Honolulu Board of Water Supply
Stakeholder Advisory Group

Meeting 12 – Tues. February 7, 2017 4:00 to 6:30 pm
Neal S. Blaisdell Center, Hawai'i Suites
777 Ward Avenue. Honolulu, HI 96812

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 13 stakeholders present, as well as BWS and CDM Smith staff present. The stakeholders represent diverse interests and communities island-wide.

The following Stakeholders Advisory Group members attended:

Jackie Boland	AARP Hawai'i
Pono Chong	Chamber of Commerce Hawai'i
Gladys Marrone	Building Industry Association of Hawai'i
Ralph Mesick	First Hawaiian Bank
Helen Nakano	Resident of City Council District 5
Dean Okimoto	Nalo Farms Inc.
Alison Omura	Coca-Cola Bottling Co.
Bob Leinau	Resident of Council District 2
Jon Reppun	KEY Project
Cynthia Rezentes	Resident of Council District 1
Josh Stanbro	Hawai'i Community Foundation
Cruz Vina Jr.	Resident of Council District 8
Christopher Wong	Resident of City Council District 7

MEETING AGENDA

- Welcome
- Public Comment on Agenda

- BWS Updates
- Accept Notes from Meeting 11
- Correlation of Pipeline Repairs and Main Breaks, including Costs (Postponed)
- Preliminary Recommendations for Financial Policies
- Typical Customer Identification for Rate Impact Evaluation
- Kalanianaole Highway 24-inch Water Main Break
- Summary and Next Steps

WELCOME

Dave Ebersold, meeting facilitator and Vice President of CDM Smith, welcomed the group and outlined the meeting contents. He noted that the last several meetings have focused on financial policies, as part of developing a financial plan. Summarizing the agenda, Dave indicated that, in preparation for this meeting, the BWS team applied input from the Stakeholder Advisory Group to develop straw man financial policies as a starter for discussion and further input. Dave indicated that the group will also continue a discussion of typical customer types, in anticipation of an upcoming rate impact evaluation. Finally, at the request of stakeholder Cruz Vina Jr., the agenda included an overview and timeline presentation on the Kalanianaole main break, with a presentation to put the break in the broader context of the Water Master Plan.

PUBLIC COMMENT ON AGENDA ITEMS

None.

ACCEPTANCE OF NOTES FROM MEETING 11

This agenda item was deferred anticipating a quorum of Stakeholder Advisory Group members.

BWS UPDATE

Ellen Kitamura, BWS Deputy Manager and Chief Engineer, greeted the group. She introduced BWS Board Chair Bryan Andaya. Bryan indicated it was a pleasure and honor to address the group. Bryan complimented the group on their contributions to the Water Master Plan. He said, "That meant so much to us. I'm so happy we're working together."

PRELIMINARY RECOMMENDATIONS FOR FINANCIAL PLAN POLICIES

Dave reviewed some of the basics of long-term financial planning and the rate making process, to set the context for further discussion. There are 3 key steps to rate making: revenue requirement, which we've likened to determining the size of the pie; cost of service, which we've likened to figuring out the cost of the pie's ingredients; and rate design, which we likened to the size of each slice of the pie. The group's current focus is on the revenue requirement.

QUESTION AND ANSWERS

Q. How clear can you be about what the revenue requirement will be? In a plus or minus context, if you say "I think the revenue requirement is going to be x", what sort of credibility would you expect as a percentage of the estimate?

A. This will be a 30-year financial plan. In the beginning of that period, there's a greater degree of certainty than in the years further out. At this point, we're setting rates for the first five-year segment, so we should have a pretty good degree of certainty. But, over time, some things won't go precisely as anticipated. The financial policies give us some guidance on how to handle those unexpected occurrences.

Dave continued with a discussion of the four main drivers of revenue requirements and rates:

- Operation and maintenance costs.
- How the capital Improvement program (CIP) is financed.
- Financial policies for credit ratings and stability.
- Preparedness to respond to changing trends and risks.

He said we focus on these four considerations in the financial plan because they are drivers of costs into the future.

Financial policies establish a foundation for long-term financial planning. Dave invited the group to provide input on straw man policies being presented, plus any further ideas. This is not the only time the group will be asked to weigh in on financial policies. Rather, at this point, what's being sought is feedback and input on the proposed straw man financial policies to enable the BWS to bring a first cut at financial modeling back to the group in March.

Dave presented a summary of the BWS's current financial policies.

