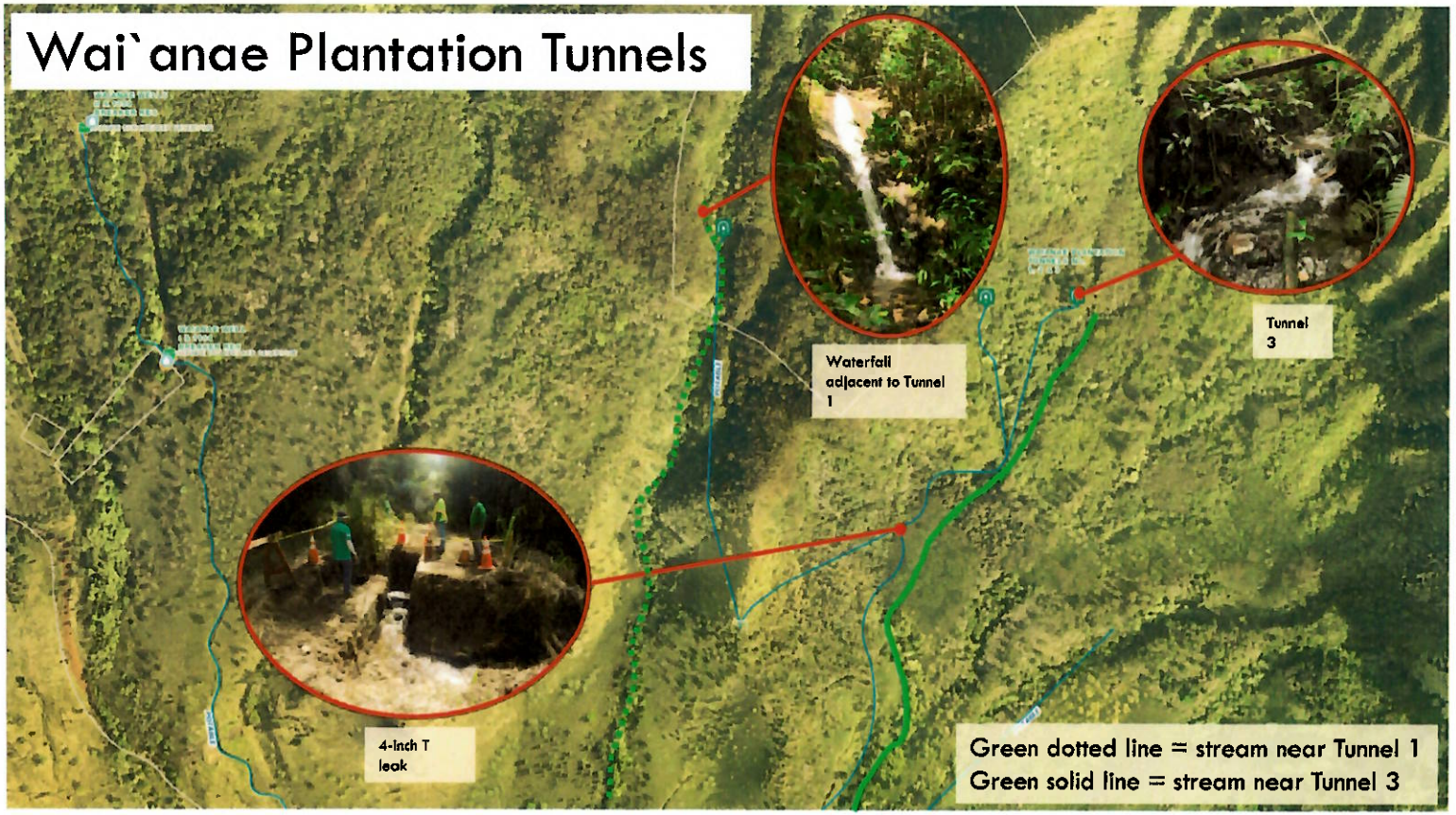


CLIMATE CHANGE IMPLICATIONS TO BWS

- Sources in Mākaha and Wai`anae could require reduction if sustainable yields are reduced due to decreasing rainfall and higher temperatures caused by climate change, even without designation.
- More than ½ of Wai`anae's drinking water is imported from the Pearl Harbor aquifer sector, so Wai`anae's freshwater security depends on water sources in Wai`anae and approximately 16 miles of BWS transmission pipelines, booster pumps and reservoirs.
- Increasing freshwater import into Wai`anae will require new source, booster pumps and transmission infrastructure that could translate into higher water rates resulting in elevating affordability and equity issues for low income and elderly customers on O`ahu, especially important in Wai`anae.

REGULATORY IMPLICATIONS TO BWS

- CWRM is amending Interim Instream Flow Standards for Kaupuni Stream, which may likely result in a stream restoration mandate to disconnect and release gravity tunnel water into the stream
- BWS is discharging Wai`anae Plantation Tunnel #3 water back into Kaupuni Stream restoring flows and habitat to the coast, but it comes with lower drinking water system capacity and less dependability and resilience in Wai`anae Valley.


Wai`anae Plantation Tunnels
Waterfall adjacent to Tunnel 1
Tunnel 3
4-inch T leak
Green dotted line = stream near Tunnel 1
Green solid line = stream near Tunnel 3

WAI`ANAE PLANTATION TUNNEL #3 DISCONNECT AND RELEASE INTO KAUPUNI STREAM

WAI`ANAE PLANTATION TUNNEL #3 RELEASE INTO KAUPUNI STREAM IS FLOWING TO THE COAST

Before

After

WHAT HAPPENS IF CWRM APPROVES DESIGNATION

- Large users (BWS, Military, Ag, Golf Course) are required to prepare a Water Use Permit for each source, based on existing use.
- Existing water users have one year from the date of designation to file a Water Use Permit Application (WUPA). The permit application process is not insignificant and can be challenged.

The State Water Code, HRS §174C-49 requires permit applicants to address their water uses:

1. Can be accommodated with the available water source;
2. Is a reasonable-beneficial use as defined in section 174C-3;
3. Will not interfere with any existing legal use of water;
4. Is consistent with the public interest;
5. Is consistent with state and county general plans and land use designations;
6. Is consistent with county land use plans and policies; and
7. Will not interfere with the rights of the department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act.

WHO WILL BWS OUTREACH TO

- For many years, Wai`anae communities have been expressing concern about water management and to how to proactively plan for restoration and resilience. Wai'anae elected officials, neighborhood board members, Nānākuli high school students, and the Concerned Elders of Wai'anae have raised this concern.
- The BWS is initiating a comprehensive outreach effort to gain important feedback for the petition development and to elevate community awareness of the many important issues going on in the area and the benefits and requirements of designation.
- Beginning fall 2021 BWS and its consultant Kahālāwai Consulting will be seeking to meet with elected officials, neighborhood boards, DHHL homesteaders, farmers, landowners, homeowner associations, and any community groups interested in talking with the BWS about Wai`anae's water issues and designation.

Mahalo!

BOARD OF WATER SUPPLY

Protecting Wai for Wai‘anae

Water Resources

October 25, 2021

ITEM FOR INFORMATION NO. 2

"October 25, 2021

UPDATE ON 2018-2022 BOARD OF WATER SUPPLY STRATEGIC PLAN PERFORMANCE METRICS

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

Subject: Update on 2018-2022 Board of Water Supply Strategic Plan Performance Metrics

Ellen Kitamura, Deputy Manager, will present an update on the Board of Water Supply's 5-Year Strategic Plan for Fiscal Years 2018-2022 Performance Metrics for Fiscal Year 2021.

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

Attachment"

The foregoing was for information only.

DISCUSSION:

Ellen Kitamura, Deputy Manager and Chief Engineer gave the report.

Board Member Soon inquired if the Employee Departure rate is a net of departures minus hires or departures only.

Deputy Kitamura replied that the employee departure rate is the percentage of how many employees have retired, resigned, or left based on the total number of BWS employees.

Michelle Thomas, Executive Assistant I, Human Resources Office added to Deputy Manager Kitamura's explanation explaining that the percentage is a ratio that determines the comparison between how many the BWS hires and how many employees have been lost over the fiscal year from July 1 through June 30.

Deputy Kitamura shared some employee departure metrics. In Fiscal Year 2020 the BWS had 20 retirements, 19 resignations, and 55 new hires. In Fiscal Year 2021 the BWS had 28 retirements, 19 resignations, and 42 new hires. Therefore there was a slight increase in departing employees.

Chair Andaya commented that looking at the Fiscal Year 2021 Overall Summary the BWS consistently struggles with meeting some areas of the metrics. He suggested in the next strategic planning that those metrics be examined.

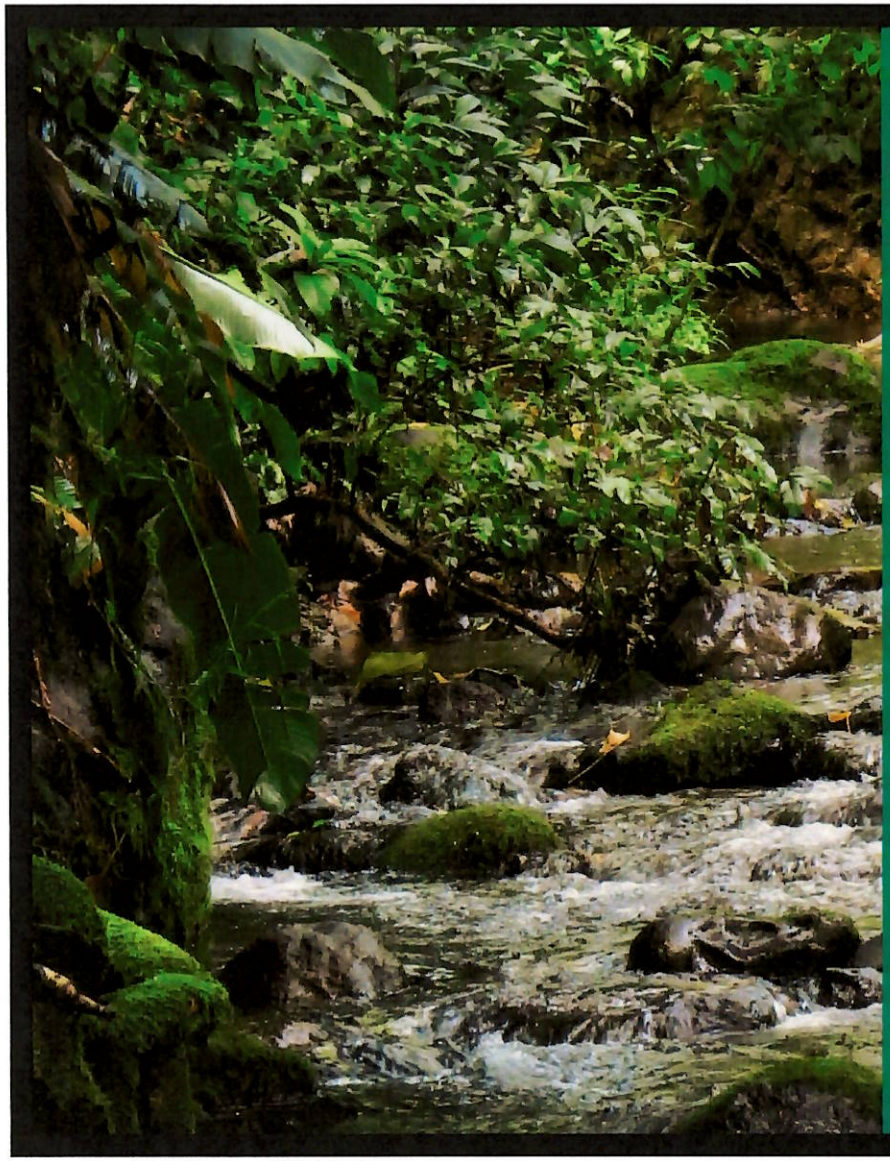
Manager Lau agreed with Chair Andaya that it would be a good idea to look at the root causes as to why the BWS struggles to meet certain metrics.

Chair Andaya asked what is Area of Watershed Survey is listed on the Overall Summary for the Fiscal Year 2021?

Deputy Kitamura explained that the Area of Watershed Surveyed refers to the area of land surveyed by BWS and watershed partnership groups for invasive species within the watershed areas to protect watersheds.

Chair Andaya thanked Deputy Kitamura for her explanation. He commented that understanding all targets of the Strategic Plan gives him a sense of whether the metrics listed are still attainable or need to be adjusted.

Chair Andaya asked if there were any further questions. Hearing none, Chair Andaya moved to the next information item.



BWS STRATEGIC PLAN FY 2018-2022 PERFORMANCE METRICS UPDATE

Ellen E. Kitamura

October 25, 2021

boardofwatersupply.com

AGENDA

- BWS STRATEGIC PLANS – BRIEF SUMMARY
- PERFORMANCE METRICS REPORT
- PROPOSED SCHEDULE FOR UPDATED STRATEGIC PLAN FOR FY 2023 - 2027
- Q & A

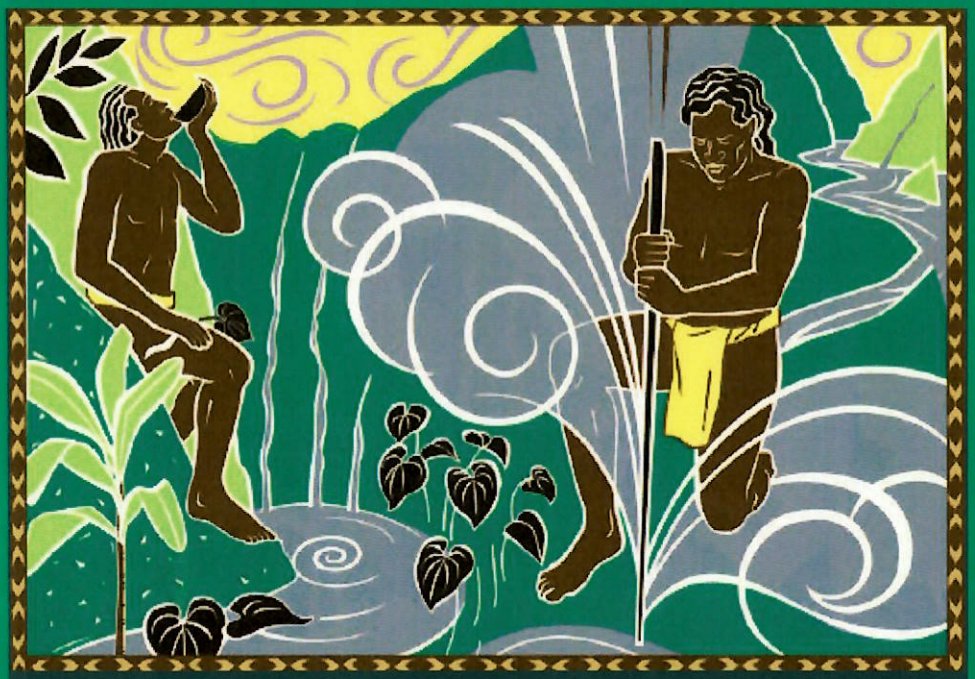
BWS STRATEGIC PLANS

FY 2014 – 2017
&
FY 2018 – 2022

BWS STRATEGIC PLAN

FY 2014 – 2017

BWS VISION AND MISSION



Water for Life

Vision: 'Ka Wai Ola – Water for Life'

Mission: To provide safe, dependable, and affordable water now and into the future

SUSTAINABILITY GOALS

Goal	2014 – 2017 Strategic Plan	2018 – 2022 Strategic Plan
Resource	Protect and manage our groundwater supplies and watersheds through adaptive and integrated strategies.	Protect, conserve and manage Oahu's water supplies now and into the future through adaptive and integrated strategies.
Operational	Foster a resilient and collaborative organization utilizing effective and proactive operational practices consistent with current industry standards.	Build an effective organization to continuously improve dependable service.
Financial	Implement sound fiscal strategies to finance our operating and capital needs to provide dependable and affordable water service.	Implement sound fiscal strategies to provide safe, dependable and affordable water service.

