



**Honolulu Board of Water Supply  
Stakeholder Advisory Group**

Meeting 31 Thursday, July 25, 2019 4:00 – 6:30 pm  
Neal S. Blaisdell Center, Hawaii Suites  
777 Ward Avenue, Honolulu, Hi.

Meeting Notes

**PURPOSE AND ORGANIZATION OF MEETING NOTES**

The purpose of these notes is to provide an overview of the Board of Water Supply (BWS) Stakeholder Advisory Group meeting. They are not intended as a transcript or as minutes. Major points of the presentations are summarized herein, primarily for context. Copies of presentation materials were provided to all participants and are available on the BWS website. Participants made many comments and asked many questions during the meeting. These are paraphrased to be more concise.

**ATTENDEES**

There were 16 stakeholders present, in addition to BWS and CDM Smith staff and members of the public. The stakeholders represent diverse interests and communities island-wide.

The following Stakeholders Advisory Group members attended:

- |                     |                                |
|---------------------|--------------------------------|
| Bill Clark          | Resident of Council District 6 |
| Mark Fox            | The Nature Conservancy, Hawaii |
| Will Kane           | Mililani Town Association      |
| Dan Kouchi          | Chamber of Commerce, Hawaii    |
| Bob Leinau          | Resident of Council District 2 |
| Helen Nakano        | Resident of Council District 5 |
| Robbie Nicholas     | Resident of Council District 3 |
| Dick Poirier        | Resident of Council District 9 |
| Elizabeth Reilly    | Resident of Council District 4 |
| John Reppun         | KEY Project                    |
| Cynthia Rezentes    | Resident of Council District 1 |
| Alison Richardson   | Coca-Cola Bottling Company     |
| Chace Shigemasa     | Resident of Council District 7 |
| Walter Thoemmes III | Kamehameha Schools             |
| Cruz Vina Jr.       | Resident of Council District 8 |
| Guy Yamamoto        | YHB Hawaii                     |

## WELCOME

Dave Ebersold, meeting facilitator and Vice President of CDM Smith, welcomed the group and outlined the meeting objectives:

- Follow up of the April 24, 2019 climate change panel discussion.
- Receive the results of the customer satisfaction survey by Ward Research.
- Get an update on Haiku Stairs Draft Environmental Impact Statement.
- Hear about the BWS budget for Fiscal Year 2019-2020 if there is still time.

Stakeholders held a moment of silence in honor of Kathleen Pahinui's husband, James "Bla" Pahinui. Dave introduced new stakeholder Dan Kouchi, the Chamber of Commerce's Assistant Vice President of Government Affairs and Alliances. Dan said that he is pleased to be part of the Stakeholder Advisory Group and looks forward to continuing the work of his predecessor, Pono Chong.

## PUBLIC COMMENTS

None.

## ACCEPTANCE OF NOTES FROM MEETING 29

The group accepted notes from Stakeholder Advisory Group Meeting No. 29 held on January 24, 2019.

## ACCEPTANCE OF NOTES FROM MEETING 30:

The group accepted the notes of Stakeholder Advisory Group Meeting No. 30 held on April 25, 2019, with the correction of Chace Shigemasa's last name. The correction has been made.

## BWS UPDATES

Ernest Lau, Chief Engineer and Manager of BWS, updated stakeholders about the implementation of new water rates. They went into effect as of July 2019, but customers may not notice changes until they receive their August bills, depending on billing cycles.

Ernest said the BWS recently heard from the Kahaluu Neighborhood Board about concerns related to the impacts of construction at Waihee tunnel. The area around the Waihee tunnel is popular for hiking, much like the Haiku Stairs and Maunawili Falls. BWS and other City officials are looking into an interim plan to manage impacts on community members. Ernest emphasized that the Waihee tunnel is an important water source and it needs to be protected.

Ernest reported that the U.S. Navy submitted an underground storage tank permit application to the DOH in March 2019 and a revised application in May 2019. BWS submitted comments on the application, reiterating the position that if the Navy won't construct secondary containment inside the existing tanks, they should move the tanks to a location away from the aquifer.

## FOLLOW UP OF CLIMATE CHANGE PANEL DISCUSSION

Dave recapped the presentations given at the April 25, 2019 meeting of the Stakeholder Advisory Group by panelists **Chip Fletcher**, Associate Dean for Academic Affairs and Professor of Earth Sciences at the School of Ocean and Earth Science and Technology (SOEST), University of Hawaii at Manoa, and also Vice-Chair of the Honolulu Climate Change Commission; **Tom Giambelluca**, Professor in the Department of Geography and Environment at the University of Hawaii at Manoa;

**Josh Stanbro**, Honolulu’s Chief Resilience Officer, and also Executive Director of the Office of Climate Change, Sustainability and Resiliency; and **Barry Usagawa**, BWS Water Resources Program Administrator.

Dave brought Barry up to continue his presentation about the measures that BWS is taking to prepare for challenges associated with climate change. Barry emphasized that BWS is focusing on how to make the water system more resilient in the face of climate change and uncertainties. BWS joined the Water Utility Climate Alliance, which consists of 12 of the largest water utilities in the nation. They are providing leadership and collaboration on climate adaptation issues to ensure that water utilities are well positioned to respond over time.