- *Unrestricted fund balance = 45 days operating expenses, including annual debt service*
  BWS will maintain an unrestricted fund balance (money with no legal restrictions on its use) that amounts to 45 days of operating expenses including the cost of debt service for that period. The amount is computed by looking at what it costs to run the organization for a year, then dividing that by 365 to find the daily cost of operations, then multiplying by 45 days. The BWS also includes its debt service requirements in calculating its expenses, which results in more cash on hand (greater number of "days") when compared to how most agencies apply the calculation.
- *1.60x senior annual debt service; 1.30x junior annual debt*
  This is the debt service coverage ratio, representing the amount of money on hand to pay debt. Senior debt is like a first mortgage, which gets paid first if you go into bankruptcy or insolvency. Junior debt is like a second mortgage that gets paid after the first.
- *40% to 50% debt to net assets ratio*
  Thinking about this in personal terms, a person may have a car loan, a mortgage, a 401K, and stocks, etc. What that person owes becomes the top of the equation, and on the bottom is the value of all that that person owns. In business terms, it shows the financial strength of the organization.
- *No specific contingency reserve*
  The contingency reserve is general and does not indicate limits.

- *Maintain relationships with rating agencies*

Questions and Answers
Q. We have a number of companies that are bottling our water here in Hawai'i and shipping it off island for sale to consumers. I'm wondering whether the BWS should see if there's an opportunity to look at an additional business model by tapping into some of that "neat, I can drink water from Hawai'i" type of concept. I'm just trying to look at something that would not impact our future reserves of water, but which could potentially reduce what we as citizens are going to have to pay.
A. Over a decade ago, the BWS evaluated alternative income streams, particularly bottled water. The feedback we got at that time was that we would be competing with small business, so the answer was no. However, the BWS has been considering other income streams that won't compete with small local businesses or impact their viability. Examples include land management and leasing some of our properties.

Q. I think this bottling issue is an important point. These businesses just bottle our tap water then sell it. So do we charge them more than other businesses? Maybe we should think about this.
A. Let's take this a bit further. Is the situation different if they're brewing with the water and making beer or a soft drink? Bottled water is one end of the spectrum. There are a lot of products that have water in them and get exported. It's interesting to think about what you're suggesting. When you get to the part about divvying up the pie, we'll talk more about similar issues.

Q. It would be good to know the volume of bottled water being sold from O'ahu. What's the total revenue for that industry in Hawai'i and here in O'ahu?
A. We can see if we can come up with that. Some of them may be bottling water from non-BWS sources.

Q. When a business pays for water, is it charged to them on volume of the water used? And, is that the same rate (or different) from what household use would be?
A. It's predominantly based on volume. Businesses and single family customers are charged different rates.

Dave then presented a series of four straw man financial policies, based on other similar water utilities, bond rating agency guidance, financial professional organizations, BWS experience, and previous stakeholder input.

1. **Fund Balance / Working Capital (amount of cash on hand)**
   Problem/Need
   - Ensure timely funding of operating and maintenance expenses, debt service and construction payments
   - Allow for differences between when costs are incurred and when revenues are received
   - Cover contingencies, including disasters and other unforeseen events
   - Provide sufficient flexibility and strength to support credit rating objectives.

Straw Man Financial Policy

- Target 180 days fund balance; never less than 60 days
- Exclude annual debt service (for consistency)
- Cover disasters and unforeseen circumstances
- Large enough to provide some rate stabilization
- >180 days may be re-programmed to fund the CIP

Dave walked the group through the details. "Fund balance" and "working capital" are ways to say: "This is the amount of cash that we have on hand." What we want to accomplish by having working capital is to ensure timely funding of operations and maintenance expenses, debt service, and construction payments. To get the money to cover those expenses, the BWS sells water, goes out and reads the meters, prepares the bills, sends the bills to customers, then customers write the checks, those payments come in to the BWS and then go to the bank. So, one of the things working capital is used for is to cover the difference in timing between when the service is provided and when payments are received. Working capital also can be used to cover contingencies, including disaster recovery or other unforeseen events. It also can provide flexibility and strength to support credit ratings.

So, what should be the minimum level of working capital for the BWS? Dave told the group that the Government Financial Officers Association 2011 Best Practices suggest targeting having 90 days cash on hand, and never having less than 45 days cash on hand, the latter of which is the same as BWS's current financial policy. By keeping even more cash available, there's the opportunity to have funds on hand to address unanticipated big ticket items, emergencies, disaster recovery, or provide a buffer to stabilize rates.

Questions and Answers

Q. In terms of the BWS's ability to borrow money on a short-term basis, what kind of timeframe would you be looking at to get the loan? You need to think of this as having an expected cost with the unknown being <u>when</u> the need will show up. It's something to budget, but you don't really know when the need is going to show up.