STRATEGIC OBJECTIVES AND ACTION PLANS

Strategic Goals	Category	Strategic Objectives	Action Plans
Resource	Climate Change	We will adapt to climate change to manage Oahu's water resources and protect the limited water supply.	• Directed hydro-geologic resource research • Watershed Management Plans • Active collaboration with AWWA and other water agencies
Resource	Water Quality	We will protect, preserve and collaborate to ensure the safety and quality of Oahu's fresh water resource.	• Regular water quality monitoring and reporting • Source water protection program • Treatment to meet water quality standards
Resource	Communication	We will communicate the value of water to engage the community in a shared stewardship of Oahu's water resources.	• Use multi-media to keep internal and external stakeholders informed of BWS programs, projects and plans • Increase educational workshops and tours to instill better understanding of importance of water stewardship • Broaden the BWS message of the Value of Water
Operational	Organization	We will ensure the necessary workforce and competencies to support the BWS needs.	• Conduct an Enterprise Organizational Study • Continue Multi-Skill worker program • Expand/Develop FO and WSO Apprenticeship programs • Develop Construction Inspector Aide program
Operational	Infrastructure	We will renew and improve the water system to ensure water system adequacy, dependable service, and operational efficiency.	• Annual CIP • 6-Year CIP • BWS Water Master Plan and 30-Year CIP • FO and WSO Preventative maintenance program • FO Leak Detection Program
Operational	Customer Service	We will proactively and consistently provide a quality experience in every customer interaction.	• Quality assurance program
Operational	Technology	We will ensure that our technology systems are current and leverage opportunities in technology to effectively support current and future BWS needs.	• 5 Year IT Strategic Plan • Meter Reading Study
Financial	Financial Management	We will pursue and leverage financial opportunities and implement strategies to affordably meet our financial and regulatory requirements.	• SRF Refinancing • Investment grade audit

BWS STRATEGIC PLAN

FY 2018 – 2022

SUSTAINABILITY GOALS

Goal	2014 – 2017 Strategic Plan	2018 – 2022 Strategic Plan
Resource	Protect and manage our groundwater supplies and watersheds through adaptive and integrated strategies.	Protect, conserve and manage Oahu's water supplies now and into the future through adaptive and integrated strategies.
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Financial	Implement sound fiscal strategies to finance our operating and capital needs to provide dependable and affordable water service.	Implement sound fiscal strategies to provide safe, dependable and affordable water service.

STRATEGIC OBJECTIVES AND ACTION PLANS

Strategic Goals	Category	Strategic Objectives	Action Plans
Resource	Climate Change	We will increase our understanding and adapt to climate change to manage Oahu's water resources and protect the limited water supply.	• Incorporate vulnerability assessment research to increase infrastructure resiliency. • Complete hydro-geologic research on climate change impacts to the water supply. • Continue active collaboration with water organizations and agencies on adapting to climate change. (Water Master Plan - WMP) • Complete the Kalaeloa seawater desalination plant – 1.0 MGD.
Resource	Water Quality	We will protect, preserve and collaborate to ensure the safety and quality of Oahu's fresh water resource.	• Perform water quality monitoring and reporting. • Formalize the source water protection program. • Monitor the Red Hill situation and take action to protect and preserve the groundwater resource, including, but not limited to participating in the Red Hill Underground Fuel Storage Facility Administrative Order on Consent.
Resource	Watershed Management	We will ensure healthy forests, recognizing the essential role of watersheds for a sustainable water supply (capture and recharge).	• Appropriate up to 4% of annual Capital Improvement Program funding for watershed management and invasive species control. (WMP) • Complete Watershed Management Plans for Ewa, Central Oahu, Primary Urban Center, and East Honolulu. • Promote Low Impact Development (LID) and stormwater capture for aquifer recharge. • Revisit sustainable yields for all major aquifer systems with Commission on Water Resource Management.
Resource	Water Conservation	We will conserve supply and system capacity by reducing per capita demand and increasing water efficiency.	• Appropriate up to 4% of annual Capital Improvement Program funding for conservation to reduce per capita demand toward 2040 goal of 145 GPCD. (WMP) • Reduce water loss (from 10% to 8%). (WMP) • Increase use of non-potable/recycled water. (WMP) • Establish mandatory and incentive-based rules for conservation/recycled water for all customers. • Continue consumer education and expand partnerships with government agencies and private entities.

STRATEGIC OBJECTIVES AND ACTION PLANS

Strategic Goals	Category	Strategic Objectives	Action Plans
Operational	Organization	We will ensure the necessary workforce, competencies, tools and resources to support current and future needs.	• Establish and implement leadership development program. • Incorporate the Field Operations Multi-Skilled Worker program into City civil service. • Incorporate workforce improvements and technology efficiencies into the organization.
Operational	Infrastructure	We will renew and improve the water system to ensure water system adequacy, dependable service, and operational efficiency.	• Expand preventative and predictive maintenance programs. • Initiate implementation of findings and recommendations of the BWS Water Master Plan and 30-Year Capital Improvement Program. (WMP)
Operational	Customer Service	We will proactively and consistently provide a quality experience in every customer interaction.	• Continue process improvement and quality assurance program in the Customer Care Division. • Improve accuracy and efficiency in meter reads collection.
Operational	Technology	We will ensure that our technology systems are current and leverage opportunities in technology to effectively support current and future BWS needs.	• Adopt user friendly technologies, tools, and applications to support the action plans in the BWS Strategic Plan. • Increase customer satisfaction with IT Services rendered.
Financial	Financial Opportunities	We will pursue and leverage financial opportunities.	• Effectively leverage debt and governmental funding for infrastructure investments. • Develop other sources of revenue to supplement BWS water rate revenue. • Execute RFP for the Beretania Complex property development.
Financial	Financial Planning	We will develop and implement short and long term financial plans and policies.	• Develop 10-Year operating budget plan. (WMP) • Complete 30-Year Long Range Financial Plan and water rate study in collaboration with BWS Stakeholder Advisory Group. (WMP) • Update financial policies to support the financial plan.

PERFORMANCE METRICS – RESOURCE SUSTAINABILITY

RESOURCE SUSTAINABILITY: Protect, conserve, and manage Oahu's water supplies now and into the future through adaptive and integrated strategies.

METRIC	DESCRIPTION	PURPOSE
Stable Head Levels at Index Wells (%)	(Number of Index Wells Above Low Ground Water Levels) / (Total Number of Index Wells)	Measures the water level at the index wells and which are stable above Low Ground Water Levels. The purpose of this metric is to monitor the health of the ground water aquifer and prevent detrimental impact to the ground water sources.
Days in Regulatory Compliance	(Number of Days in Compliance) / (Total Days in Fiscal Year)	Measures the compliance with water quality regulations. The purpose of this metric is to ensure supply of water that is safe for intended use
Per Capita Water Consumption	(Annual Gallons of Water Delivered/365) / (Total Population Served)	Measures the effect of conservation programs on per capital consumption. The purpose of this metric is to determine if the target goal of 145 gpcd by year 2040 is being realized.
Area of Watershed Surveyed	Area of watershed surveyed for invasive plant species removal per year	Measure the area of BWS priority watersheds (26,085 acres) surveyed for invasive plant species per year. The purpose of this metric is to monitor invasive plant species removal.

PERFORMANCE METRICS – OPERATIONAL SUSTAINABILITY

OPERATIONAL SUSTAINABILITY: Build an effective organization that continuously works to improve dependable services.

METRIC	DESCRIPTION	PURPOSE
Resident Overall Satisfaction with BWS (%)	% Strong Overall Satisfaction with BWS	Measures the percentage of residents that are strongly satisfied with overall services provided by BWS. The purpose of this metric is to measure the perceived satisfaction of residents with BWS and determine areas for improvement in delivery of BWS services.
Employee Turn-Over (%)	(Total Number of Employee Departures) (Average Number of Regular FTEs)	Measure the rate of regular employee departure through voluntary, involuntary, or retirement. The purpose of this metric is to determine the rate of employee departures and develop strategies to retain employees.
Pipeline Leak Detection	(Miles of Pipes Tested for Leaks) (Total Miles of Pipe)	Measures the percentage of pipelines that were checked for leaks. The purpose of this metric is to track progress toward the goal of surveying 25% of the water system annually.
Main Breaks (Count per 100 Miles of Pipeline)	(Total Number of Annual Main Breaks) (Total Miles of Pipe/100)	Measures the annual number of main breaks per 100 miles of pipe. The purpose of this metric is to track the overall condition of the pipelines.

PERFORMANCE METRICS – FINANCIAL SUSTAINABILITY

FINANCIAL SUSTAINABILITY: Implement sound financial strategies to provide safe, dependable and affordable water service.		
METRIC	DESCRIPTION	PURPOSE
Bond Rating	AA+ - Fitch Aa2 – Moody's* AAA – S & P*	Measures the financial strength and stability of the Department. The purpose of this metric is to monitor and maintain the current ratings of the bond agencies.

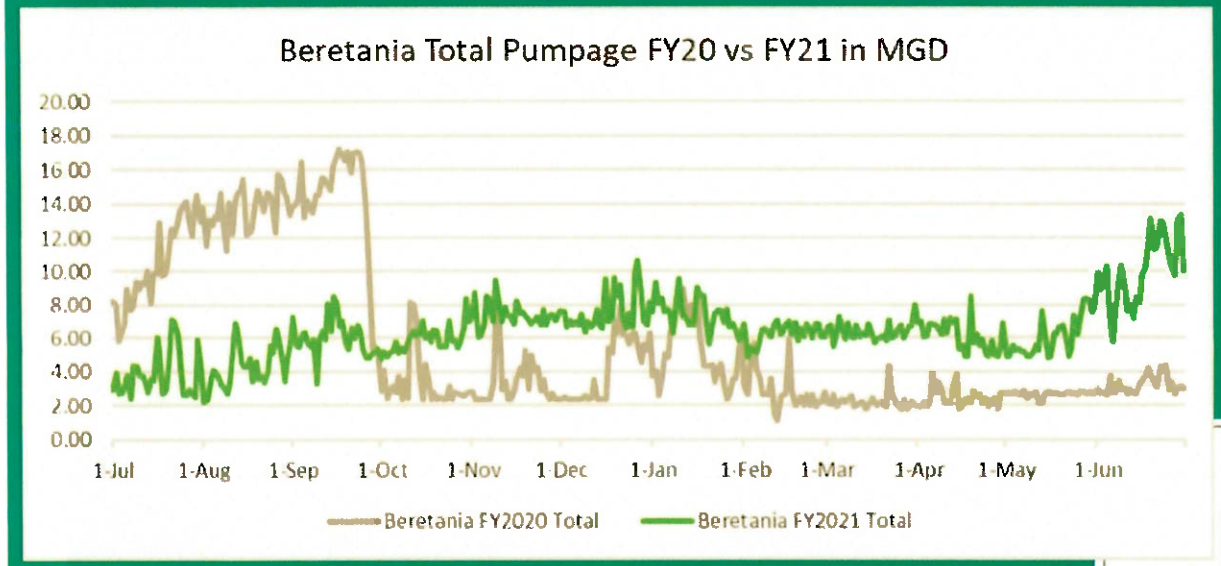
** Since 2020, BWS has utilized S&P rather than Moody's as the bond rating agency.*

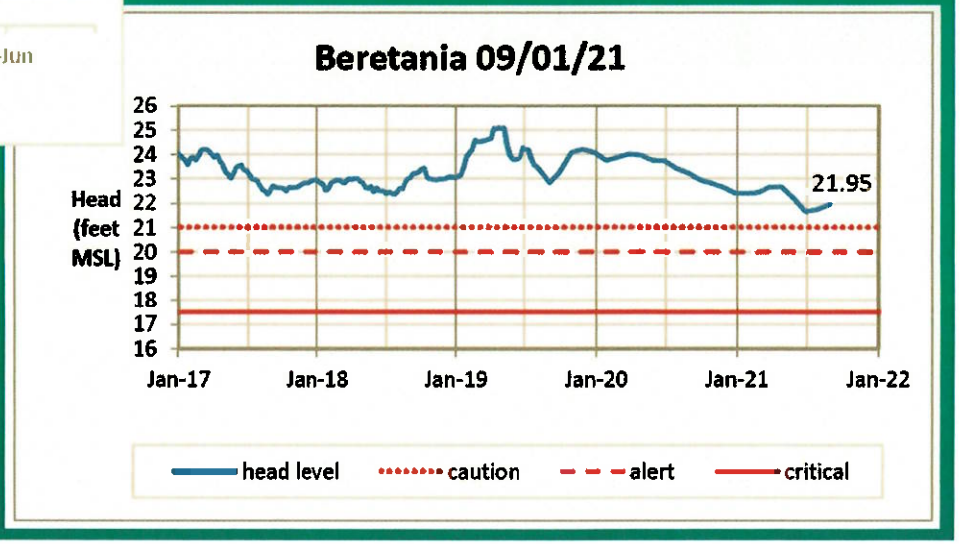
OVERALL SUMMARY FOR FY 2021

Metric	Target	2021	2020	2019	2018	2017	2016
Stable Head Levels at Index Wells (%)	100%	93%	100%	100%	100%	100%	100%
Regulatory Compliance (%)	100%	100%	100%	100%	100%	100%	100%
Per Capita Water Consumption (gpcd)	<145 by 2020	155	155	155	155	155	155
Area of Watershed Surveyed (acres)	5,200	88,091	92,529	112,402	43,739	5,262	1,691
Strong Resident Satisfaction (%)	>59%	NA	NA	63%	NA	63%	59%
Employee Departure Rate (%)	7%	8%	7%	8%	10%	9%	11%
Pipeline Leak Detection (%) *	25%	9%	14%	18%	26%	12%	14%
Main Breaks per 100 Miles of Pipe	<15	16	17	16	16	15	14
Bond Rating	AA+ Fitch Aa2 Moody's AAA S & P	AA+ Fitch AAA S & P	AA+ Fitch AAA S & P	AA+ Fitch Aa2 Moody's	AA+ Fitch Aa2 Moody's	AA+ Fitch Aa2 Moody's	AA+ Fitch Aa2 Moody's

