



Honolulu Board of Water Supply Stakeholder Advisory Group

Meeting 8 – Tues. July 12, 2016 4:00 to 6:30 pm
Neal S. Blaisdell Center, Hawai'i Suites Honolulu

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 18 stakeholders, 1 member of the public, and BWS and CDM Smith staff present. The stakeholders represent diverse interests and communities island-wide.

The following Stakeholders Advisory Group members attended:

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| Eric Au | Sheraton - Waikiki |
| Pono Chong | Chamber of Commerce Hawai'i |
| Bill Clark | Resident of City Council District 6 |
| Richard Dahl | James Campbell Company LLC |
| Mark Fox | The Nature Conservancy of Hawai'i |
| Neil Hannahs | Hawai'i Commission on Water Resources Management |
| Shari Ishikawa | Hawaiian Electric Co. |
| Will Kane | Mililani Town Association |
| Helen Nakano | Resident of City Council District 5 |
| Robbie Nicholas | Resident of Council District 3 |
| Dean Okimoto | Nalo Farms |
| Alison Omura | Coca-Cola Bottling Co. |
| Kathleen Pahinui | Resident of Council District 2 |
| Dick Poirier | Resident of City Council District 9 |
| Cynthia Rezentes | Resident of City Council District 1 |
| Cruz Vina Jr. | Resident of Council District 8 |
| Christopher Wong | Resident of City Council District 7 |
| Lee Yamamoto | Marine Corps Base, Hawai'i |

MEETING AGENDA

- Welcome
- Public Comment on Agenda Items
- BWS Updates (For possible action)
- Accept Notes from Meeting 7 (For possible action)
- Update: Preamble and Objectives of the Water Master Plan (For possible action)
- Overview of the Water Master Plan (For possible action)
- Summary and Next Steps (Information only)

WELCOME

Dave Ebersold, meeting facilitator and Vice President of CDM Smith, welcomed the group.

Dave called attention to a new item in the meeting packet: a newsletter about progress with the Water Master Plan that is sent electronically to all BWS employees and retirees each quarter. This is an example of the broad range of outreach being developed to build awareness of the Water Master Plan. Dave mentioned that with completion of the Water Master Plan, the BWS hopes to have the Stakeholder Advisory Group's assistance in getting the word out to their communities and communities of interest.

Dave called up Keoni Mattos of the BWS Communications Team. Keoni invited Stakeholder Advisory Group members to the annual Unthirsty Plant Sale and Open House at the Hālawā Xeriscape Garden on August 6th. The event is family friendly and free, with workshops throughout the day.

PUBLIC COMMENT ON AGENDA ITEMS

None.

REVIEW and ACCEPTANCE OF NOTES FROM MEETING 7

Accepted.

BWS UPDATE

Ernest Lau, BWS Manager and Chief Engineer, updated stakeholders on BWS activities. He began by reinforcing Keoni's invitation to the Unthirsty Plant Sale, noting there is free mulch and lots of great plants to purchase.

Ernest talked about a presentation by the EPA and the Director of the State Department of Health to update the BWS Board of Directors on the current status of the tanks at Red Hill. The meeting was standing room only and continued for two hours, including lively discussion.

Several people testified about their concerns related to the situation at Red Hill, specifically about the decision by DOH and EPA to reduce the number of chemicals to be monitored and tested at the site from 64 down to 12. The BWS is requesting ongoing updates by these regulators who are responsible for addressing the problems at Red Hill.

Ernest then turned to update the group on proposed charter amendments related to the BWS. He began by expressing appreciation for the support of many members of the Stakeholder Advisory Group. At the most recent meeting, following about two hours of discussion, the members of the Charter Commission deferred Proposal 20, which would have given the City Council direct control of the BWS's Budget and Capital Improvement Program. The commission also deferred Proposal 6, which advocated greater control of the BWS by the City Council.

QUESTIONS AND ANSWERS

Q. Does the BWS keep the City Council informed about its annual budgets?

A. Currently, each year we present the updated 6-year CIP to the Department of Planning and Permitting prior to finalizing it, to make sure it is consistent with the general plans of the City. We transmit our Budget and CIP to the City Council following adoption by the BWS board.

Q. What other proposed amendments to the Charter remain to be decided?

A. One of these is Proposal 88, which reinforces the BWS's ability to try to generate revenue from its properties or assets, to help offset the cost for ratepayers to pay for improvements to the water system.

There are three other proposed amendments related to BWS that have been advanced by the Permitted Interaction Group formed by the Charter Commission. One requires the BWS to get City Council approval for the sale, exchange or transfer of our property, which we already do. However, we have concerns about the use of the word "encumbrance" in the text, which is very unclear. We oppose this proposal.