A. Joe Cooper said that currently, the BWS doesn't have any short-term borrowings, but if we were to start borrowing on a short-term basis, the timeframe would be about four to six months. Our goal would be to avoid dipping into an emergency fund to cover normal operating costs. If we were to be hit by a hurricane or similar disaster, we would dip into the working capital fund to cover repairs or make up for lost revenue.

Q. What about if a pipe breaks?

A. Joe said the BWS budgets for a certain amount of pipes breaking. If it we had an abnormally wet or bad year, we might have more pipes breaking to the extent that it could be considered a "disaster" and we might dip into the fund.

Q. How tight are the financial policies for this type of fund? If you start building up money in a fund and want to apply it to a disaster, how subjective are those calls and who makes those calls?

A. Although the BWS is semi-autonomous, our funds are deposited to an account with the city on a daily basis. From time to time accumulated funds are moved into short-term

securities, usually treasuries of a maturity less than five years. We can sell them at any time if the money is needed. It's important to note that working capital is subject to the BWS's annual budgeting process and dependent upon approval of the BWS Board. If there were a case where it was necessary to exceed the budget, say for hurricane recovery, it would require authorization from the BWS Board.

Q. Does the BWS have catastrophic insurance coverage?
A. BWS has what's, in effect, an umbrella policy with a deductible. All facilities are covered up to a total of $60 million. Anything over that is BWS's responsibility.

Comment. Everything I've been reading with regard to disaster preparedness is that Hawai'i recovery to a disaster would be much longer than anywhere on the mainland. FEMA generally recommends that families keep three days of supplies on hand. But, other people are saying here we need one, two, or even three weeks of supplies because FEMA isn't going to come right away and all our food is shipped in.

Q. Assuming a natural disaster happens and the BWS runs down its emergency funding, how long does it take to build it back up?
A. If there were a major event that caused a substantial draw down of the fund, the BWS would reexamine conditions and develop a plan on how to rebuild that reserve.

Comment. It might take a long time to get back on our feet from a disaster. We should consider what rate increases would look like to recover. And, what might get sacrificed along the way? We need to look at priorities.

Q. We have some experience on what the impacts might be. There were two hurricanes on Kauai. We could pull information on what they went through, the impacts to their infrastructure, and how long it took to recover. What did it take to recover, how fast, and how much funding did it take to restart water service for the entire island?
A. Dave said that's a great suggestion. We can certainly see if data are available.

Comment. There would really need to be a balance between what people can afford and what is needed. We have to remember that in addition to seniors on fixed incomes, there are a lot of people working two, three jobs, who share living space with two, three families. We have to remain aware it's going to hit the bottom line for people.

Comment. Having money on the side is like an insurance policy to cover what might happen. The whole picture is that we're still going to have to charge a whole lot of money for capital improvements.

Q. What happens when other places don't have money on the side and there's an emergency? Do they go to FEMA and borrow the money? And, what would be the downside of not putting money aside and relying on FEMA?
A. We may not want to rely on FEMA to come to our aid in the event of an emergency. FEMA will reimburse us for qualified emergency costs. But, the BWS would be expected to pay the cost up front. Generally, if you get FEMA reimbursement in 90 to 100 days, that's lightning

speed. If we're waiting for FEMA to reimburse for emergency costs, we better be able to survive another 90 to 100 days on our own.

Dave indicated that the input provided by the group in this discussion is sufficient to work with the financial model. The modeling exercise would start with the working capital fund at more than 45 days and go from there.

Barry Usagawa, BWS Water Resources Program Administrator, further explored the potential impact of natural disasters on the BWS water system. Barry explained that the three primary natural disasters the system is exposed to are hurricanes, earthquakes, and tsunami. All could cause considerable infrastructure damage. It's helpful to understand how the water facilities are designed, for a better sense of the recovery period.

Reservoirs and pump-station buildings are designed for earthquake loads on the Big Island, at seven or eight on the Richter scale. The Big Island is more seismically active than O'ahu, where earthquakes are less frequent and stay around four or five on the Richter scale. A direct hit hurricane will not necessarily damage these reinforced-concrete structures. In a hurricane, the first thing affected is likely to be power, due to the overhead power lines. It may take months to recover. When Hurricane Iniki came by, all the power lines in Waianae were destroyed. The BWS is preparing for situations like this with emergency generators, portable generators, and additional permanent generator installations.

For a tsunami, bridge crossings and the large transmission pipelines they hold will be susceptible to damage and could take a long time to repair. In some places, temporary bypasses might be installed. But, most pipelines are in the ground, so are unlikely to be impacted. Fire hydrants could be knocked down, which would drain the reservoirs.