In parallel to developing the Water Master Plan, the BWS partnered with the Water Research Foundation to fund the study of *Impacts of Climate Change on Honolulu Water Supplies and Planning Strategies for Mitigation*. The study will be published nationwide and Barry will share it with the Stakeholder Advisory Group when it is available.

Barry said that a vulnerability assessment of the BWS’s water supply sources and infrastructure identified adaption options for both. The assessment determined that increasing temperatures could impact sustainable yields in water supply and sea level rise could impact the coastal infrastructure. Barry said that BWS is working to understand where the system is vulnerable so that important improvements can be made at the right times.

**Rainfall Forecasts:** Barry reviewed the wet and dry future rainfall forecasts that have been conducted by the University of Hawaii. UH researchers used two different rainfall forecast models, statistical and dynamical downscaling. In a wet future scenario, the recharge range is forecast as between -0.3% and +21.5%. In a dry future scenario, the recharge range is forecast as between -4% and -72%.

Our sustainable yields are dependent on the amount of recharge. Forecasts indicate that the sustainable yield could drop as much as 27%. This very important situation will continue to be studied. In the meantime, BWS has identified adaptation strategies to implement if the sustainable yield decreases by 27%. That level of decrease means that approximately 100 million gallons per day less water would be available.

The adaptation strategies include:

- Reduce per capita water demand from 155 gallons per capita per day (gpcd) to 100 gpcd through aggressive water conservation.
- Capture storm water capture in Nuuanu reservoirs and on-site in new developments.
- Expand reuse at Honouliuli, Mililani, Wahiawa and Schofield wastewater treatment plants.
- Require on-site reuse.
- Increase transfers from Wahiawa and Waipahu-Waiawa aquifers to Waianae and Honolulu. Drill more wells in Wahiawa and Waipahu-Wahiawa
- Assert Public Trust Water Rights for Domestic Use to retain water use permits in a revocation process.
- More desalination in Ewa and possibly Honolulu.

- Desalinated water reuse in Honolulu, Waianae and Hawaii Kai, where wastewater effluent is otherwise too salty for irrigation.
- Indirect or Direct Potable Reuse with reverse osmosis (RO) desalination and ultra violet/ozone disinfection.

**3.2 Feet of Sea Level Rise (SLR) Exposure Areas on Oahu:** Barry showed a map of areas that could be impacted by coastal erosion and flooding as the sea level rises to 3.2 feet by mid-century. SLR hot spots are in Waikiki, Iwilei, Kakaako, and Mapunapuna. They also include low lying areas in Waiialua, Haleiwa, Kamehameha Highway along Hauula and Kaaawa, and residential areas surrounding Kaneohe Bay and along Kalaniana'ole Highway in East Honolulu. What does this mean for BWS's infrastructure? BWS has water pipelines on 24 low elevation bridge crossings that may be subject to impacts of coastal erosion or storm damage. The total length of BWS pipelines on these 24 bridges is slightly more than 4,500 feet.

**Corrosion Impacts from 3.2 Feet of SLR:** Barry said that by 2100, corrosion due to sea level rise could impact 21 miles of BWS's metallic pipelines. He explained that when pipelines are immersed in seawater or brackish water, corrosion increases and leads to water main breaks. BWS will replace those metallic pipes with plastic or similar anti-corrosion materials with bonded coatings. The threat of legacy oil contamination coming to the surface, flowing into stormdrains, and also into Honolulu Harbor increases with SLR because the ground water table is located just a few feet below the ground surface on Oahu. Barry reminded stakeholders about the water main break in Iwilei by Costco that took several days to fix because of the high ground water table and presence of oil. BWS crews had to wait for low tide before they could make repairs.

**King Tides Foreshadow Climate Change Impacts:** Barry showed a series of king tide photos around Oahu. As greenhouse gas emissions and temperatures increase, and as more glaciers melt, the sea level will continue to rise, and we will see more impacts like those shown in the photos.

**Flood Insurance:** Barry showed a flood insurance map for Oahu and explained that it does not currently reflect sea level rise modeling. Urban Honolulu's drainage systems cannot handle a hundred-year flood. This could be a serious issue for property owners in the impacted zones in the future.

**Examples of Another Utility and SLR Adaptation:** Honolulu agencies operating critical facilities with low risk tolerance, including BWS and the water supply system, are planning for SLR of 6 feet. These critical facilities include waste water treatment plants, desalination plants, transportation, and other municipal infrastructure that commonly serve major U.S. cities. So BWS is looking at how other utilities and cities are adapting to SLR.

Barry showed a series of slides and described how Miami is adapting to SLR. This low-lying city started with developing a storm water management plan designed to get water off of the streets. This led to adaptation strategies such as elevating streets and utilities, increasing the height of the sea walls, and installing green infrastructure to reduce flooding and retain rainfall on-site. Storm water gets drained to specific parts of the city where Miami installed very large storm water pumps that pump the runoff to the sea.