Another proposal would require us to go to the City Council for approval of revenue bonds, which the BWS uses to help finance our Capital Improvement Program. This is an important tool to spread out costs for large capital projects over a 30-year period, making these expenditures more affordable for our customers.

Also, there's a proposed amendment that would require at least 3 public hearings for all rate increases and for the BWS's Operating Budget. We have no objection to this proposal, as we already do two meetings that are noticed and open to the public.

Q. If the Charter Commission puts the proposals onto the ballot, the amendments are not automatically approved, is that right? Do voters decide whether or not the proposed amendments get approved?

A. The voters get to decide. Every 10 years, per the Honolulu City Charter, a Charter Commission is convened, made up of 13 members: 6 appointed by the Mayor, 6 appointed by the City Council, and a 13th member that is agreed upon by both parties as a tiebreaker.

The Charter Commission has full authority to place amendments on the ballot without the need for approval by the Mayor or the City Council. Once an amendment is placed on the ballot, it's up to voters to decide if it will pass and become law, or not.

Q. What can the BWS do to educate the public should a proposed amendment be included on the ballot?

A. If it makes it to the ballot, there are opportunities to educate people about what the proposal's effect would be, positive or negative. There's a very delicate balance between educating and advocating.

Fortunately, the proposal that most troubled us was for direct council control of the Operating Budget and CIP, which would effectively neutralize a vast majority of the BWS's authority. This was deferred.

Q. If something makes it to the ballot, do you know if you have any ability to influence the wording of the ballot? This would really make a big difference if someone doesn't read background materials.

A. We have that opportunity. We've suggested some changes that the Corporation Counsel reviewed. The Charter Commission has a Style Committee made up of 5 commission members that work on refining the wording, which then goes through legal review to make sure it's legally sound.

We are going to attend the Style Committee meetings and will try to clean up language in some of the proposals that relate to the BWS. But, it's up to them whether or not to accept it.

If the amendment language is very extensive, it's going to be really challenging to explain to the public. We don't envy the Charter Commission members. They've spent many hours at this and have a difficult job ahead of them.

Changing gears, Ernest announced that Kathleen Pahinui will be hired as the BWS Information Officer. As a participant in the Stakeholder Advisory Group, Kathleen enters her new role with a strong understanding of the practices and challenges of water service on O'ahu. Kathleen will continue to participate in the Stakeholder Advisory Group as a BWS employee. Ernest praised Tracy Burgo, who has been serving as interim Information Officer. "Tracy has been a real trooper", he commented.

Helen Nakano came forward for a special presentation. She explained the background of Malama Mānoa, a community organization that in 2004 decided to do an environmental project. They worked with students from 3rd grade to seniors at 12 schools, resulting in 800 young people qualifying as "Water Warriors" who would fight indifference and preserve our precious water. Helen presented Ernest with his own "Water Warrior" tee shirt.

PREAMBLE AND OBJECTIVES OF THE WATER MASTER PLAN

Dave thanked the 25 Stakeholder Advisory Group members who responded to his email requesting their consensus acceptance of the latest version of the Preamble and Water Master Plan Objectives. He indicated all 25 responders indicated, “Yes, I accept them as is.” Dave praised the group, declaring “25 out of 28 is a huge affirmative response.” Dave thanked the group for their huge contribution to the Draft Water Master Plan, that would be made public the following day.

BWS WATER SYSTEM CONDITION ASSESSMENT RESULTS

Dave introduced Jon Toyoda, Consultant Project Manager for the Water Master Plan. At a prior Stakeholder Advisory Group meeting, Jon presented the portion of the Condition Assessment dealing with reservoirs. Dave indicated Jon now would fill in the rest of the story about Condition Assessments for the remainder of the BWS system. His presentation originally was scheduled for Meeting 7, but was deferred based on lack of time due to lively discussion regarding the Preamble and Objectives.

To set the framework for the Condition Assessment, Jon reminded the group that the BWS owns and operates more than \$15 billion in infrastructure. If one were to rebuild all BWS facilities at today’s prices, the cost would be over \$15 billion.

Jon provided a quick synopsis of his prior presentation on the Condition Assessment of reservoirs. All 117 of the BWS’s reservoirs were looked at. The vast majority (89 percent) of the reservoirs are in good condition. About 18 reservoirs (11 percent) need some form of rehabilitation. Most of these were built in the 1950s and 1960s and are known as “wire wound” reservoirs. An estimate of what this rehabilitation would cost is about \$200 million. Of that sum, projects that are more urgent and higher priority would total about \$20 or \$30 million, which comes to about \$2 million to \$3 million per year if spread over a 10-year period.