The BWS is preparing a resiliency vulnerability assessment for climate change, including a model of those areas of the island most susceptible to inundation. A part of the CIP will look at those areas most likely to experience damage, then consider preemptive steps to mitigation, for example, rather than hang a pipeline on a bridge, install a siphon and go under.

2. **Purposes and Uses of Debt (when and why I'll borrow)**

   Problem/Need

   - Ability to finance growing need for system repair and replacement.
   - Align payment for projects with useful life of facility.
   - More effectively allocate facility costs with customers who benefit.
   - Mitigate spikes in capital investment needs, thus stabilizing rate impacts.

   Straw Man Financial Policies

   - Select most economical financing source.
   - Term of debt limited to life of the facility it is funding.
   - Cannot fund operations & maintenance.
   - No more than 25% variable rate debt.

The purposes and uses of debt are really about "when and why I will borrow", and the problem or need is the ability to finance a growing need for system repair or replacement. We've talked about aligning the payment for a project with the useful life of that asset. Pipelines last a long time, so we have to weigh the pros and cons and decide if it makes more sense to pay for it all right upfront or spread out the payments over time. If we use debt to finance some of the cost, this shifts some of the responsibility to pay for that infrastructure to future customers, and also allows the mitigation of spikes in capital investment needs. So, if two years from now, the BWS has a big project that costs 30 or 40 million dollars, that's going to create a spike in the capital program. We can use debt to help smooth that out over time. Those are the ideas behind this.

The current policy for purposes and uses of debt is to select the most economical financing source and limit the term of debt to the life of the facility it's funding. We can't use debt to fund operations and maintenance. There's no more than 20% variable rate debt. The other part of the current policy is oddly worded and says that pay-as-you-go funding shall be done "in a range in conjunction with debt to net assets ratio".

The straw man gets rid of that, and also suggests increasing the limit on variable rate debt from 20 to 25%. The straw man financial policy really cleans up the language of the current policy, and provides a little more flexibility in the ability to use variable rate debt to keep the most economical financing available.

Questions and Answers
Q. How do you determine the life of an asset and how many different categories of assets does BWS have? For instance, it seems like pipes, water tanks, and dams are all assets that should last a long time. But, what about your generators, pumps, and trucks?
A. Joe said there are only a few assets categories and about six or seven classes of assets that we use. Different types of pipes depreciate over 50, 60, or 100 years. Pumps and wells have a different type of depreciation over time. We determine the asset life based on the most likely estimated length of time that they can economically serve the community. Some assets will last longer than others.

Dave reminded the group that they will have another opportunity to discuss this straw man policy in a future meeting and then moved on to the next topic.

3. **Debt to Net Assets Ratio (how much I can borrow)**
   Problem/Need
   - Manage financial leverage, the amount of debt being used to build new assets.
   - Provide flexibility for additional borrowing to meet needs.
   - Maintain strong credit ratings.

   Straw Man Financial Policy
   - No more than 50% Debt to Net Assets Ratio.

Dave explained that the Debt to Net Assets Ratio financial policy allows us to best calculate "how much money the BWS can borrow" for building necessary capital improvement projects. We do this by managing our financial leverage strategically, with enough flexibility

for additional loans/borrowing. It requires balance to utilize debt to the BWS's and rate payers' advantage, while maintaining our financial strength for excellent credit ratings.

The Debt to Net Assets Ratio is calculated like this:

- Start with all outstanding debt, which is currently $318 million (currently includes bonds, state revolving fund loans, and other debt instruments).
- Divide that number by the net assets, which are just over $1.1 billion.
- This equals a Debt to Net Assets Ratio of 28%.

This has been a really consistent number for BWS over the last several years.

Questions and Answers
Q. Is it standard to use Debt to Net Asset Ratio or do other utilities use "debt to revenue" or "debt to expenditure" ratios?
A. Joe said that the Debt to Net Asset Ratio is a pretty standard way of determining how much money we can borrow. The current policy is to maintain the Debt to Net Assets Ratio in the 40 to 50% range. The straw man policy simplifies the current language to state that the ratio cannot exceed 50%.

Q. Do you have a slide of that compares the BWS's Debt to Net Assets Ratio to other water districts?
A. No.

Q. I'm not sure how meaningful this is without knowing how much money you need to spend. The concern is whether or not this policy is going to limit your ability to borrow. I think this is probably a good place to start, but you would need to run the numbers in the financial model to see what it looks like, right?
A. A 40% to 50% number is in line with AA rating for bond rating agencies. Going above 50% does limit our borrowing ability, but we will be able to evaluate this through the financial model and if it does ever become an issue, we will know.