Barry discussed how this type of approach might apply on Oahu if you can't retreat from an area. The Water Research Foundation study identified two areas for potential pilot testing SLR adaptation strategies. The pilot test areas are West Waikiki and Iwilei, both of which could potentially experience severe social, economic, and environmental impacts from SLR of 3.2 feet. West Waikiki will need to focus on adaptation strategies. It will not be possible to retreat from SLR in the flat areas of Waikiki, Kakaako, and Iwilei so utilities will have to be elevated, new storm drains installed, and runoff directed to huge pumps (e.g. ability to pump 100,000 gallons per minute).

A concept for Iwilei is to plan redevelopment with adaptation strategies to live with the water. The plans will require elevating to protect the transit-oriented development from flooding. The proposed scenarios would:

- Elevate buildings in higher areas.
- Allow low lying areas to flood and collect water in the short term.
- Install storm water pumps as flooding gets worse to continue to protect redevelopment.

**Draft Adaptation Framework Action Plan:** Barry told stakeholders about a Draft Adaptation Framework Action Plan, a detailed draft plan to help BWS and other utilities and city departments plan for the challenges of SLR and climate change. He explained that there is a tremendous amount of work and coordination to be done among the city, state, private industry and others. The draft adaptation framework gives them a starting place with critical actions and a timeline from 2018-2100. Categories of actions include: research and monitoring, policy/regulation, financing, planning and engineering feasibility studies, public outreach, design, and construction. Some actions are already in motion. Communication to the public will be continuous.

Nuisance flooding is considered a major trigger for the action plan. This trigger is significant because residents who are severely inconvenienced by driving or walking through flooded streets will demand that the City have solutions in place. Nuisance flooding is anticipated to occur 24 times per year by 2045. But much of the action plan will already have to be well underway or completed by that time; waiting until then to take action is not an option.

2045 will be a very important year. The actions identified for Policy & Regulatory and Planning & Engineering components of the plan should be completed before nuisance flooding occurs. The designs to elevate streets and infrastructure for the priority inundation areas, such as Waikiki, should also be completed around that time. Major construction related to SLR adaptation is expected to start around 2045 when public pressures from nuisance flooding mounts and willingness to establish SLR fees is more likely to be approved.

Barry reviewed some of the details about who might coordinate the efforts and what is needed.

- UH Manoa, NOAA and the Hawaii Sea Grant program are already identifying areas that will be most impacted statewide.
- Climate Change Commissions will guide policies at a high level. Of major importance are policy decisions around rebuilding or retreating with repeat flooding, new design codes and criteria, and SLR assessment fees.

- Utilities should already be appropriating funding for CIP projects to adapt to climate change. Very little of this is happening at this point and that needs to change.
- For BWS to elevate water infrastructure, it is important to get an updated city storm water drainage master plan. BWS and all utilities need to know where the rising waters are going to be directed. But some things can be done in the meantime, such as installing one-way drainage valves to keep “backflow” from running into the streets. Agencies of the cities need to talk about which roadways to elevate, along with when and how. They need to coordinate on drainage planning and mitigating coastal erosion impacts.

Barry asked what the stakeholders thought about retreat areas. Should the state allow more seawalls, or should we start to elevate homes as they get damaged by flooding? Should reconstruction be allowed, or should some areas be required to retreat, and under what criteria? After Hilo was hit by the second tidal wave in 1960, Hawaii decided to relocate homes from the flooded area to elsewhere. This is an example of successful retreat rather than reconstruction.

**Q:** Would Mapunapuna be a good place to try out some drainage strategies and technologies?

**A:** One-way valves have been installed there, but that only helps with one of the issues of SLR flooding. If you look at land use, Mapunapuna is primarily industrial. Industries can move relatively easily. By comparison, it’s much harder for the city to elevate whole city infrastructure in areas that are planned to stay in-place, like Waikiki.

**One Water Concept:** Barry talked about how to help utilities, the city, and state coordinate in a different way through a One Water concept. This concept recognizes the interconnectivity and overlapping responsibilities of the multiple agencies that manage water in some form, including drinking water, storm water, wastewater treatment, and recycled water.

BWS is currently working on a white paper on One Water for the Climate Change Commission for their consideration for a potential Mayor’s directive for agencies to work together on joint planning and projects and share costs.

The result of this effort may take the form of a separate comprehensive plan, but the end product can also be a framework, guiding the collaborative actions of a group of separate but connected entities; a document describing how to leverage existing plans; or a simple scope defining the prioritized water resource management initiatives. An outcome of the plan or framework can be the identification of projects with multiple benefits. Barry said that it’s hopeful that using the One Water concept to adapt to sea level rise will gain traction, because we all have to work together, not just within the city but also state and county landowners, private developers – all towards a singular goal.