** This metric will be revaluated in next strategic plan due to changes in operational procedures in leak detection.*

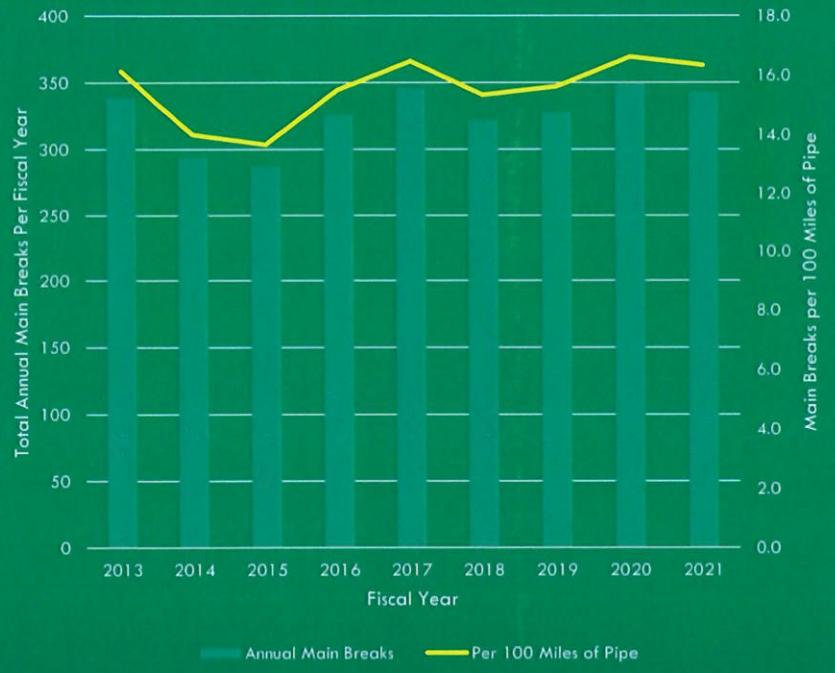
STABLE HEAD LEVELS

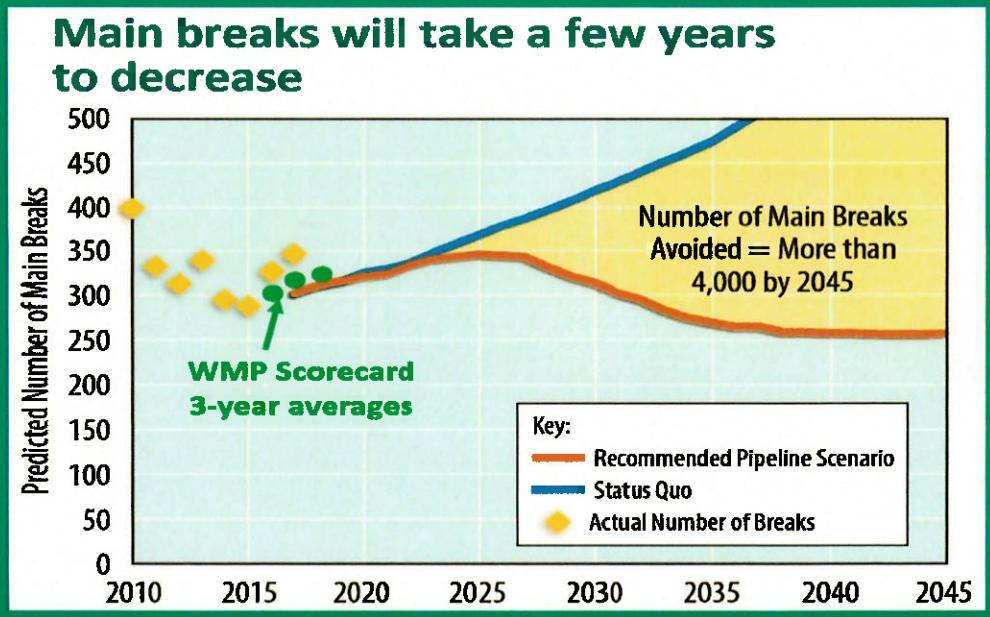




EMPLOYEE DEPARTURE RATE

ANNUAL MAIN BREAK DATA BY FISCAL YEAR





UPDATED STRATEGIC PLAN FY 2023-2027 PROPOSED SCHEDULE

Oct – Dec 2021	Jan 2022	Feb – May 2022	June 2022	July 2022
Planning				
	Create PIG			
		• Workshops with PIG and BWS Leadership Team • Input from SAG (4/2022)		
			PIG Report and Presentation of Strategic Plan to Board	
				Acceptance of PIG Report and Adoption of Strategic Plan

PERMITTED INTERACTION GROUP
HRS § 92-2.5(B)

§92-2.5 Permitted interactions of members.

(a) Two members of a board may discuss between themselves matters relating to official board business to enable them to perform their duties faithfully, as long as no commitment to vote is made or sought and the two members do not constitute a quorum of their board.

(b) Two or more members of a board, but less than the number of members which would constitute a quorum for the board, may be assigned to:

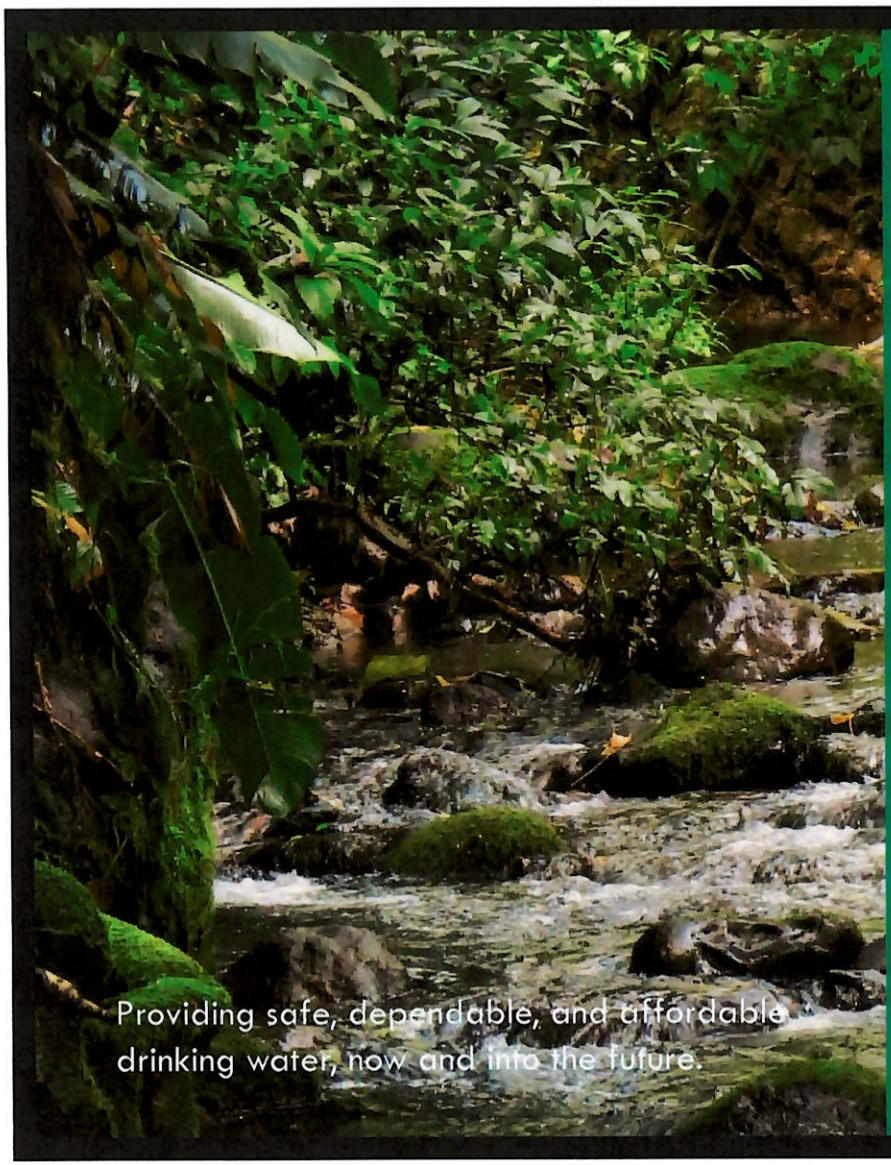
(1) Investigate a matter relating to the official business of their board; provided that:

(A) The scope of the investigation and the scope of each member's authority are defined at a meeting of the board;

(B) All resulting findings and recommendations are presented to the board at a meeting of the board; and

(C) Deliberation and decisionmaking on the matter investigated, if any, occurs only at a duly noticed meeting of the board held subsequent to the meeting at which the findings and recommendations of the investigation were presented to the board; or

(2) Present, discuss, or negotiate any position which the board has adopted at a meeting of the board; provided that the assignment is made and the scope of each member's authority is defined at a meeting of the board prior to the presentation, discussion or negotiation.



Mahalo!

BOARD OF WATER SUPPLY

BWS Strategic Plan FY 2018-2022 Update

Ellen E. Kitamura
(808) 748-5066, ekitamura@hbws.org

boardofwatersupply.com for more information

October 25, 2021

ITEM FOR INFORMATION NO. 3

"October 25, 2021

UPDATE ON FISCAL YEAR 2021 MASTER PLAN PERFORMANCE METRICS

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

Subject: Update on Fiscal Year 2021 Water Master Plan Performance Metrics

Water Resources will present an update on the Fiscal Year 2021 Water Master Plan performance metrics.

/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 Soon inquired on the timeframe of the Water Master Plan (WMP).

Manager Lau replied that the WMP is a plan that lasts 30 years.

Board Member Soon asked if the BWS should re-evaluate the goal and baseline metrics that are consistently not met each year.

Mr. Usagawa responded that the WMP was adopted in 2016 which is on a 10-year cycle. Therefore, the BWS will be re-evaluating the WMP Performance Metrics in 2024 to decern what needs to be adjusted.

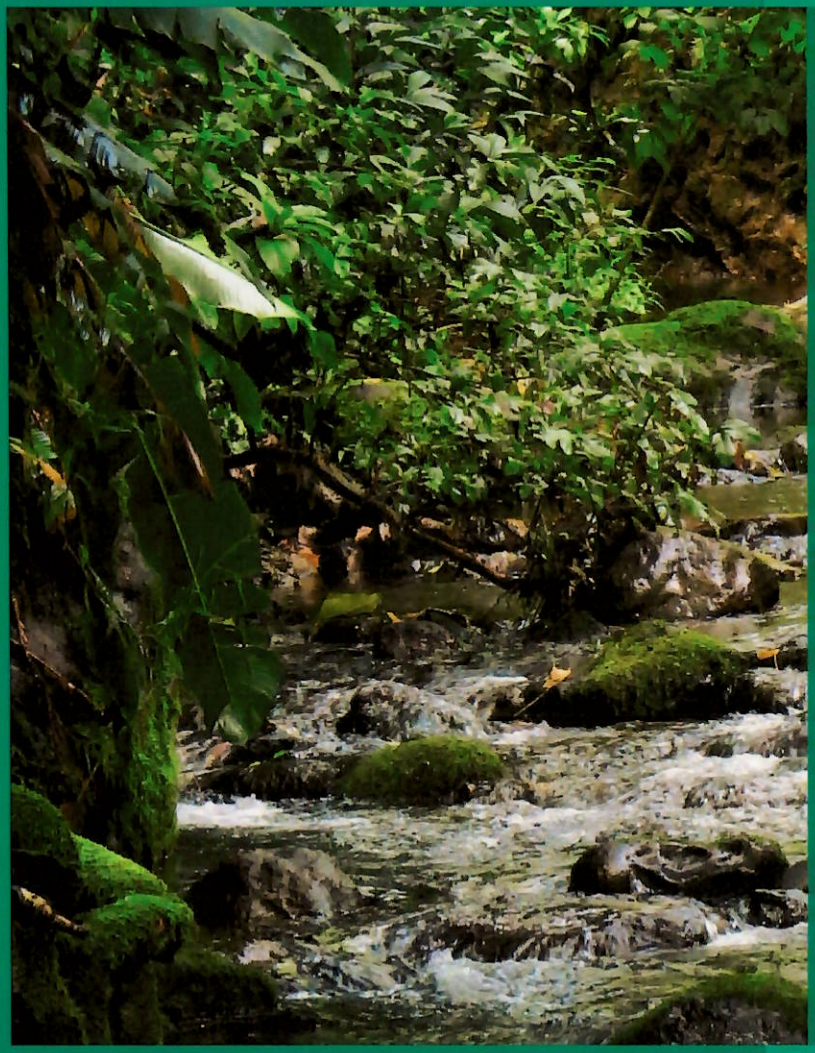
Board Member Soon expressed his concern regarding not meeting the WMP metrics since the WMP is used to calculate the BWS's finances and establish a budget.

Manager Lau commented that the WMP particularly is used to determine the Capital Projects budget which is being tracked to meet the goal of 21 miles of pipeline in 30 years.

Chair Andaya commented the repair and replacement graph presented would continuously indicate the BWS did not meet the goal because the goal is to repair and replace 21 miles of pipeline by the year 2030. He suggested in the future presenting progress on 3-years averages versus a wider range of years would be emblematic. Chair Andaya expressed how proud that the BWS exceeded the goal of 8 miles in 2021. He shared that he believed in strategic planning and looks forward to re-evaluating the metrics to better meet them.

Board Member Soon thanked the BWS for the helpful information.

Chair Andaya asked if there were any further questions. Hearing none, Chair Andaya moved to the next information item and thanked Mr. Usagawa for the report.



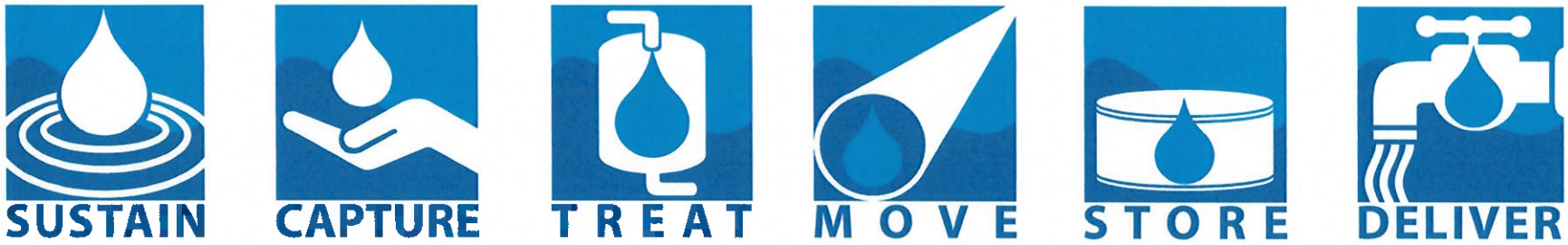
WATER MASTER PLAN PERFORMANCE METRICS UPDATE

Water Resources

Oct. 25, 2021

boardofwatersupply.com

WMP Performance Metrics



- BWS Water Master Plan identified 6 primary steps to provide water from source to tap.
- BWS Water Master Plan determined performance metrics in each of these steps to monitor and maintain the health of water system infrastructure and are used to target opportunities for improvement.