Comment: Whatever funds you have on hand is your cash. And then, you look at what you can borrow. Then you determine how much you're going to charge customers. It is sort of that balancing act.

Robert Morita then clarified a few more points. Insurance is another consideration to take into account. While cash is "king", it's ubiquitous. In times of crisis, the cash would be used for things like making sure that we don't fall into default on mandated payments, on debt service, FICA, etc., and helps to ensure that water services can be delivered. But, we can also lean on insurance for structural assets and there are various components you can evaluate, including the amount of the coverage and the deductible. This is another piece of the whole analysis that we have to go through.

Q. Are we discussing the current value, book value, or depreciated value? That's a lot of money so please explain and does it vary much?
A. Joe said that when talking about the value of net assets, this is the depreciated book value, which is the number reported on our financial statements. As our capital

improvement program increases, the overall value of our net assets increases because we're placing new/upgraded facilities into service. An asset's value is highest in the beginning when it is first built, and then it depreciates over time.

4. **Debt Service Coverage (DSC) Ratio (ability to make loan payments)**
   Problem/Need
   - Manage ability to pay debts after also paying for all operating and maintenance expenses.
   - Provide flexibility for additional borrowing to meet needs.
   - Maintain strong credit ratings.

   Straw Man Financial Policies
   - 1.7x senior annual debt service.
   - 1.3x junior annual debt service.
   - 1.6x total annual debt service (including State Revolving Fund loans).

Dave explained that the Debt Service Coverage Ratio determines the amount of money that the BWS must have available to make loan payments after paying for all other operating and maintenance expenses. The current BWS policy is to manage debt in a way that provides enough flexibility for additional borrowing, if needed, and allows us to maintain strong credit ratings. Dave reviewed how other water agencies handle Debt Service Coverage Ratios, originally presented to the group in January. These utilities have Debt to Service Ratios that vary from 1.2 to 1.8. The BWS's current ratio is 5.96, which is high by comparison, and this is a good thing. Bond rating agencies look at this number as well, and BWS is in the AA range.

Current policy is to have a ratio of 1.6x on the senior debt (which is like your first mortgage), and a 1.3x on the junior debt (which is like a second mortgage). The straw man policy allows for a small increase on the ratio for senior debt, and adds another factor of "combined debt," which addresses all debt, regardless of whether it's from bonds or from other loan sources and includes debt from State Revolving Funds.

Questions and Answers
Q. Could you explain the meaning of the numbers in the straw man policy? I would think that you'd have senior debt coverage and total debt coverage, which would include junior debt. And what is the 1.3x?
A. Joe said that we have a greater opportunity to borrow using municipal bonds than we do SRF loans and junior debt. So, almost always, we'll have a higher percentage of municipal bond debt. 1.3x is our current policy for junior debt, but even that is higher than what the SRF resolution calls for 1.0x coverage. 1.0x coverage is a pretty low bar, meaning that we're receiving just enough revenue after our operating costs to pay our SRF debt. We should have a little bit of cushion over our debt coverage requirements. The municipal bond debt and the senior bond debt have covenants of 1.2x**.**

Furthermore, bumping this ratio up slightly allows BWS to be viewed more favorably by bond rating agencies.

Q. Doesn't the 1.6x total debt service coverage eliminate the need to show the junior debt separately?
A. Good point. If our annual coverage is 1.6x, then our junior debt coverage would always be higher than 1.3x. So you're suggesting that we don't need junior debt coverage if we have senior debt coverage and annual debt coverage.

Q. SRF loans are funds that the state receives from the federal government to be able to support safe drinking water. The state had to go through one year of not receiving federal funds because they were not expending them at a high enough rate. What do you anticipate doing to keep the state partnership in a favorable light, so that we continue to get those federal dollars?
A. The good news is that SRF loans are less expensive than going out to the bond market. The BWS maximizes the use of those SRF loans first. The BWS works closely with the Department of Health in expending their SRF funds and will use as much money as the state will provide. We have projected the anticipated amount of funding that the BWS could get from the state over the next 20 years: Potentially as much as $18 million per year.