**Stakeholders’ Follow-up Questions to Climate Change Discussion Panelists:** Dave asked everyone to look at a handout of questions stakeholders asked following the April 2019 climate change panel discussion. Climate change panelists provided the answers. Dave and Barry took turns sharing the questions and answers with the group:

## **How do we make institutional policies to get condo complexes to install electric car charging stations?**

The updated energy code—[Bill 25 \(2019\)](#)—would require 25% of parking spaces in commercial and multi-family buildings (e.g., condo complexes) to be “EV ready” in new construction only. In other words, they would be required to have an electrical “rough in” to the parking spaces. It would not require the actual charging stations to be installed. As it is, it may be difficult getting this requirement adopted. Many developers are opposed to it.

There is also a bill that’s currently “on hold”—[Bill 25 \(2018\)](#)—that would require 25% of parking spaces at all [City facilities](#) (both new and [current](#)) to have EV charging [stations](#), but in the last committee hearing, the councilmembers expressed a desire to see what comes out of [Bill 25 \(2019\)](#) before they move ahead with [Bill 25 \(2018\)](#).

In any case, to require a minimum (regardless of the level) for EV readiness (just a rough-in or full charging stations), whether in new and/or existing parking stalls, it requires a bill (ordinance) at the city/county level (for Oahu or other counties), or a bill (statute) at the state level (for statewide).

## **What happens if we don’t cut CO2 emissions by 50% every 10 years?**

If we don't cut CO2 emissions by 50% per decade, we don't have a practical pathway to zero emissions by mid-century. Pivoting the world away from fossil fuels to renewable energy is a massive undertaking and will take decades... many decades. The rule of thumb of 50% reduction per decade is a guideline. We could miss the 50%-mark one decade, but then we would have to make it up in another decade. If we miss the zero emissions mark by mid-century, we will not stop warming at 1.5 degrees C (2.7 degrees F) and that will lead to passing certain tipping points such as extensive melting of Greenland and Antarctica, drought in the Amazon, massive tropical cyclones, and other responses.

We are running out of time. If we don’t start reducing emissions right now, we will either have to make more severe reductions or give up the goal of limiting global warming to 1.5 degrees C. If we start now and reduce emissions by 50% each decade, we will be able to limit warming and prevent the worse outcomes.

## **All of us are not ever going to be in complete agreement on solutions to dealing with climate change adaptation plans. How do we deal with differing opinions, compromises, and possibly even opposition to certain solutions?**

Great question. There is no simple answer. Those working in science are in general agreement about what needs to be done. As we deal with developing and implementing climate change adaptation plans, everyone, not just scientists, should first ask what they can do that is in their personal/professional skill set to help achieve the needed solutions.

Community-wide and regional solutions take cooperation and there will be many differing opinions. Regarding disagreements: We all deserve to be heard. One thing that is needed is a safe forum for people to keep talking and keep working at solutions that we can agree upon. That discussion is going to be a constant process. Because we all deserve to be heard, we should

not set up meetings where decisions are made. Use meetings for input only and listen to everyone. Make the decisions later, incorporating what we hear. Let people know that is going to be the process.

**We talked about water supply with respect to climate change. How do stormwater and recycled water factor in to climate change planning?**

Drinking water, stormwater, and recycled water all have big roles in climate change planning. In Honolulu, we're beginning to talk about the One Water concept that plans around the interconnections of drinking water (groundwater), surface water, recycled water, stormwater, and sustainable development to best manage our combined water resources. The One Water concept is being implemented in other major cities and, in a nutshell, it views all water as the same basic resource that can be treated to different levels of quality (purity), suitable for different uses (drinking water and golf course irrigation, for example). As you already know, not all end uses require drinking water quality. The One Water approach could be critically important to stretch our limited water supply to meet our diverse needs as climate change continues to heat our island and reduce our rainfall. This is the direction we're probably headed, but we are still in the early stages of discussion.

Also, if you look at the draft Sea Level Rise Action Strategy, you will see several climate change adaptation measures that apply to drinking water, wastewater/recycled water, and stormwater. Look at the City and County of Honolulu Annual Sustainability Report for more on how climate change planning is including drinking water, stormwater and recycled water.

**What is the best way to respond to people who push back on climate change and even say that climate change isn't real?**

It's healthy to be skeptical about the information you read or hear but believe your eyes. Those of us who live on an island are more attuned to the effects of climate change. Look at the ocean and notice sea level rise. Be aware of more frequent and more intense storms, higher temperatures, and more flooding on our island. The effects of climate change aren't measured in single events – like one major storm – but as trends over time. And that's something we can see for ourselves.

**Additional Questions, Comments, and Answers:**

**Q:** What are the scope and associated fees in managing SLR? 80 years from now, SLR is expected to be six feet and the amount of money that's going to be spent is hard to calculate. What if SLR increases by another six feet in the following 50 years; how will the city and state manage the burden on taxpayers? Are they thinking that far off? Private parties are having problems on the North Shore now with large waves and want the city or the state to provide assistance. As this problem grows, more people will need assistance from city and state taxpayer dollars. Who pays for it really needs to be looked at closely. You said “financing” will be important. The more that we can take off the backs of the taxpayer, I hope gets factored in early.