Overall Summary for FY 2021

PLAN	Total Number of Metrics	Met/on track to meet	Miss by <10% of goal	Miss by > 10% of Goal
Water Master Plan	33	19	4	10

Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Supply from nonpotable sources	% of total supply served from nonpotable water system	> 12%	6%	7.80%	6.85%	7.11%
Annual water resource yield	% of available water resource yield used	< 90%	80%	71%	73%	71%
Watershed management	$ budgeted for watershed management	4% of CIP $6.65M	$1.4M	$1.5M	$1.0M	$1.2M
	Acres of watershed surveyed for invasive plant species removal per year	5,200 acres	1,691 acres	112,402 acres	92,529 acres	88,091 acres
	Watershed area protected by fencing	20% of watershed funding	14%	0%	0%	0%
Conservation	$ budgeted for conservation	4% of CIP $6.65M	$0.89M	$1.47M	$2.07M	$2.10M
	Per capita consumption	< 145 gpcd (by 2040, starting at 155 gpcd in 2016)	155 gpcd	155 gpcd	155 gpcd	155 gpcd





Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Standby source capacity	% of source capacity used at Maximum Day Demand (MDD)	< 50%	44% ●	41% ●	41% ●	40% ●
Water level at index wells	% of wells with stable water levels as determined by BWS	100%	100% ●	100% ●	100% ●	93% ●
Permitted or assessed sustainable yield	Number of sources exceeding source permitted use or assessed sustainable yield (12-month moving avg)	0	0 ●	0 ●	4 ●	4 ●

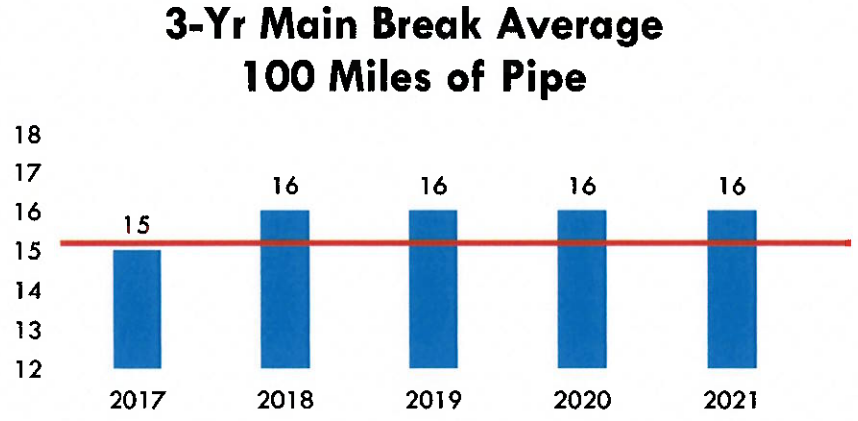
Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Water quality regulatory compliance	Number of water quality regulatory violations	0	0	0	0	0
Treatment on-line	% of chlorination systems on-line	100%	100%	100%	100%	100%
Comprehensive treatment system condition assessment	Perform comprehensive condition assessment of all potable and nonpotable treatment systems	Update every 5 years	On schedule (last 2019)	Done	On schedule	75% complete

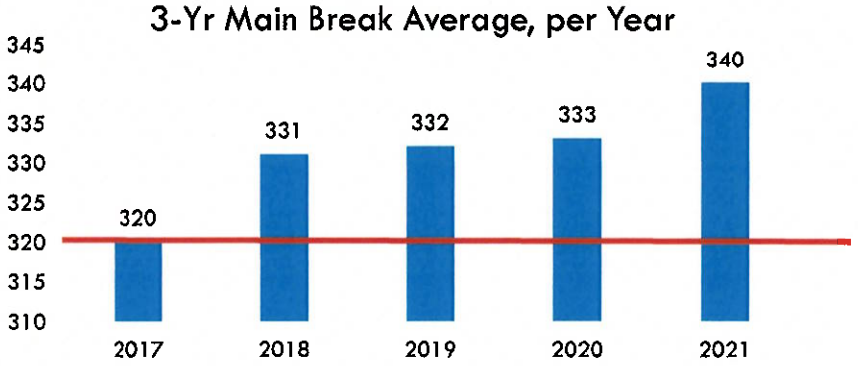
Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Sufficient pump capacity	% of pressure zones where firm capacity (not counting largest pumping unit at each station) < MDD	< 5%	2.6%	2%	1%	1%
Pumps available for use	% of pumps that are available to be put in-service	> 90%	82%	83%	81%	83%
Emergency power	% of population served indoor demand (85gpcd) in the event of loss of power	> 85%, distributed geographically	71%	71%	77%	93%
Pump station condition assessment	Perform regularly scheduled condition assessment	Update every 5 years	On schedule (last 2019)	Done	On schedule	On schedule

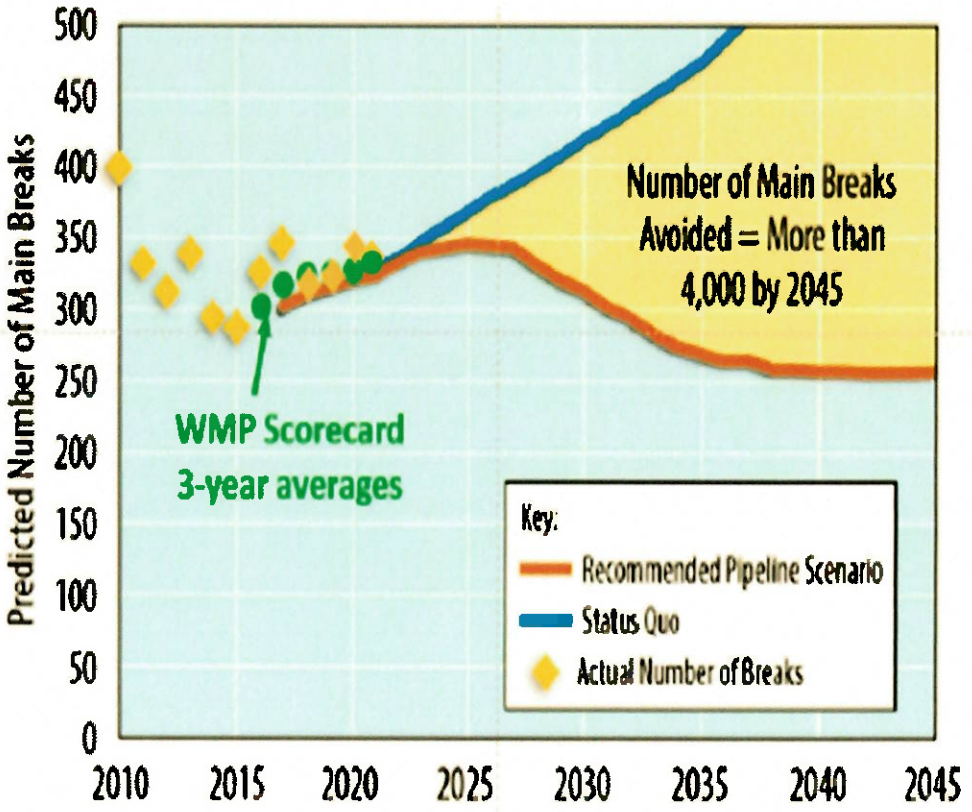
Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Reservoir restrictions	Number of reservoirs with use restrictions	< 2%	1%	0.58%	0.58%	0.58%
Storage deficient pressure zones	Pressure zones with less than Standard storage and without pumping or transmission equivalency to meet operating, emergency, and fire needs	0%	6%	5%	5%	5%
Reservoir condition assessment	Perform regularly scheduled condition assessment	Update every 10 years	On schedule (last 2015)	On schedule	On schedule	On schedule

MAIN BREAKS PER 100 MILES OF PIPE

Indicator	Performance Metric (SP)	Goal	FY 21	FY 20	FY 19	Status	Lead
Main Breaks	Main breaks per 100 miles of pipe	< 15 (3-yr avg)	16	16	16		FO







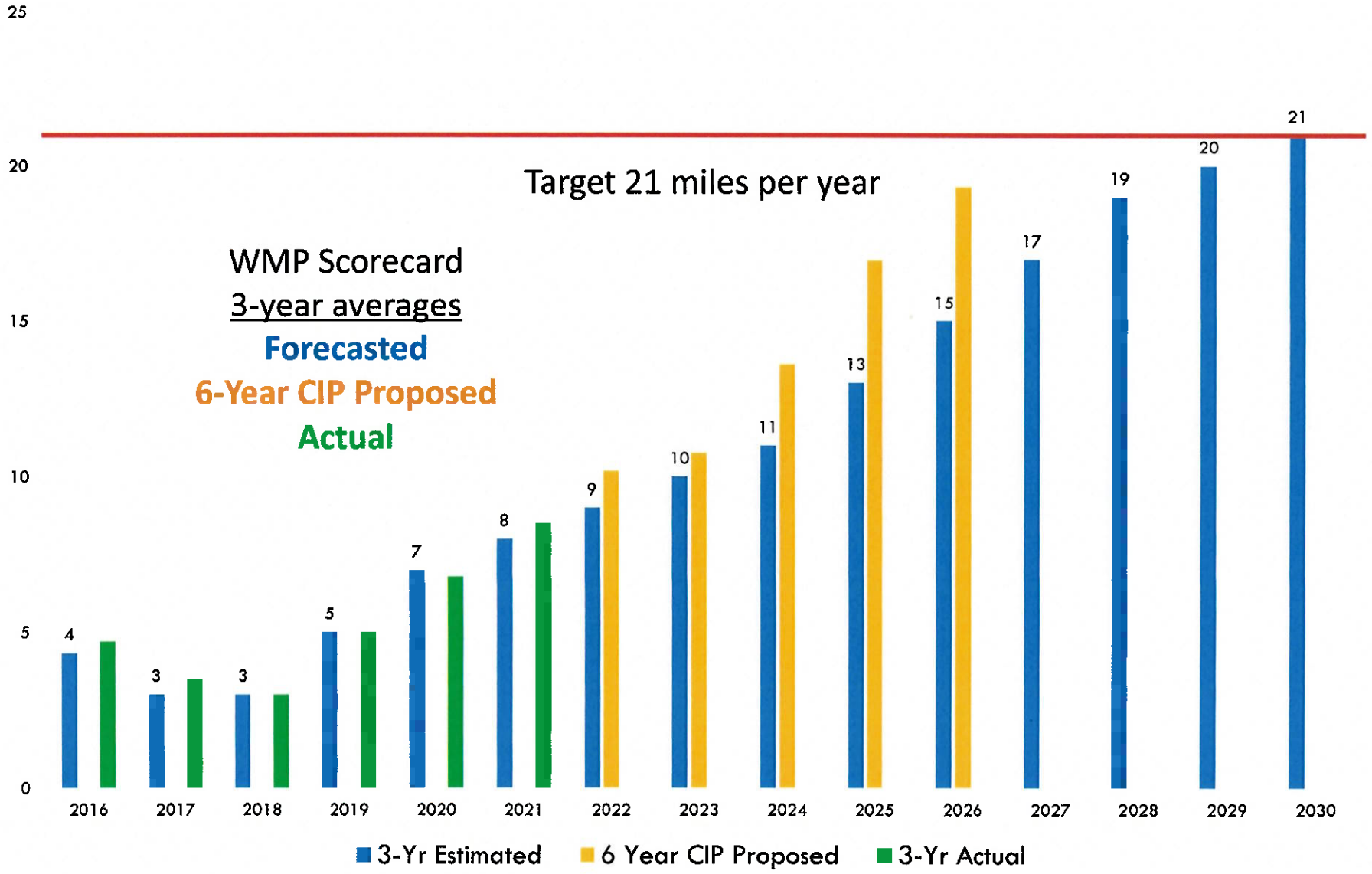
Met/on track to meet

Miss by <10% of goal

Miss by >10% of goal

Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Pipeline breaks	Pipeline breaks and leaks repaired per 100 miles per year (3-year average)	< 15	14	16	16	16
	Pipeline breaks and leaks repaired per year (3-year average)	< 300	302	332	333	340
Transmission pipeline breaks	Number of pipeline breaks for ≥ 16 inches in diameter (3-year average)	< 14	10	12	11	13
Non-revenue water	% of water produced but not sold	< 8.1%	7.8% (5-year ave.)	13.79%	14.00%	14.47%
High risk pipelines	Portion of pipelines with risk score	< 5%	12%	14%	23%	23%

MILES OF PIPELINE REPLACEMENT 3 YEAR AVG



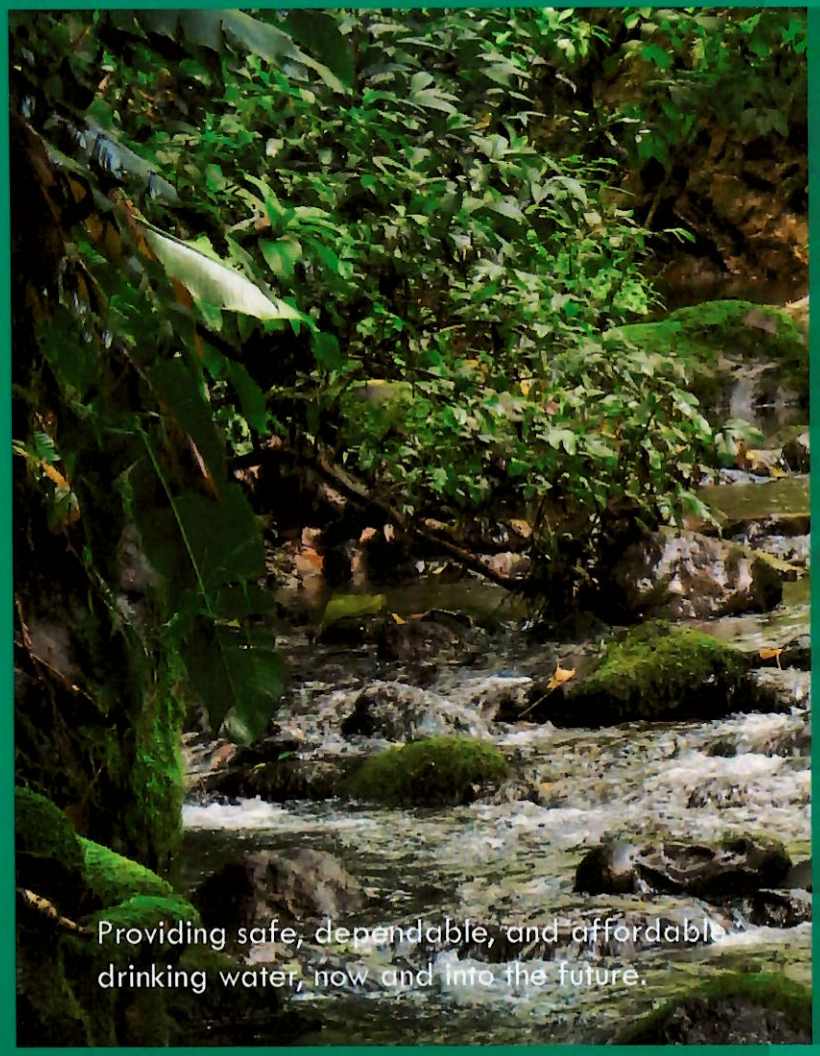





Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Pipeline R&R	Miles of system pipeline renewed (3-year average)	21 miles	4.7 miles	5.0 miles	6.8 miles	8.5 miles
Fire hydrant supply	Hydrants that meet fire flow standards	> 99%	98%	98%	99%	99%
Pipeline leak detection	% of pipes checked for leaks per year	25%	14%	18%	14%	9%
PWA pipeline condition assessment	Miles of pipelines recommended for PWA by CapPlan framework (currently 6.3 miles), miles assessed per year	6.3 miles (10%)	12 miles (19%)	0 miles	4 miles	0 miles