Q. I'm seeing a pattern of making small increases on the amount of the reserve, debt capacity, Debt to Net Asset Ratio, and on requirements for your ending balance. Is each component independent to itself or are they tied together for an overall increase? I'm assuming that this advisory group will help develop a financial plan, but doesn't the BWS Board have to make the final decision about increasing rates at the end of the day?
A. There is that similarity between the proposed policies. The current policies have been in place since 2004 so the BWS agrees that it makes the most sense to review and update them appropriately. The BWS is looking for stakeholder input on direction and rationale.
We are developing number targets for the purpose of trying them out in the financial modeling. That will tell us how much debt we can have, based on both our revenue and Debt to Net Asset Ratio over 5-10 years, and will also give us kind of a corridor that will probably narrow our options.

Comment: If this group is intended to set up basic foundational principles based on community values, and the BWS Board is the actual governing body, can we first give some general priorities? This gives the Board latitude, versus tying their hands. If we were to accept all four of the straw man policies, the Board moves to one financial extreme or the other, right?
A. As a stakeholder, there may be some areas where you want to tie the Board's hands.

Comment: I have been around government for a while and it's almost impossible to tie the government's hands. The people who are in power at the time have to make the decisions. The more you tie their hands, sometimes you force them to do things that are not feasible. Do our actions restrict the Board, and force them to either not spend money, or increase rates? Those are the only two options I see.

Comment: You have to find out if this works out with the parameters you hope to use. Then you define the parameters. You will find that you need to spend "x" millions of dollars to actually do what you need to do. That could throw you into a lower debt rating, because you might not be able to maintain that level of financial integrity. So, right now I think we are

just running the Performa at an AA standard, to see if we can do what we want to do, and get the best possible debt rating.

Dave asked the group if they had any other big picture financial policies to discuss or suggest.

Discussion:

Q. Do bond rating agencies look at how much you're charging per customer, and is there a standard to follow? Theoretically, you could keep raising the rates until people can't pay, right?

A. Some bond rating agencies look at the affluence of the community, overall. They look at our ability to raise rates and if we have been able do so in the past. Macroeconomic trends are also considered.

Q. If we run into a financial crunch, is it within the power of the BWS to do special assessments for billing? Could they ever, for example, charge 25% more for just one month if they needed to financially?

A. No, we could not change rates for just a month. The BWS must follow a very formal process of updating rates, which also requires a process of public hearings, and the BWS's Board adoption of a new rate.

Dave thanked the group for working with BWS on this challenging topic. He said that this discussion provided the necessary information to conduct the financial modeling. The group will see the results of the financial in the next meeting. He said: "The guidance you provide does matter a lot."

TYPICAL CUSTOMER IDENTIFICATION FOR RATE IMPACT EVALUATION

Dave said that the group has been talking about differences among BWS's customers, including that the cost of service is more for residential customers than non-residential because of that big peak in water usage in the morning and in the evening. He also reminded everyone that it is preferable to not only discuss the rate evaluation process by evaluating the four broad classes of customers, but also see examples of changes to the bills of some typical customers.

Dave explained some changes to the list of typical customer groups made since the January meeting. Under the residential category, we changed "limited income" to "low water use." This is more accurate and addresses the point that water usage does not necessarily reflect a consumer's income level. The residential categories now reflect three different usage amounts (low, average, and high).

He said that when we begin to discuss rates, we'll discuss options for people on limited incomes, and whether we have two people in a house not using much water, or several families living in one house using a lot of water.

Dave discussed the group's suggestions about specific customer types, including a park, cemetery, school or a college, a large shopping center, and a condo hotel. He said that golf

courses, parks and cemeteries all have big landscaped areas, and are large water users. He asked the group to pick one of those three types of large water users for the study.

Questions and Answers
Q. Are you differentiating between users of potable and recycle water? The categories you're talking about frequently use one or the other.
A. For this purpose, we're talking about users of potable water, but we will certainly discuss non-potable water rates later on.

Q. Are strip malls the same as shopping centers?
A. I think the large shopping center would be on the scale of Ala Moana. For a strip mall, we might look at the tenants separately and whether they're individually metered.

Comment. My recommendation is to get rid of all three examples and just call this category "large landscaped areas". Then you don't have to pick one or the other and just measure the user that fits into this category for potable water.
A. We need to pick a customer-type that represents this category so we can show you how their water bill would change. And, yes, we can pick a customer that's typical of a large landscaped area.

Comment. I think that parks are incredibly important assets for everybody that lives on the island so I would favor selecting a park.

Comment. It might be more helpful to have parks and golf courses in two separate categories, because golf includes a commercial element.
A. We'll be able to see the change/impact to the bill, regardless.

Q. This is not to assign fees; this is just pure usage, right?
A. This looks at how the bill would change under different rate scenarios. That's all we'd use it for.

Q. Doesn't BWS charge a different rate to the City and County of Honolulu for park irrigation, than to Koʻolina for their golf course irrigation?
A. Potable water is charged at the same rate, right now.