**A:** It will likely happen in steps. The sea won't stop rising in 2100. A National Geographic article said that if all the ice on the planet melted, the ocean would rise 216 feet above the current (mean) level. If all the ice melted, all of Florida would be underwater, but Miami is initially elevating their roads 3.7

feet and will do the rest in steps. Whether the money to pay is from the federal government, state, or city, it still comes from the people. Some costs may get pushed to future generations, but we will do what we can now. There have been worldwide protests because of the kind of world we are leaving to our kids, and we should think about our actions today.

**Comment:** I understand that you're looking at West Waikiki and Iwilei as the two areas identified for pilot study areas. Climate change is impacting the entire island. Land is already sloughing off on North Shore and Kamehameha Highway. DOT, BWS, and ENV should take steps to move our services further inland at the same time. Financing is going to be another animal that we're going to have to deal with, over and above recent rate increases. Financing for other areas besides the pilot study is just as important.

**A:** This is a really good comment. When the sea rises, it's not only on one side of the island. The pilot study was meant to establish example areas that will be helpful for planning throughout Honolulu. Rural areas will be remembered. Waialua and Haleiwa will be impacted and Waianae in certain places. The studies help utilities and the city to make hard choices about where to focus resources.

Ernest added that at the North Shore, Waianae Coast, East Honolulu, Waimanalo side – everybody's going to start to feel the effects. BWS has a 30-year Water Master Plan, developed with the Stakeholder Advisory Group, that we need to keep updated to keep looking ahead 30 years. We also have the long range Financial Plan for how to finance it. So as things come up and we continue to study and collaborate with other agencies and utilities, we can adjust our plans. Hopefully we'll have enough advance warning to be able to look at how to fund and implement them. The essential pieces that we have with everybody's help here have actually built in that resilience, and now we just need to keep them updated and I think we'll have a fighting chance.

**Comment:** It's been the dream of the Honolulu Board of Water Supply to have an island-wide delivery system. I think the reality may well be that we've got to plan for that system being broken up and look a lot harder at regional delivery and capture. We're going to have to start looking at where the water is and how it gets delivered. Along with that, there may be the need for planning to ramp up non-potable use to replace potable water, and really help the island, and our state, to be a lot more aware of what kind of water is needed for what purpose. We should be developing regional systems that help to alleviate the pressure on potable water use and delivery that we expect now island-wide.

**A:** Barry said he participates in a water reuse task force. It looks at how to increase on-site reuse of rainwater and gray water. It is even looking at flushing toilets with recycled water, which is possible in Ewa because BWS has the distribution system there.

The island-wide integrated system is very important. We will move water to where it's needed, but we will monitor and try to keep stable the amount of water that is transferred from one region to another. We keep Windward water in Windward because the area is susceptible to droughts. Interconnectivity really helps with the resiliency of the water system.

On-site non-potable reuse can reduce the amount of water that we transfer. That is the idea in the regional watershed plans. The North Shore and South Oahu Watershed Management Plans go

through the year 2,100. Their current population projections are to 2040, and we will still have a lot of water.

But when demand starts to reach or surpass sustainable yields, like in Ewa, there are policies that we should be debating now. How aggressive should we require on-site reuse and conservation measures now? We can't wait to reach the sustainable yield to do something. We're taking the long view because we really need to understand the limits. Those policy decisions need to be made.

**Comment:** I made a note about vocabulary. If we all speak the same language, it'll be a lot easier to communicate. The terminology used throughout all of these presentations and documents, and so on is really important. If we use the same vocabulary at the local, city, county, state, and national levels, then we're going to have a much easier chance understanding where we're trying to get to and how we do it.

**A:** Ernest said that one good example of that is the Hawaii Community Foundation and its creation of the Freshwater Council, on which Mark Fox, Barry and he have been members. That brought together a diverse group of people across the state and created a safe forum for us to have a dialog about water issues. The Freshwater Blueprint came from this. Ernest agreed that having a common vocabulary is vitally important.

**Q:** We talk a lot about the direct physical impacts to us. But who's looking at the broader economic impact and really what's fueling our economy here in Hawaii like tourism? Our ability to weather climate-related events and come back quickly will tell us a lot about the economic vitality that we are facing. Puerto Rico is an example; it has been a couple of years since the hurricane but they're still struggling. The military will always be here, but what's going to take the place of tourism if we suddenly don't become a destination of choice for folks? I don't hear as much about the indirect impacts of climate change. Is that something that you folks are talking about?

**A:** Barry said the city's resiliency strategy, called OLA, is posted on the website of the Office of Climate Change, Sustainability, and Resiliency. That office created a large group to provide input on overall impacts of climate change to our community. It was funded by the 100 Resilient Cities program, sponsored by the Rockefeller Foundation. This should just be the beginning of discussions about resiliency. Excellent point.

**Q:** May I ask if the Chamber of Commerce is doing anything along these lines?

**A:** Dan Kouchi said the Chamber is having discussions with businesses and with members. We went back to what Dave brought up about legislation related to providing EV charging stations, Bill 25. Dan said that one of the concerns for business owners is cost. Dan said that the Chamber has been trying to have more robust discussions in order to try to get a better dialogue with the legislature next session. He said he would be happy to try to share highlights of those discussions.