TOOLS

Indicator	Metric	Goal	Baseline	FY 2019	FY 2020	FY 2021
Water Master Plan update		Update every 10 years	On schedule (target 2026)	On schedule	On schedule	On schedule
Hydraulic models and CapPlan updated		Update every 5 years	On schedule (target 2021)	On schedule	On schedule	Done
GIS update		Annually	On schedule	On schedule	On schedule	On schedule
SCADA reliability	% of sources, pump stations, water treatment plants, and reservoirs utilizing microwave backbone for control data	100% (by 2023)	13% (on track)	23%	25%	33%



Providing safe, dependable, and affordable drinking water, now and into the future.

Mahalo!

BOARD OF WATER SUPPLY

Water Master Plan Performance Metrics

October 25, 2021

ITEM FOR INFORMATION NO. 4

"October 25, 2021

RECRUITMENT STATUS

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

Subject: Recruitment Status

Michele L. Thomas, Executive Assistant, Human Resources Office, will be presenting an update on the Recruitment Status for the period of July 2021 to September 2021.

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

Attachment"

The foregoing was for information only.

DISCUSSION:

Michele L. Thomas, Executive Assistant I, Human Resources Office, gave the report.

Board Member Sword inquired if the reported retirements were of white-collar or blue-collared positions.

Ms. Thomas replied that the retirements were from different positions throughout the BWS. She also indicated that many of the retirements were from supervisory and management positions, due to a longer number of years served with the BWS.

Chair Andaya asked that 'eligible to retire' be clarified.

Manager Lau responded that retirement eligibility depends on when a person is hired at the BWS.

Ms. Thomas further explained that eligibility to retire depends on a person's age and years in service. "Eligible to retire" refers to a person meeting the age and years required to retire. An example Ms. Thomas provided was that at 50 years old a person would need to have five years of service to be 'eligible to retire'. She stated that, if a person is younger, the person would be required to have more years in service to be eligible to retire. Therefore, "eligible to retire' is based on age requirement and years of service, and she clarified that the numbers reported are not based on whether an individual will receive other benefits.

Board Member Jade Butay inquired whether any of the BWS employees were terminated due to non-compliance with the City's mandate regarding COVID-19 vaccination.

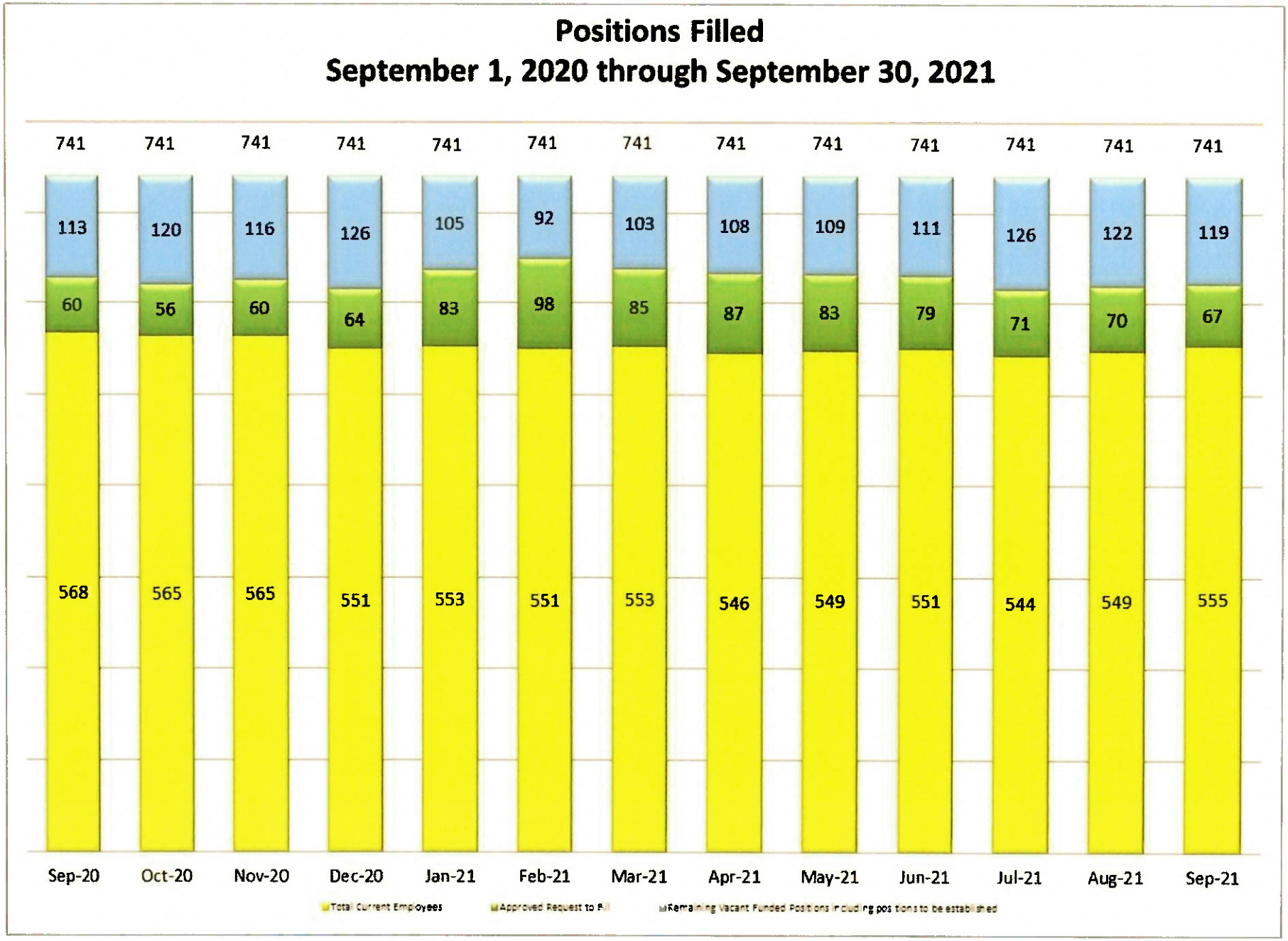
Ms. Thomas replied that the BWS did terminate one employee due to non-compliance with the mandate. However, the remaining BWS employees have been diligent with fulfilling the requirements of the mandate, whether through vaccination or through testing for those who have requested exemption.

Chair Andaya asked what is the vaccination rate at the BWS.

Ms. Thomas responded that the BWS is over 90% vaccinated. The remaining staff is individuals who have requested an exemption and are complying with testing requirements.

Chair Andaya asked if there were any further questions. Hearing none, Chair Andaya moved to the next information item and thanked Ms. Thomas for the report.

Positions Filled
September 1, 2020 through September 30, 2021



For the Period Jul21 – Sep21 Actions: 24 New hires, 3 Promotions, 1 Transfers, 2 Demotions, 20 Separations, 25 New approvals to fill, 7 Cancelled requests

BOARD OF WATER SUPPLY

City and County of Honolulu

RECRUITMENT AND SEPARATION STATUS

For Period July 31, 2021 to September 30, 2021

Status of Positions Under Recruitment

	as of		
	7/31/2021	8/31/2021	9/30/2021
Pending DHR Open List (external recruitment)	21	20	15
Pending Internal recruitments	1	0	9
Pending Final Interview Questions	7	9	8
Pending Interviews with Division	24	26	28
Anticipated Starts (pre-employment clearances)	18	15	7
Total Positions Under Recruitment	71	70	67

Filled Positions

Month	Jul-21	Aug-21	Sep-21
Open list	6	8	10
Internal Promotions	3	0	0
Internal Demotions/Transfers	1	0	2
Upward Reallocations	10	9	6

Separations

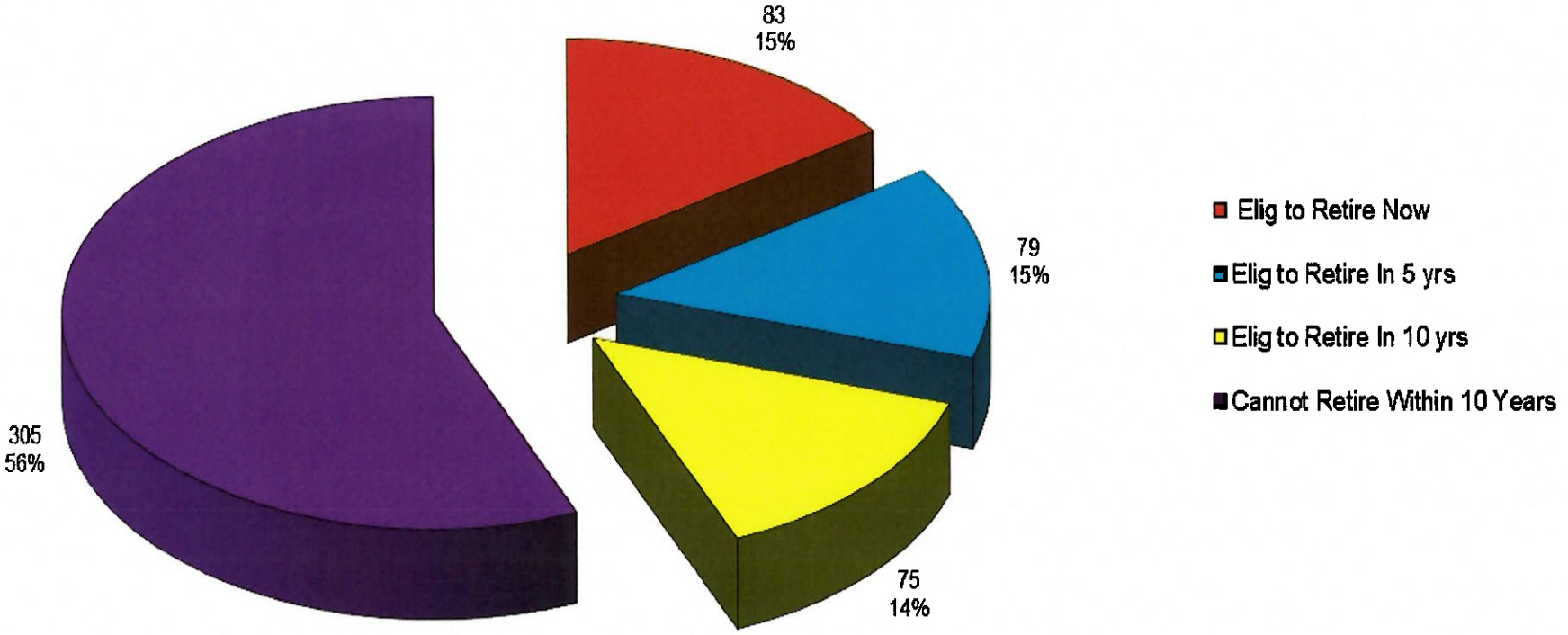
Month	Jul-21	Aug-21	Sep-21
Retire	4	2	2
Resign/Termination/Other	9	1	2

Legend:

DHR = Department of Human Resources City and County of Honolulu

Reallocation = Employee has demonstrated compentency in higher level position and position was adjusted

BWS Retirement Projections
As of July 1, 2021



ITEM FOR INFORMATION NO. 5

"October 25, 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 three aquifer index stations in low groundwater condition for the production month of September 2021. Waialua is in Caution Status. Kaimuki and Punaluu are in Alert Status. The monthly production average for September 2021 was 144.01 million gallons per day.

The Board of Water Supply rainfall index for the month of September 2021 was 106 percent of normal, with a 5-month moving average of 75 percent. As of October 5, 2021, the Hawaii Drought Monitor showed a gradation from abnormally dry to moderate drought conditions on the leeward side of Oahu from Honolulu to Makaha, and severe drought conditions on the leeward coast from Pearl Harbor to Kapolei. The National Weather Service is forecasting above-normal precipitation as of November, due to current ENSO-neutral conditions likely transitioning to La Niña conditions by winter.

Most monitoring wells exhibited stable to slightly decreasing head levels for the month, likely due to increased pumping during the summer dry season. Average monthly production for September 2021 was lower than the previous year and slightly lower than the 5-year monthly average.

/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. There were no comments or discussion.