Comment. I recommend that we look at a school or college.

Comment. I think a school or college could also fall into large landscaped area. An elementary school is required to have about 7 to 12 acres; a high school has 12 to 18 acres. They may not be as large as a park, golf course, or cemetery, but they can have large landscaped areas.

Comment. It seems like you've got a huge variation between the small player and the large player. The selection of the sample would be an interesting exercise in itself. For instance, UH is going to use a whole lot more water than Kapiolani Community College, with its cactus Xeriscaping. How do you find the middle of the bell curve sample to choose?

A. We would not use UH because there are so many water meters serving that campus, it would be an onerous task to try to consolidate all that. But I understand your point.

Q. What about public and private schools? I've never seen dried up golf course, but a lot of the schools landscaped areas do not get watered.
A. If they use potable water, they pay the same rate.

Comment: I still like the school example, because you don't just have landscaping, you actually have kids who drink water out of fountains. Most people bring their own water to the park, but my daughter drinks out of the drinking fountain at school and I think that would be an interesting comparison.

Q. When you say restaurant, are you talking about a stand-alone restaurant?
A. Yes, it would be a stand-alone restaurant.

Comment: If we get to pick 15, we just have to subtract two or three. I would suggest a large landscaped area and school or college.

Q. Do each of the examples within the commercial category pay a different rate, or is commercial considered one rate?
A. Currently, all non-residential customers that use potable water pay the same rate.

Comment. Include a large shopping center and kick out the condo.

Dave wrapped up by summarizing that, thanks to the group's suggestions, we will include a school or college, large landscaped area, and a large shopping center, and will get rid of the condo hotel.

KALANIANAOLE HIGHWAY 24-INCH WATER MAIN BREAK

Dave introduced Mike Fuke, who is in charge of field operations for BWS. He supervises everyone who goes out and fixes main breaks. A few days ago, Cruz Vina Jr. asked the BWS a series of questions about what happened out on Kalanianaole Highway. Cruz's questions formed the basis of Mike's presentation.

How was the break found?
Mike said that the pipe broke at 4:45 a.m. on Saturday January 21. HPD found the break and called BWS immediately. HPD closed H-1 because the water main break lifted the pavement up quite severely – between six inches and more than a foot. This made it very dangerous for cars exiting the H1.

To fix this main, it took a lot of collaboration. The BWS, Department of Transportation Services, State Department of Transportation, HPD, and the mayor's office all collaborated. Fixing the main break was not the only issue. Other issues involved communication and traffic.

How long did it take to mobilize?
The BWS mobilized on Saturday morning but the overall repair took longer than for most breaks due to the need to address complex issues like the location and other factors such as finding an abandoned main, communicating with the public, addressing traffic mitigation, and repaving the road.

Timeline of the mobilization on Saturday morning:

4:45 a.m.	Break occurred
5:00 a.m.	BWS troubleshooter dispatched
6:00 a.m.	One-call utility locating notified
8:00 a.m.	Grace Pacific called for repaving
9:00 a.m.	Water shut off
9:30 a.m.	BWS repair crew arrived on site
10:00 a.m.	Excavation began
10:45 a.m.	Emergency paving began

What were traffic impacts?
Traffic impacts were a major concern for everybody. On Saturday, traffic was so badly backed up, the BWS needed police escort for our trucks between the Kalihi yard and the main break site. With the escort, crews were making runs within 45 minutes. But, if they were stuck in traffic, it would have taken hours to get back, and that wasn't acceptable. So, the HPD really helped in that way. HPD also helped to move some big equipment in there for paving and excavating.

Timeline of lane closures:

Saturday	5:00 a.m.	H1 closed
	11:00 p.m.	One lane on H1 opened
Monday	2:00 p.m.	Second lane on H1 opened
Tuesday	4:00 a.m.	Second lane closed
	1:00 p.m.	Second lane opened
	9:00 p.m.	Second lane closed
Wednesday	4:00 a.m.	All lanes of H1 opened

Two lanes of traffic were kept open during afternoon rush hours. The traffic mitigation plan addressed the work area and moving traffic through the Ainakoa intersection. HPD's special duty officers kept traffic moving.

How was the public notified?
Dave told the group that TV and radio do not have live broadcasting on Saturdays or Sundays so the BWS used Nixel and provided news releases throughout the weekend. Nixel automatically updates to BWS social media. The BWS website was used extensively as well. On Monday, media interviews and a press conference were held.