**Comment:** Opportunities for dialogue about climate change are important, along with listening with compassion, giving people opportunity to be heard, and having forums like this. Going about these conversations the way that the Board of Water Supply went about their recent proposals for rate increases is a good thing. But we are not going to get to solutions that we all agree upon. I think we have to create the circumstances leading up to it so that people are heard but that we also have the

fortitude and courage to make decisions that are hard and move on. Things are going to continue to get dire and it's going to get hard. We can't rely on a process to achieve complete consensus.

**A:** Dave said that, to him, consensus isn't unanimity. Consensus requires thorough discussion of the issue so that people understand each other's points of view, they feel they have the opportunity to express those opinions and, more importantly, that they were heard. And then there's a solution that comes to the forefront that may not be everybody's favorite, but it's the best solution given the circumstances and a way forward. It's complicated, messy, and not everybody's going to agree.

Dave said that an earlier comment was about how storm water and recycled water factor into climate change. He asked Barry to talk about it. Barry said that if we don't diversify our water supplies and take advantage of capturing and recycling water from the more intense storms, then we're basically back to relying on natural ground water resources. We've got to make more water from desalination and water recycling. That's how we do it – little pieces at a time. We get more resilient and maintain fresh water and diversify our system.

**Q:** With regard to climate change, how much of the answers should be focused in science and observation and how much of the answers should rotate around politics?

**A:** Barry said that, in the last several legislatures, interest in climate change adaptation is increasing. At the legislative level, they need to provide the funding to the departments and make sure that they all have collaborative plans to deal with climate change. Politicians have the authority to hold departments' feet to the fire. He thinks our politicians want to do the right thing. We have to work together.

Dave asked if anyone in the audience had additional questions or comments.

**Q:** I think one of the big questions we're going to have to contend with is our fresh water supply. As we suck more and more out of the straw, by 2040 what will our fresh water capacity be and how much saltwater intrusion to the lens will happen? I'm feeling crowded on this island, both from a population standpoint and from a visitor standpoint. Maybe by 2040 we're going to have less land area (because of sea level rise). Do we say, at a certain point, we have to cut it off so you can protect that water capacity?

**A:** In the Water Master Plan, we grappled with projections and the good news is that, while our population is increasing, our demand for water has been decreasing. Barry said BWS is pumping less today than 1990 when potable production peaked at 157 MGD. Now BWS is pumping at 143 MGD with a (approximately) 0.1% population increase every year. We have controls in place so that aquifer groundwater levels do not decrease below critical levels. The Pearl Harbor aquifer at pre-contact was double the height it is today. Plantation and municipal pumping over the decades dropped the water level by half. Controls are now in place that will not allow the water level to drop further. If we ever reach critical limits, we'll be able to control, diversify, and push demand lower. The additional population is going to create a lot more stress on the community, in transportation, jobs, and the economy. There are a lot of issues that have to be grappled with. And to answer that question, should we say, "Hey, enough is enough"? We draw the line and we stand by it. Do we do that for population? That's the larger question.

**Comment:** How do you deal with those who aren't looking at climate change the same way? The power that we have as people living here, separate from what politicians might want to do and so on, is that we have the power to create forums. This kind of group is helping. We can invite people from Puerto Rico to talk about their real experience. We can invite people from cities in India that are running out of water altogether. The power of information is up to us assembling that information and bringing those people forward, so you get real-time examples and hopefully people listen. But we have to have those forums.

#### **UNDERSTANDING RESIDENT PERCEPTIONS OF THE BOARD OF WATER SUPPLY**

Dave introduced Becki Ward, president of Ward Research, to talk to the group about the BWS's most recent customer satisfaction survey. Becki explained that this one, conducted in April 2019, was similar to surveys conducted in 2015 and 2017. She said that the objective was to track measures of satisfaction and other key metrics related to perceptions of the Board of Water Supply and the fulfillment of its mission. She said that, overall, satisfaction has been very consistent over time and there are a couple places where she saw significant change. When you see this consistency, but a couple of things change, you really want to pay attention to those.

Some of the key findings of the survey are:

- Overall satisfaction with the Board of Water Supply is consistently extremely high. When we look at bill payers, strong satisfaction has increased dramatically over time. In 2015 it was 53%; it's up to 61% now. While there's an upward trend with bill payers, there is a downward trend with non-bill payers. Non-bill payers in 2015 started out with 75% strong satisfaction. That's decreased to 67%. Still, overall, the level of satisfaction with the BWS is very high.
- When asked about several attributes, such as the ability of BWS to provide safe, dependable, high quality water, survey respondents were strongly satisfied. This has remained consistent with previous surveys.
- When asked why they were satisfied, many respondents mentioned BWS's employees. They were considered quick to respond, professional and courteous. In fact, fast response to trouble calls was one area where there was a marked increase in satisfaction, from 58% in 2015 up to 62% in April this year.
- Two areas where we see a significant decline were related to rates. The first is the BWS's ability to keep water rates affordable. In 2017, the level of strong satisfaction was at 48% and now it's 40%. The second was fairness of water rates; in 2017 fairness was rated at 45% strong satisfaction. In 2019, that level is lower at 37% strong satisfaction. These are "yellow flags".
- In one part of the survey, respondents were asked about their perception of the affordability of BWS's water. About 36% said it is very affordable; 30% said it's moderately affordable, and 25% said somewhat or not affordable. Then they were told how much water actually costs. That changed the minds of respondents quite a bit -- 76% said BWS water is very affordable. This huge swing indicates that there is a big educational opportunity, one that must be ongoing, because once people find out how much they are actually paying, their perceptions change dramatically.