PRODUCTION, HEAD AND RAINFALL REPORT
MONTH OF SEPTEMBER 2021

POTABLE

STATION	MGD
HONOLULU (1)	
KULIOUOU	0.00
WAILUPE	0.13
AINA KOA	0.02
AINA KOA II	0.72
MANOA II	0.85
PALOLO	1.15
KAIMUKI HIGH	1.70
KAIMUKI LOW	3.26
WILDER	8.25
BERETANIA HIGH	4.74
BERETANIA LOW	1.74
KALIHI HIGH	0.00
KALIHI LOW	0.00
KAPALAMA	0.72
KALIHI SHAFT	7.42
MOANALUA	1.36
HALAWA SHAFT	11.67
KAAMILO	0.86
KALAUAO	4.91
PUNANANI	12.35
KAAHUMANU	0.26
HECO WAIAU	2.55
MANANA	0.29
WELLS SUBTOTAL:	64.96
MANOA TUNNEL	0.17
PALOLO TUNNEL	0.00
GRAVITY SUBTOTAL:	0.17
HONO. SUBTOTAL:	65.13

STATION	MGD
WINDWARD (2)	
WAIMANALO II	0.33
WAIMANALO III	0.00
KUOU I	0.75
KUOU II	0.06
KUOU III	0.66
LULUKU	0.87
HAIKU	0.40
IOLEKAA	0.00
KAHALUU	0.70
KAHANA	0.00
PUNALUU I	0.00
PUNALUU II	2.95
PUNALUU III	2.51
KALUANUI	1.31
MAAKUA	0.28
HAUULA	0.26
WELLS SUBTOTAL:	11.08
WAIM. TUNNELS I & II	0.00
WAIM. TUNNELS III&IV	0.19
WAIHEE INCL. WELLS	0.65
WAIHEE TUNNEL	3.31
LULUKU TUNNEL	0.16
HAIKU TUNNEL	0.30
KAHALUU TUNNEL	1.47
GRAVITY SUBTOTAL:	6.09
WIND. SUBTOTAL:	17.17

STATION	MGD
NORTH SHORE (3)	
KAHUKU	0.42
OPANA	0.19
WAIALEE I	0.44
WAIALEE II	0.65
HALEIWA	0.00
WAIALUA	2.35
N.SHORE SUBTOTAL:	4.04

MILILANI (4)	
MILILANI I	1.91
MILILANI II	0.00
MILILANI III	0.75
MILILANI IV	2.21
MILILANI SUBTOTAL:	4.87

WAHIAWA (5)	
WAHIAWA	1.09
WAHIAWA II	2.02
WAHIAWA SUBTOTAL:	3.11

PEARL CITY-HALAWA (6)	
HALAWA 277	0.68
HALAWA 550	0.00
AIEA	1.23
AIEA GULCH 497	0.17
AIEA GULCH 550	0.22
KAONOHI I	1.20
WAIMALU I	0.00
NEWTOWN	0.99
WAIAU	0.74
PEARL CITY I	0.81
PEARL CITY II	1.14
PEARL CITY III	0.26
PEARL CITY SHAFT	0.93
PEARL CITY-HALAWA SUBTOTAL:	8.37

STATION	MGD
WAIPAHU-EWA (7)	
WAIPIO HTS.	1.41
WAIPIO HTS. I	0.00
WAIPIO HTS. II	0.41
WAIPIO HTS. III	1.15
WAIPAHU	5.69
WAIPAHU II	2.18
WAIPAHU III	3.82
WAIPAHU IV	2.90
KUNIA I	4.56
KUNIA II	2.09
KUNIA III	1.50
HOAEAE	6.22
HONOULIULI I	0.00
HONOULIULI II	4.42
MAKAKILO	0.15
WAIPAHU-EWA SUBTOTAL:	36.49

WAIANAE (8)	
MAKAHA I	0.99
MAKAHA II	0.00
MAKAHA III	0.28
MAKAHA V	0.25
MAKAHA VI	0.00
MAKAHA SHAFT	0.00
KAMAILE	0.11
WAIANAE I	0.30
WAIANAE II	0.58
WAIANAE III	0.72
WELLS SUBTOTAL:	3.22
WAIA. C&C TUNNEL	1.40
WAIA. PLANT. TUNNELS	0.21
GRAVITY SUBTOTAL:	1.61
WAIANAE SUBTOTAL:	4.83

NONPOTABLE

NONPOTABLE	MGD
KALAUAO SPRINGS	0.44
BARBERS POINT WELL	1.40
GLOVER TUNNEL NP	0.30
NONPOTABLE TOTAL:	2.14

RECYCLED WATER (AUGUST 2021)

RECYCLED WATER	MGD
HONOULIULI WRF R-1	8.22
HONOULIULI WRF RO	1.35
RECYCLED WATER TOTAL:	9.57

PRODUCTION, HEAD AND RAINFALL REPORT
MONTH OF SEPTEMBER 2021

PRODUCTION SUMMARIES

TOTAL WATER	MGD
PUMPAGE	136.14
GRAVITY	7.87
POTABLE TOTAL:	144.01
NONPOTABLE	2.14
RECYCLED WATER	9.57
TOTAL WATER:	155.72

CWRM PERMITTED USE AND BWS ASSESSED YIELDS FOR BWS POTABLE SOURCES

	WATER USE DISTRICTS	A PERMITTED USE/ BWS YLDS	B SEP 2021	C DIFF. A-B
1	HONOLULU	82.93	64.96	17.97
2	WINDWARD	25.02	13.21	11.81
3	NORTH SHORE	4.70	4.04	0.66
4	MILILANI	7.53	4.87	2.66
5	WAHIAWA	4.27	3.11	1.16
6	PEARL CITY-HALAWA	12.25	8.37	3.88
7	WAIPAHU-EWA	50.63	36.49	14.14
8	WAIANAE	4.34	3.22	1.12
	TOTAL:	191.67	138.27	53.40

CWRM PERMITTED USE FOR BWS NONPOTABLE SOURCES

	WATER USE DISTRICTS	A PERMITTED USE	B SEP 2021	C DIFF. A-B
7	WAIPAHU-EWA (BARBERS POINT WELL)	1.00	1.40	-0.40
	TOTAL:	1.00	1.40	-0.40

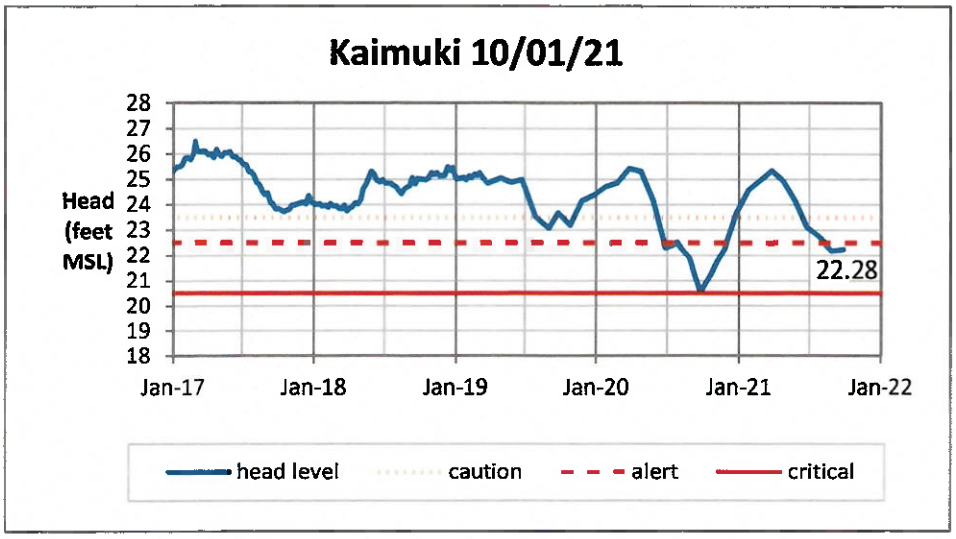
EFFECTIVE WATER DEMAND PER DISTRICT

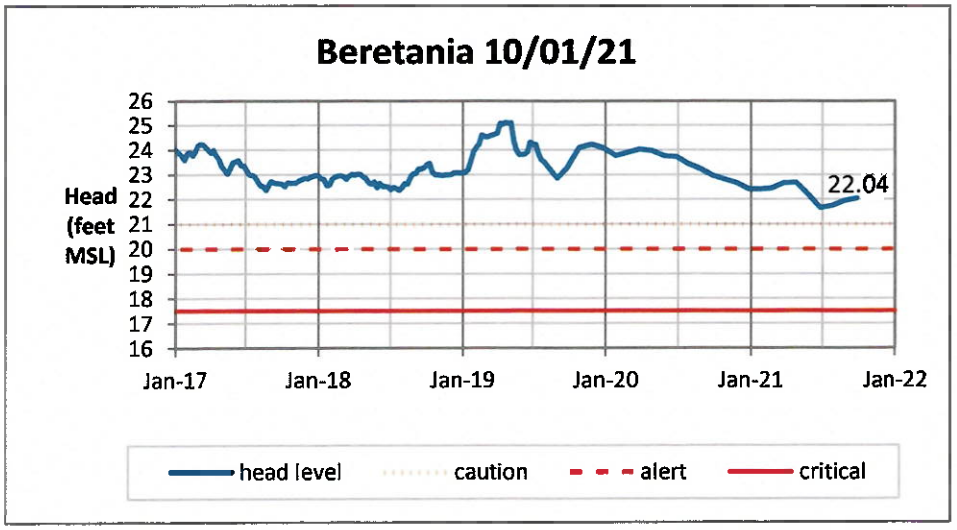
IMPORT/EXPORT BETWEEN WATER USE DISTRICTS

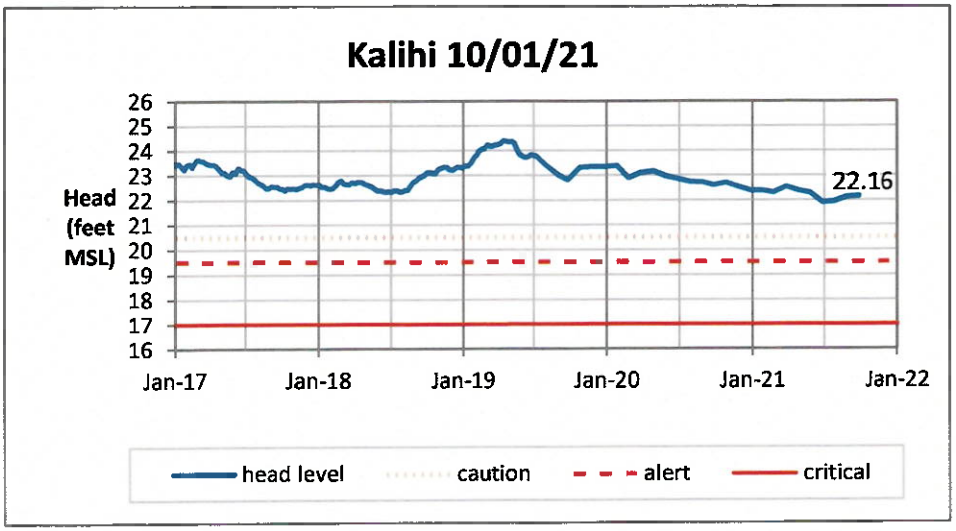
FROM	TO		MGD
2	1	WINDWARD EXPORT	0.02
7	8	BARBERS PT LB	5.75

	WATER USE DISTRICTS	SUBTOTAL	IMPORT	EXPORT	EFFECTIVE WATER DEMAND
1	HONOLULU	64.96	0.02	-	64.98
2	WINDWARD	13.21	-	0.02	13.19
3	NORTH SHORE	4.04	-	-	4.04
4	MILILANI	4.87	-	-	4.87
5	WAHIAWA	3.11	-	-	3.11
6	PEARL CITY-HALAWA	8.37	-	-	8.37
7	WAIPAHU-EWA	36.49	-	5.75	30.74
8	WAIANAE	3.22	5.75	-	8.97
	TOTAL:	138.27	5.77	5.77	138.27

Head Report


Kaimuki 10/01/21
Head (feet MSL)
28
27
26
25
24
23
22
21
20
19
18
22.28
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical


Beretania 10/01/21
Head (feet MSL)
26
25
24
23
22
21
20
19
18
17
16
22.04
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical


Kalihi 10/01/21
Head (feet MSL)
26
25
24
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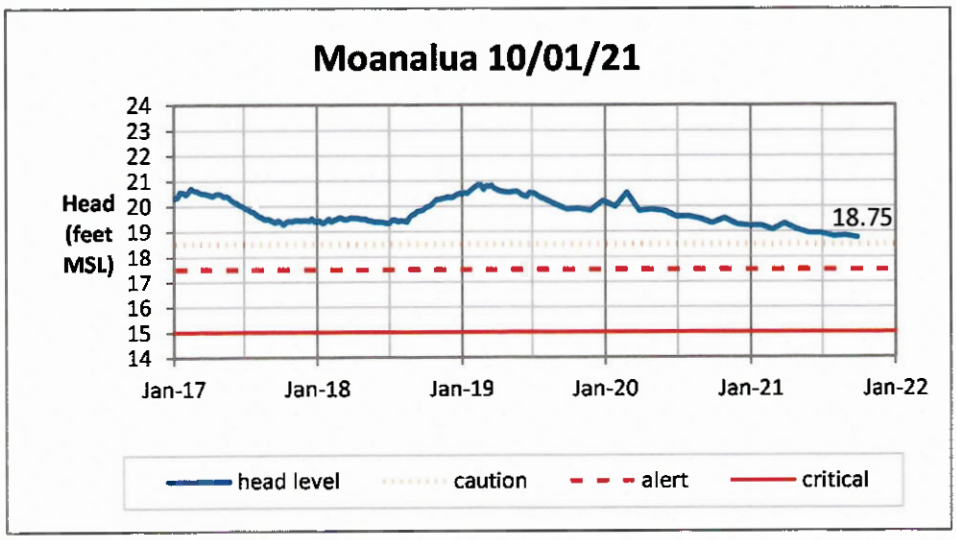
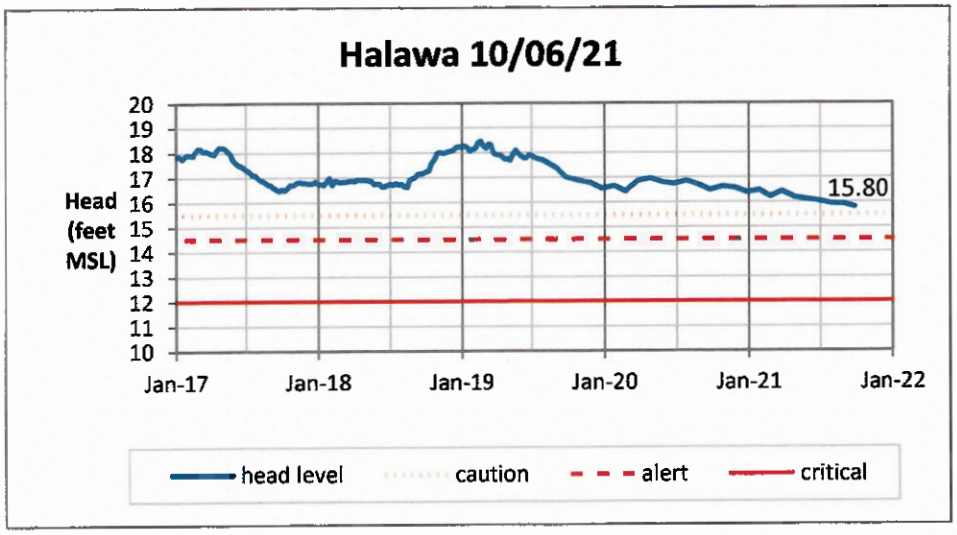
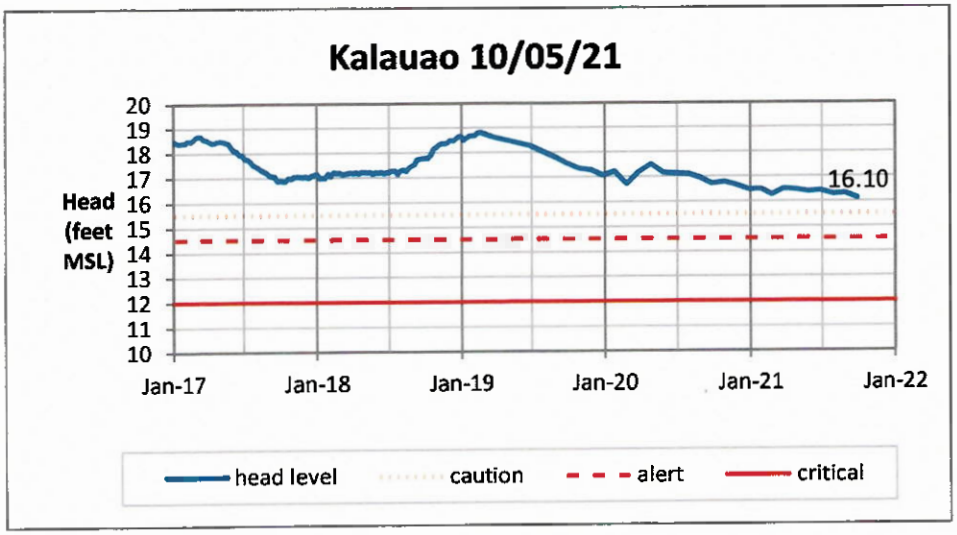
22.16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical

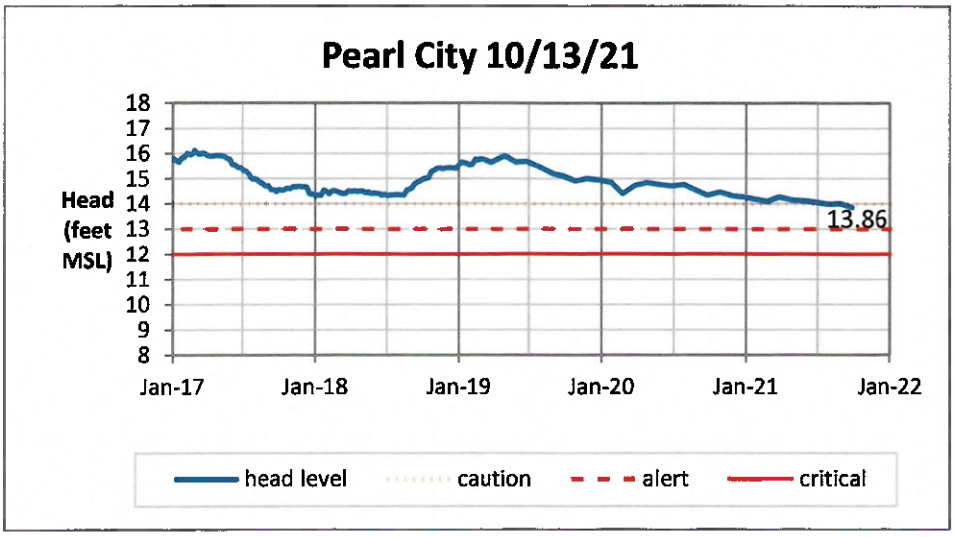
Head Report

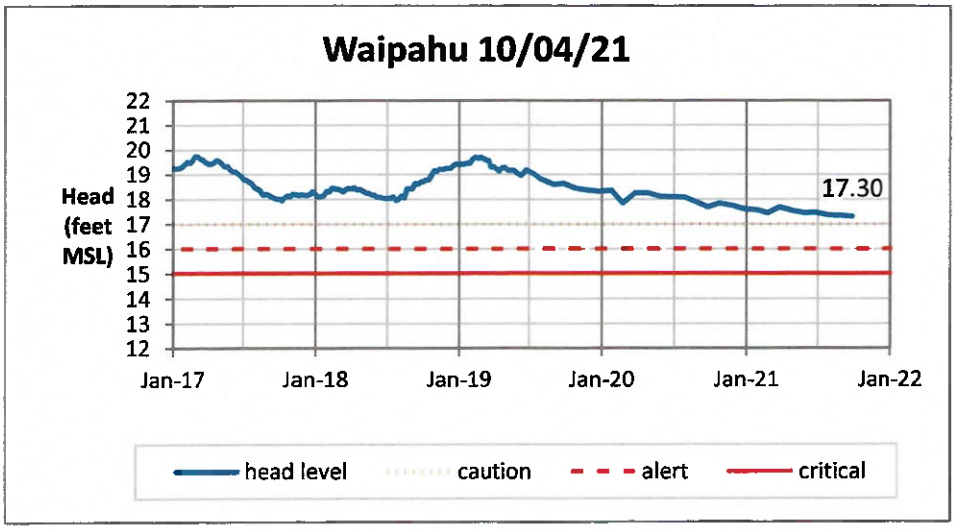

Moanalua 10/01/21
Head (feet MSL)
24
23
22
21
20
19
18
17
16
15
14
18.75
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical

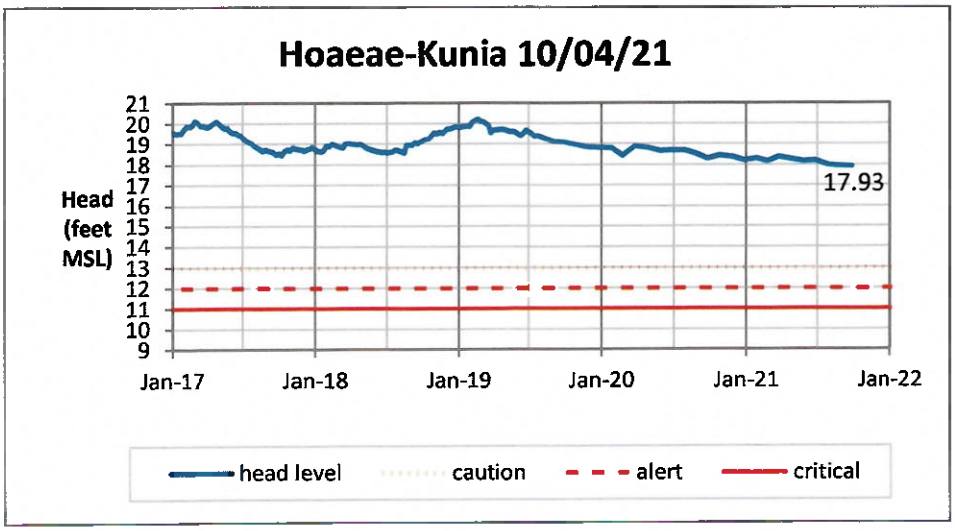

Halawa 10/06/21
Head (feet MSL)
20
19
18
17
16
15
14
13
12
11
10
15.80
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical


Kalauao 10/05/21
Head (feet MSL)
20
19
18
17
16
15
14
13
12
11
10
16.10
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical

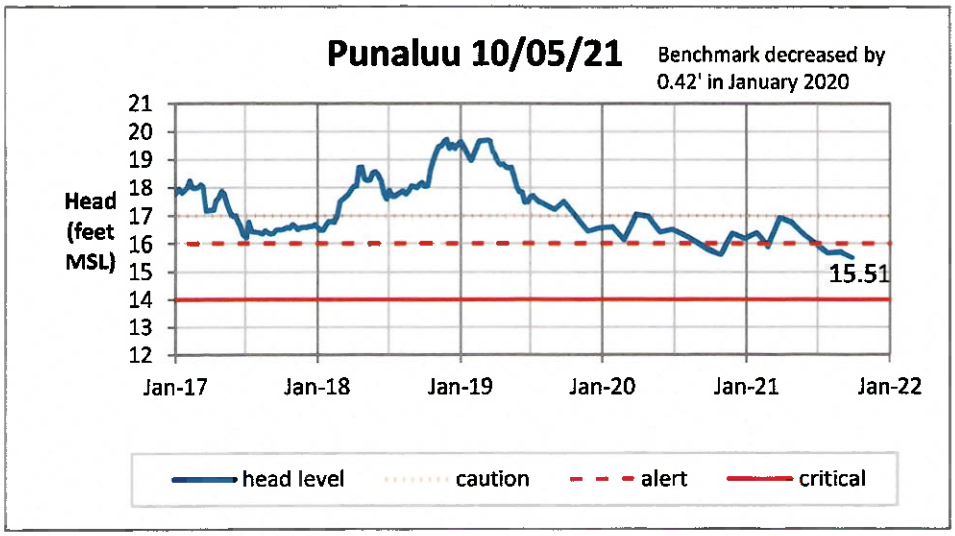
Head Report

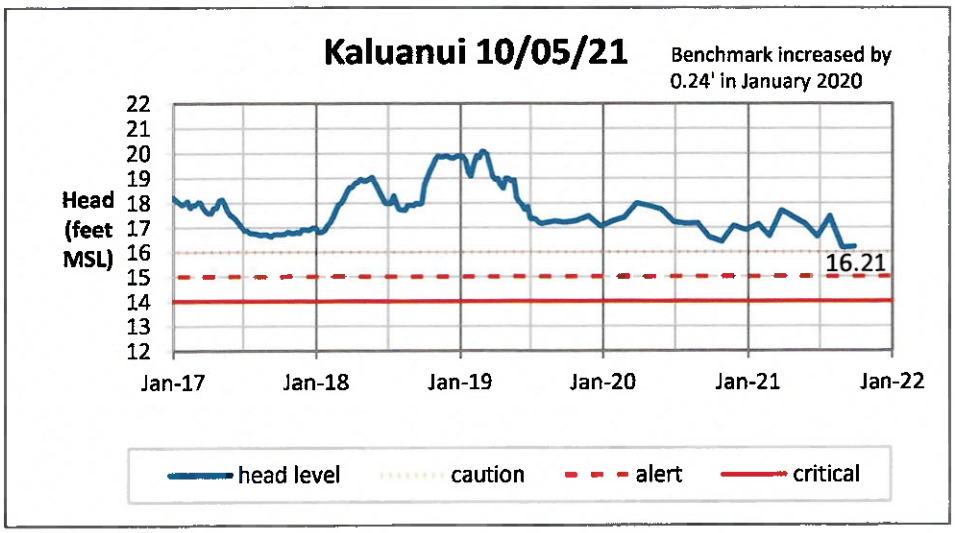

Pearl City 10/13/21
Head (feet MSL)
18
17
16
15
14
13
12
11
10
9
8
13.86
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical

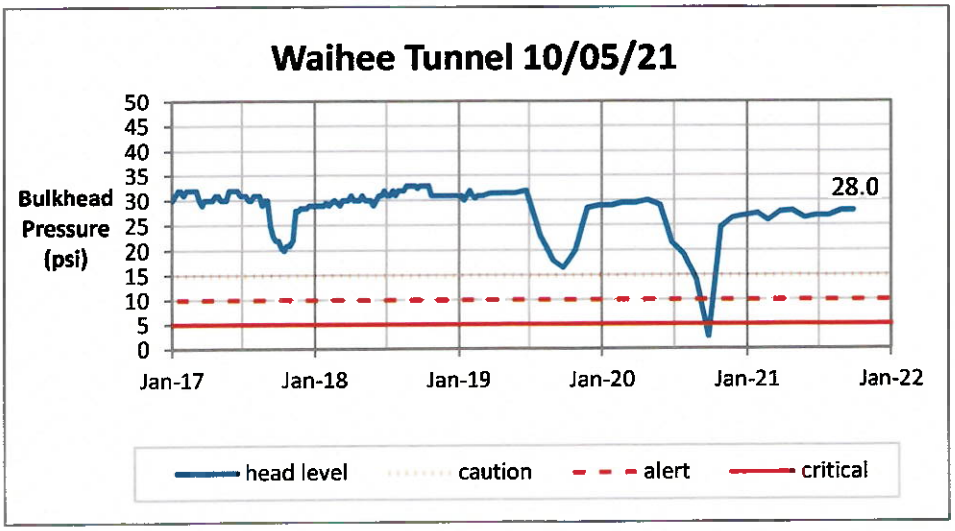

Waipahu 10/04/21
Head (feet MSL)
22
21
20
19
18
17
16
15
14
13
12
17.30
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical


Hoaeae-Kunia 10/04/21
Head (feet MSL)
21
20
19
18
17
16
15
14
13
12
11
10
9
17.93
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical

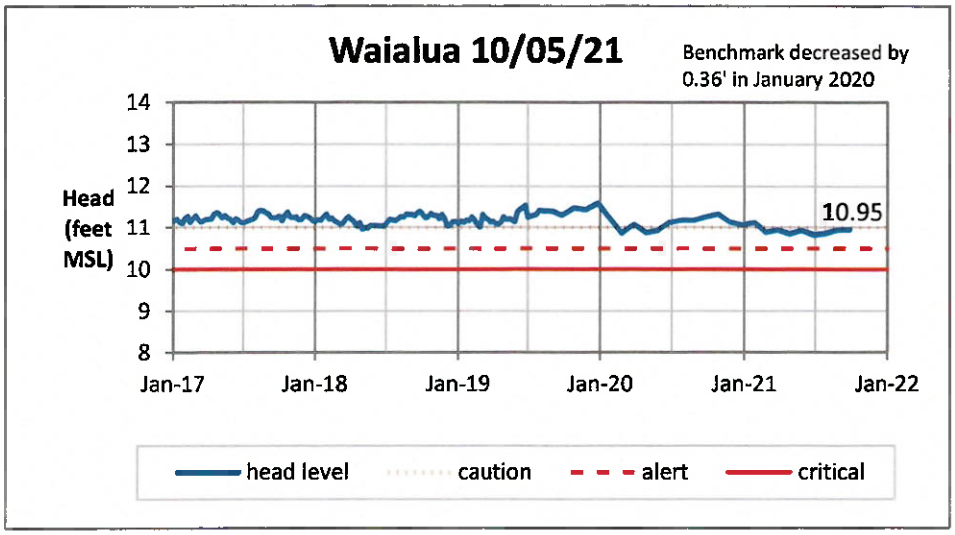
Head Report

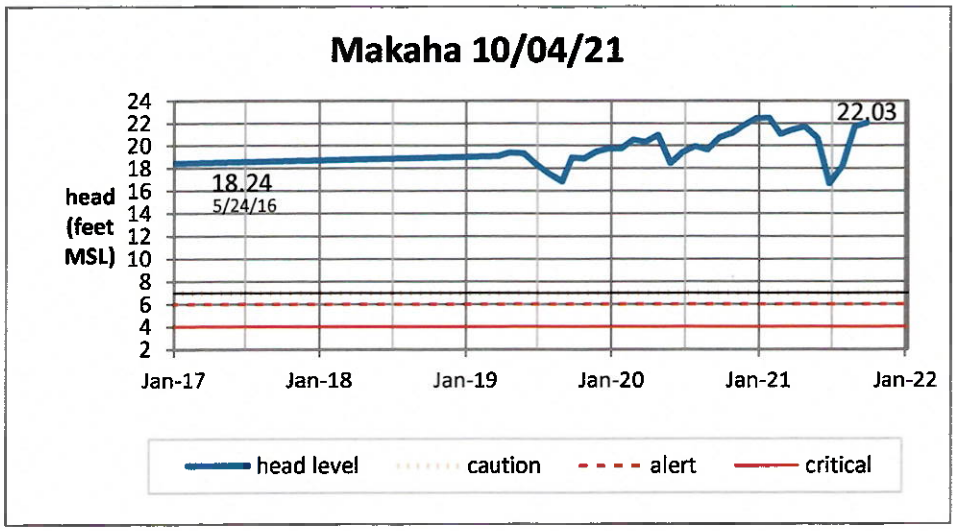

Punaluu 10/05/21
Benchmark decreased by 0.42' in January 2020
Head (feet MSL)
21
20
19
18
17
16
15
14
13
12
15.51
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical

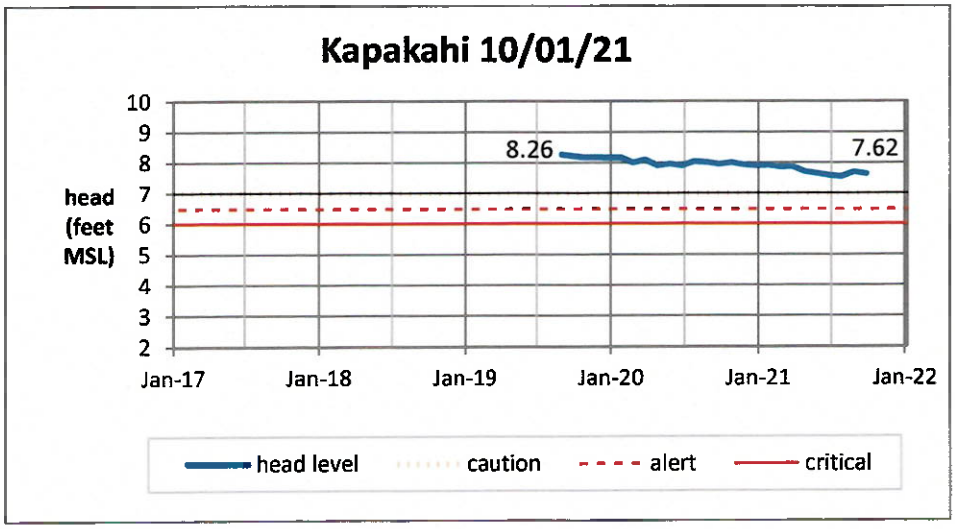

Kaluanui 10/05/21
Benchmark increased by 0.24' in January 2020
Head (feet MSL)
22
21
20
19
18
17
16
15
14
13
12
16.21
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical

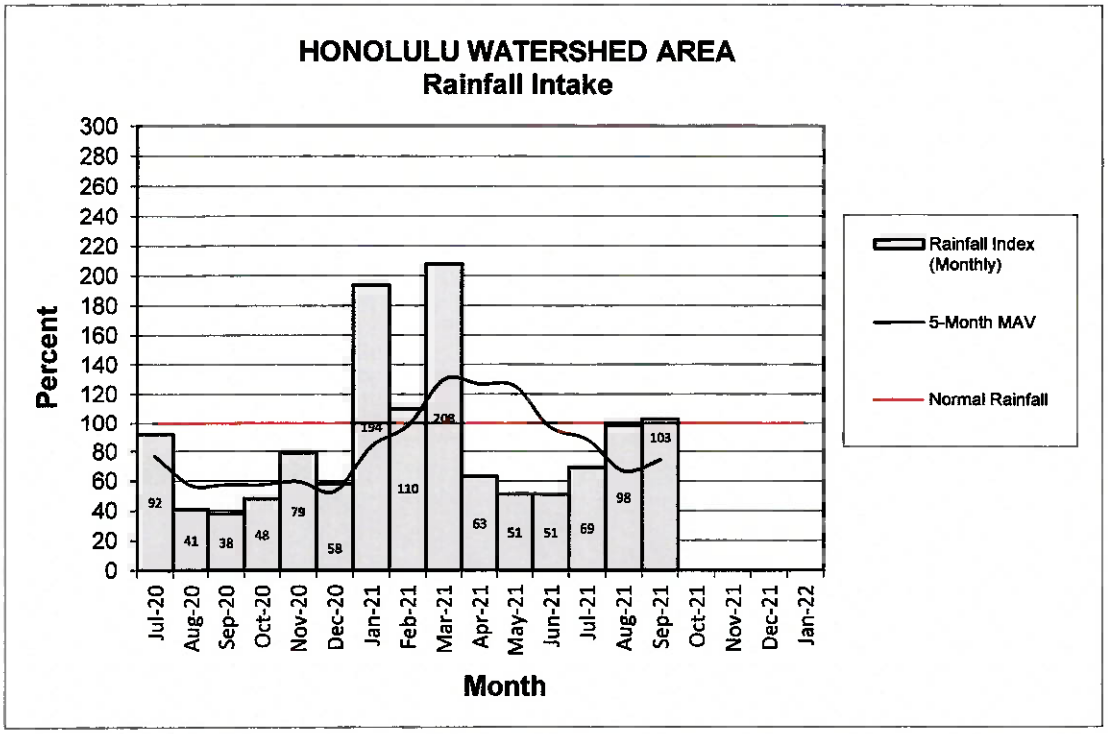

Waihee Tunnel 10/05/21
Bulkhead Pressure (psi)
50
45
40
35
30
25
20
15
10
5
0
28.0
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical

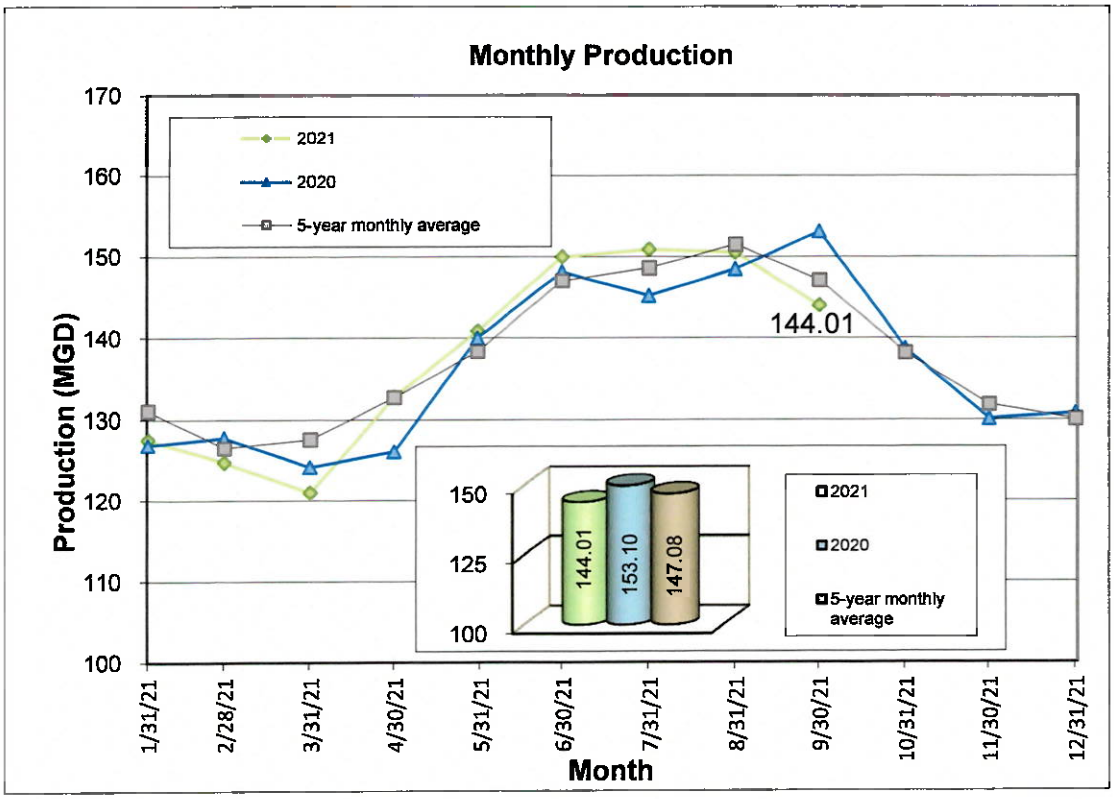
Head Report


Waialua 10/05/21
Benchmark decreased by 0.36' in January 2020
Head (feet MSL)
14
13
12
11
10
9
8
10.95
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical


Makaha 10/04/21
head (feet MSL)
24
22
20
18
16
14
12
10
8
6
4
2
18.24
5/24/16
22.03
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical


Kapakahi 10/01/21
head (feet MSL)
10
9
8
7
6
5
4
3
2
8.26
7.62
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
head level
caution
alert
critical


HONOLULU WATERSHED AREA
Rainfall Intake
Percent
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
92
41
38
48
79
58
194
110
208
63
51
51
69
98
103
Jul-20
Aug-20
Sep-20
Oct-20
Nov-20
Dec-20
Jan-21
Feb-21
Mar-21
Apr-21
May-21
Jun-21
Jul-21
Aug-21
Sep-21
Oct-21
Nov-21
Dec-21
Jan-22
Month
Rainfall Index (Monthly)
5-Month MAV
Normal Rainfall


Monthly Production
Production (MGD)
170
160
150
140
130
120
110
100
2021
2020
5-year monthly average
144.01
1/31/21
2/28/21
3/31/21
4/30/21
5/31/21
6/30/21
7/31/21
8/31/21
9/30/21
10/31/21
11/30/21
12/31/21
Month
150
125
100
144.01
153.10
147.08
2021
2020
5-year monthly average

ITEM FOR INFORMATION NO. 6

"October 25, 2021

WATER MAIN REPAIR REPORT FOR SEPTEMBER 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 September 2021

Jason Nikaido, Acting Program Administrator, Field Operations Division, will report on water main repair work for the month of September 2021.

Respectfully submitted,

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

Attachment"

The foregoing was for information only.

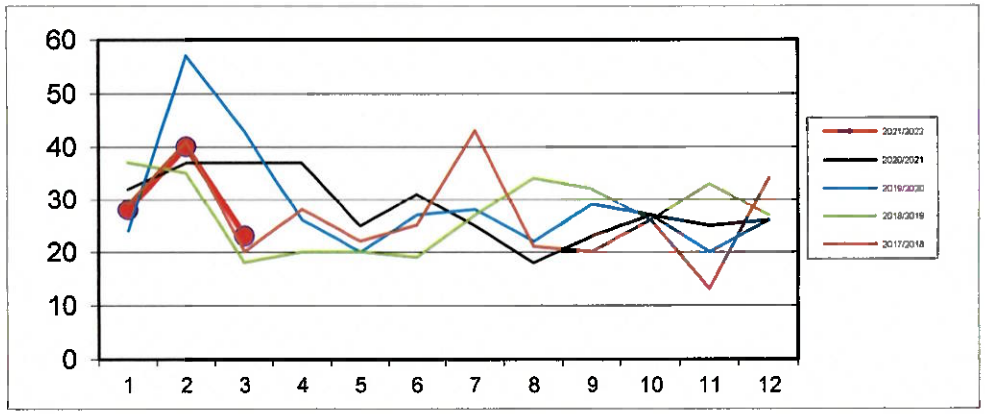
DISCUSSION: Jason Nikaido, Acting Program Administrator, Field Operations Division, gave the report. There were no comments or discussion.

WATER MAIN REPAIR REPORT

for September 2021

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	Total
2021/2022	28	40	**23**										91
2020/2021	32	37	37	37	25	31	25	18	23	27	25	26	343
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

Date	Address	Size (In)	Pipe Type
9/4/2021	1262 Honokahua St, Honolulu	8	DI
9/4/2021	99-537 Kahilinai Pl, Aiea	8	CI
9/7/2021	94-123 Pupunohe St, Waipahu	8	CI
9/8/2021	98-513 Kamahao St, Pearl City	12	CI
9/9/2021	2151 Hillcrest St, Honolulu	6	CI
9/9/2021	5158 Poola St, Honolulu	8	DI
9/10/2021	1150 N Nimitz Hwy, Honolulu	12	DI
9/13/2021	41-1510 Lukanela St, Waimanalo	6	CI
9/14/2021	2261 Aumakua St, Pearl City	8	CI
9/14/2021	1741 Nalulu Pl, Honolulu	4	CI
9/15/2021	67-303 Farrington Hwy, Waialua	8	CI
9/15/2021	1407 Luinakoa St, Honolulu	8	CI
9/17/2021	2453 Kanealii Ave, Honolulu	8	CI
9/19/2021	46-214 Koaena Pl, Kaneohe	4	CI
9/19/2021	3061 Kahewai Pl, Honolulu	8	PVC
9/23/2021	61-171 Iliohu Pl, Haleiwa	8	AC
9/24/2021	5639 Kawaikui St, Honolulu	6	CI
9/26/2021	1720 Machado St, Honolulu	6	CI
9/26/2021	87-310 Hakimo Rd, Waianae	20	DI
9/27/2021	286 Auwaiolimu St, Honolulu	6	CI
9/28/2021	286 Auwaiolimu St, Honolulu	6	CI
9/29/2021	3516 Pilikino St, Honolulu	6	DI
9/30/2021	47-587 Puapoo Pl, Kaneohe	8	DI



18 miles of pipeline were surveyed by the Leak Detection Team in the month of September.

MOTION TO RECESS INTO EXECUTIVE SESSION	There being no further business Chair Andaya at 3:56 PM called for a motion to adjourn the Open Session. Roger Babcock so moved; seconded by Max Sword and unanimously carried. Upon unanimous approved motion, the Board recessed into Executive Session Pursuant to [HRS § 92-5 (a)(4)] at 3:57 PM to Consider Issues Pertaining to Matters Posted for Discussion at an Executive Session.
OPEN SESSION	The Board reconvened in Open Session at 5:57 PM.
MOTION TO ADJOURN	There being no further business Chair Andaya at 5:58 PM called for a motion to adjourn the Regular Session. Max Sword so moved; seconded by Ray Soon and unanimously carried.

The minutes of the Regular Meeting held on October 25, 2021 are respectfully submitted,

JOY CRUZ-ACHIU

APPROVED:

BRYAN P. ANDAYA
Chair of the Board
NOV 22 2021
Date

THE MINUTES OF THE REGULAR SESSION BOARD MEETING ON OCTOBER 25, 2021 WERE APPROVED AT THE NOVEMBER 22, 2021 BOARD MEETING			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT	X		
RAY C. SOON	X		
MAX J. SWORD			ABSENT
NA'ALEHU ANTHONY	X		
JADE T. BUTAY	X		
ROGER BABCOCK JR.	X		