Timeline of public notification:

Saturday	6:18 a.m.	News release
	9:06 a.m.	News release

	11:37 a.m.	News release
	6:57 p.m.	News release
Sunday	7:31 a.m.	News release
	9:27 a.m.	"Avoid Kal. Hwy" -- Nixle
	11:24 a.m.	"Avoid Kal. Hwy" -- Nixle
	1:59 p.m.	"Avoid Kal. Hwy" -- Nixle
	4:52 p.m.	"Avoid Kal. Hwy" -- Nixle
	9:09 p.m.	News release
Monday	5:00 a.m.	Interviews with media
	6:30 a.m.	Press conference
	3:49 p.m.	News release
	5:38 p.m.	News release
Tuesday	12:24 p.m.	News release
Wednesday	6:19 a.m.	"All lanes open"—Nixle
	6:52 p.m.	News release

What were the major events and what kinds of equipment did we used?
Mike showed photos of the combined BWS and Grace Pacific (paving contractor) equipment. He said that crews started excavating as soon as they could. By 1:00 p.m. water service had been restored to everybody except 11 customers. East Honolulu's water service was not impacted because we have another 24-inch main in the area.

Mike said that the contractor was able to get rough paving done around 10 p.m. and one lane was opened up an hour later. Mike showed photos of what the work site looked like Saturday night, when crews were excavating. He showed how temporary shoring was installed to help excavate safely.

He showed a photo of the abandoned main that was found. It was on top of the main that had to be fixed. Crews had lot of excavation to do in this area and the pipe was deep. On Sunday at 5 a.m., crews started to cut the abandoned pipe. Mike said once they knew it was abandoned, it changed the way of how they were going to attack the repair. He said it was decided to cut the abandoned main and take it out to provide clear access to the main that needed to be repaired.

After cutting the abandon main out, the trench was really deep. From the ground surface to the top of the main was about 20 feet. Crews had to dig down to at least 23 feet deep to get underneath the broken pipe. That is equivalent to about two and a half stories. BWS's normal equipment only digs to 18 feet. Additional, bigger equipment had to be brought in to get the job done. That's why some of the private contractors were involved.

On Monday afternoon, trench boxes were installed because the trench was too deep for standard temporary shoring. With the trench boxes in place, crews could not mechanically excavate anymore. They had to do hand-digging to complete the excavation.

Mike showed a photo of the broken pipe that came out. He said it looked in pretty good shape but he could see some deterioration. The BWS will conduct forensics to try to determine the cause of the break.

On Tuesday, at about 1:30 a.m., crews completed digging. By 4:45 a.m., a new pipe was installed. Then they began flushing the line. The trench was backfilled and the trench boxes were removed. The water was tested for quality and safety. Water quality tests take about 18 hours.

Mike said the BWS estimates they put in about 300 yards of back-fill. By 6:30 Tuesday night, all of the BWS's equipment was offsite. Paving remained to be done. About 9:00 Tuesday night, the contractor started repaving. They finished at about 3:15 in the morning. By 4:00 a.m., the safety system crews removed their cones from the highway. By Wednesday morning, everything was back to normal on Kalanianaole Highway. Also on Wednesday morning, the water quality test results came back and showed that everything was okay. Mike said the main was then placed back in service.

He said they still have to put the concrete back in the part where the sidewalk collapsed. But, will be done under a lot more controlled circumstances.

How much did this break cost?
Mike said they will provide this information to stakeholders as soon as we get the bills.

Questions and Answers

Q. You had a stream that took the broken water away, but I'm always interested in ocean impacts. Did anybody go down and look at what's happening at the ocean?
A. I'm sorry, I did not. I know a lot of the debris actually ended up in the golf course fairway.

Q. You said you were going to do forensics on the pipe, but could the "why" (this main broke) include the fact that there was a grade change in the highway? Could backfill or other physics have possibly been involved -- other than physics within the pipe?
A. That's a possibility, especially considering the abandoned pipe and the presence of a stream in the area. We don't know the rationale used back when the main was designed. That pipe was installed as part of building the freeway.

Comment. Great job. I look at that timetable and consider the challenges of just getting your trucks in and out. You guys did a great job. When was the pipe installed? Did it last the life it was supposed to?
A. 1969. It lasted 48 years. This is the first break we've had in that area.

Q. Did it break earlier than you expected, or was the problem maintenance that didn't occur?

Dave suggested that we pick up next meeting starting where Carl was going to present about main breaks and pipeline repair and replacement, in the context of the Water Master Plan.

He thanked everyone for coming and said that we look forward to the next BWS Stakeholder Advisory Group meeting, March 14, 2017 at the Blaisdell Center.