- The survey confirmed that customers are still confused by one bill combining charges from both the BWS for water and the Department of Environmental Services for sewage.
- About 30% of the respondents have strong recall of BWS messages, which should be considered very good considering how many things are competing for the public's attention.
- When asked what they recalled in the news *about* the BWS, respondents mentioned water main breaks and the situation with the Navy's fuel tanks at Red Hill more than any other topic.
- When asked about who they trust most as a source of information about fresh water, respondents consistently mention scientists, and then the BWS.

**Q:** When you add up strong satisfaction and moderate satisfaction, 67% of the people in 2019 are either strongly or moderately satisfied. That seems like a pretty decent score overall. Is that fair to say?

**A:** It certainly is. Overall these are certainly in the positive zone. Perhaps there's just some sensitivity since this is the first water rate increase in a while, but overall to have 67% in the top three boxes is absolutely good.

**Q:** I've always felt really good about the safety of our water. If three out of four feel the same way, what is it that 25% doesn't feel that safe about? Do you ask why they don't feel safe?

**A:** No. If they rate it low, we don't ask why.

**Q:** The responses are similar for "safety of the water" and "quality of the water." I suspect they're closely related.

**A:** They certainly are in the data.

**Q:** What's the difference between a payer and non-payer?

**A:** There are households where the water is included in monthly maintenance fees or included in their rent. So bill payers are people who directly pay a bill to the BWS and non-bill payers are those who do not, but certainly have a relationship with the BWS.

**Q:** You asked respondents about the affordability of their water before you tell them the cost and after you tell them the costs. Once they understand how much they pay, they believe their water is very affordable. Would it be a possibility in future surveys to probe on this question, to ask how they would foresee being educated on the rates?

**A:** We ask a question about the best way for the BWS to communicate and in all three years of the survey, they've told us that the best way to communicate is through the mail. We see mentions of communicating online starting to increase. But certainly because the key to this is education, how best to communicate with them is an important consideration.

Dave told the group that as we were developing the outreach component for the rate increases, we actually worked with Becki to test different messages with focus groups and see how those messages played, what people responded to, what they just didn't get. That became really informative as we developed all of the educational pieces.

**Q:** After they know how much it costs for their water, would their answers with some of the previous questions change? If you begin the survey and not know how inexpensive the water is, you might bash a little bit. But once the respondents know how much it costs, would the answers actually change and the satisfaction increase knowing that it isn't as out of line as they might think initially?

**A:** That's probably true. From a survey perspective, we really want to capture an accurate reflection of where people are and what they're thinking. But given the dramatic increase that we saw in this, I think that's probably a reasonable assumption. That leads to the importance of educating people.

Dave thanked Becki and said the BWS really values the work she and Ward Research do.

### **HAIKU STAIRS DRAFT ENVIRONMENTAL IMPACT STATEMENT**

Dave asked Barry to come back up and tell the Stakeholder Advisory Group about the status of the Draft Environmental Impact Statement for the Haiku Stairs. Barry said BWS purchased the land in Haiku Valley back in the middle 1950s for water development in the valley. At the time BWS developed the Haiku tunnel and later, in the 1990s, developed the Haiku well on the Kahuku side of the valley. That's where the perennial streams are. On the Waimanalo side of the valley, stream beds are generally dry and flow when it rains. That's the side where the stairs are. The U-shaped lot is accessed by Haiku Road. The construction of Interstate Highway 3 (H-3) in the late 1990s cut the parcel in half. Then BWS also lost legal access to the Waimanalo side of the valley.

The Haiku Stairs was built to service a military radio station in the 1940s. In the early 2000s, the City upgraded the stairs because so many people were hiking them. Shortly after, the BWS began providing guard services at the cost of about \$160,000 a year to deter hikers from trespassing. Recently, BWS engaged special duty police to actively deter hikers and this has worked to reduce the level of trespassing, but now at a total annual cost of \$250,000. Water rate payers have been absorbing the cost of that liability for a couple of decades.

BWS's mission is to provide safe drinking water and not to provide a recreational amenity. Barry said we own the land beneath the stairs, but there is no water development potential on this side of the valley. BWS is looking to either divest from the land with the stairs or remove the stairs. The decision will be guided by the results of an Environmental Impact Statement.

The Notice of Preparation received around 750 comments and we responded to every one of them. More than 80% of the comments were for keeping the stairs. The Department of Planning and Permitting is the accepting authority of the EIS process. The draft EIS was published in June 2019 and we want to start preparing the final EIS and publish it towards the end of the year. Because of the controversy and strong emotions around keeping the stairs or taking it down, the BWS decided to produce a very comprehensive EIS so that informed management decisions could be made.

Barry said the proposed action of the DEIS is the extraction of all the modules from the Haiku side. Another alternative studied was "no action", in other words, the continuation of the status quo.

Another is partial removal of the first thousand feet of stairs going up from the Haiku side. That would eliminate most but not all of the trespassing. Another alternative is conveyance of the property. Alternatives considered but dismissed included BWS retaining ownership of all or part of the property and contracting with a third-party operator.

He said that a major issue was whether or not the stairs are historic; if they are, can they even be removed? The stairs are over 50 years old and considered historic property by the State Historic Preservation Division. SHPD agreed with the historic architecture report that established mitigation for the preservation or the removal of the stairs. SHPD's stated preference is to preserve the stairs.

Barry said the BWS's consultant G70 looked at the business case of what it would to keep or take down the stairs. They considered revenues to the state from taxes and fees charged to hikers, and the costs of removal. Barry said BWS could eliminate its liability by completely removing the stairs or by conveying the property to another public agency or private interest. What is important to note is that if BWS transfers it, the stairs would only go to a responsible organization with the authority and will to follow through.

The proposed action would cost \$942,000. Partial removal would cost \$190,000 but wouldn't eliminate BWS's liability. Conveyance to an agency would cost \$800,000 to improve the access. The operator would pay for stairs restoration over time and charge hikers an entrance fee. Hiking operation revenues would offset City costs and taxes would generate revenues for the State. Income would be approximately \$1.2 million per year.

Barry showed stakeholders maps of different property conveyance alternatives. The EIS team looked at five different access routes and plans. They developed a series of evaluation criteria. The criteria included proximity to residences, traffic, landowner input, public facilities and safety concerns. The alternatives were screened, reduced to three and then finally to a highest ranked access route, Pookela Street and the access driveway to Anchor Church which is a State easement. There is sufficient street parking as Pookela St. is a 4 lane street, signage, fencing and landscaping to screen the property and operation from nearby residences, and a site to collect tickets at the base of the stairs with composting or portable toilets. Keaahala St. is a civic center for Kaneohe, with restrooms at the district parks, bus service to WCC and traffic signalization. The number of people allowed to hike would be limited to approximately 85 per day. A managed access plan is essential for to make this work and would be required of the vendor should the City choose this option. The EIS set forth the essential elements of a managed access plan.

Barry said that Mayor Caldwell wants to keep the stairs open. The Mayor said he feels that the Haiku Stairs is a public trust resource, and like the ocean and beaches, people should have access. He has said he wants the City Department of Parks and Recreation to take over to property.

Barry indicated that the EIS still has a long way to go. Education becomes a model as this situation is very unique. But there are other places where people try to access mauka watersheds. Some of the lessons learned and the way we approached this could be applied elsewhere.

**Q:** Thank you for working so hard to protect the residents. The EIS is very well done and I urge everyone to read it carefully. The value of this resource cuts both ways because it captures a piece of our history and helps us to look forward at questions that need to be answered. The view of the

island from the top of the Koolaus gives a valuable perspective of our community; it is like looking at a map of our island's history, including the good and terrible things that have been done. Back in the '70s you could see Kaneohe Bay with sewage outfalls into the bay. The stairs and area are of educational and recreational value and BWS has done the right thing with the EIS, given the circumstances.

But this starts with the assumption to remove the stairs. BWS representatives have said that the DEIS is an informational document and not a decision-making document. I have some concerns about that. From a stakeholder's standpoint, it's not within the BWS's mission to have the stairs. But why didn't City Council take on the liability or the property back when they put money towards fixing the stairs? Does the Mayor want to take on the liability along with the costs? It worries me to hear that there would be a cost to BWS for conveyance of the property. Why doesn't the city take on that cost of conveyance?

**A:** The question of improving the stairs before giving it to the city is going to come down to a BWS Board decision because they have to approve allocation of funds. They are looking at the best way to convey the property "as-is" to the city.

**Q:** The DEIS is a lot of work and I want to say thank you so much. Is there any way to look at any of the consultant's studies? They would be fascinating to read. Also, is there anything being done now as it relates to the administration to try and keep them engaged with the DEIS through the time that the EIS period is over?

**A:** The Mayor is very interested in trying to keep the stairs open and recently, he talked about transferring them to the Department of Parks and Recreation. BWS's goal is to have a final EIS by the end of 2019, followed by a 60-day challenge period. Then we intend to give the BWS Board an opportunity to make an informed decision based on the FEIS, which is a disclosure document. The consultant studies are appendices to the EIS and are available online.

## **NEXT STEPS**

Dave told the stakeholders that there wouldn't be time for the FY 2020 budget presentation. The next meeting is at Blaisdell on October 24th. He thanked everyone for coming and participating.