The highest value component of the BWS water system is its pipelines, which make up 77 percent of the total value of the water system. Jon explained that three types of tools were used to evaluate pipelines as part of the Condition Assessment:

- **Statistical Analysis** includes industry standards and a look at BWS’s historical experience, combined to estimate a reasonable lifetime of the different types of pipe in the system. The BWS has a very extensive Geographic Information System (GIS) that they have used to track every piece of pipe in the system, when it was installed, the type of material, when and where breaks have occurred, and more. A very sophisticated computer analysis tool was used to mine the GIS data and correlate it with other available information.

Analysis of these statistics provided some good news. In the 1990s, the number of pipe breaks per year was approaching 500. Since then, the trend has been downward, now at about 300 per year, which is lower than the national average. The BWS has done a great job through their pipeline replacement, operational changes, and adjustments in the system to control pressure.

The BWS has 2,100 miles of pipes up to 42-inches in diameter. A small percentage (about 300 miles) of these pipes are 16-inches in diameter or larger. The trend of breaks on these pipes is moving upward. When larger pipes fail, the consequences are far more significant. The BWS is watching this very carefully. There is concern about this trend, but there is not cause for alarm.

Jon displayed a “heat map” showing where water main breaks have occurred throughout O’ahu, showing the density of breaks per square mile, signified by gradations of yellow (least), then orange, then red (most). Red areas coincide with parts of the island where there are older pipes, denser population, and likely more pipes in the ground. Some of the valleys have higher break densities, probably due to different soil types, soil movement etc.

Jon then showed a pie chart depicting the percentage of pipes in the BWS system made of specific materials. Cast iron pipes make up the largest portion. The Condition Assessment looked at the likelihood of pipes of varied materials breaking. Jon explained that one cannot consider only the type of material in this type of assessment. For example, cast iron pipes show the most frequent breaks, but these pipes are also the most common and oldest in the system – all 40 years and older. Thus, in the analysis, many different pipe characteristics are considered separately: age, soil type, pressure, etc. Additional factors that relate to higher break rates include smaller diameter, higher pressure, soil type, coastal zones, stream crossing, corrosive soils, and soils that move.

- **Forensic Analysis** is the second component of the Condition Assessment toolbox, used to analyze why a specific pipe section has failed. Broken pipes were removed from the ground, cleaned and sandblasted to allow detailed observation. Cast iron is made of iron and carbon, with trace amount of silicon. In a phenomena called graphic corrosion, in certain areas the iron can leach away, leaving behind carbon or graphite, which may look sound but can readily be blown out by high water pressure or some other disruption.
- **Physical Assessment** covers the condition of the pipes in the ground that have not yet broken. The Water Master Plan team performed physical analysis, both pipe wall assessments and leak detection, with a focus on large-diameter cast iron pipes.

Jon showed a graphic of a proprietary equipment system called Sahara II that makes it possible to literally look into the pipe and detect anomalies in the pipe wall, all while the pipe remains in service and pressurized. A camera and sensors are drawn through the pipe (and then retracted) by a tether. This approach makes locating problems more precise and retrieval of equipment simpler. While the testing can be done quite quickly, the time and effort for set up, construction of access, deployment and restoration is time intensive and quite expensive. The cost is about 3 to 5 percent of the cost of replacing the pipeline tested. However, if good information is retrieved and can enable better decision making about prioritizing pipes for repair or replacement, it could be very cost-effective to perform a limited amount of this type of condition assessment.

QUESTION AND ANSWERS

Q. How far can the tethered camera and sensors reach?

A. It's mainly a limitation of the length of the fiber-optic cable (tether) that can be pulled. The system we used had a practical limit of about 3,000 feet – about a half mile. To do more than that, we'd have to do another insertion tap.

Q. Are there manholes to put the equipment into?

A. Unlike a sewer, where there are periodic manholes, water facilities don't have large access points. The BWS Manager suggested that when large diameter pipelines are built in the future, contractors may be required to install access every half mile.

Q. When you detect corrosion or some other problem in the pipe wall, how do you know where the defect is?

A. This particular device can locate defects within approximately 2 or 3 feet. There are two ways to show where the device is. There's a counter on the cable that measures the exact length deployed. It's pretty accurate. The other way is to have someone walk the length of pipe being tested with a device that captures information by radio beacon.

Q. Could you do "surgery" on an area that's fragile, without having to dig into it?

A. At some point it might be possible. Now we are looking for major trends to judge the overall condition of the pipe, not to do a spot repair.

There was a leak that was confirmed by a condition assessment on the Ahuimanu 16-inch pipe, Ahuimanu Road to Heeia. This was using a system called Smart Ball. Like Sahara II, Smart Ball has an electromagnetic receiver and an acoustic device, but Smart Ball has no video component. It's a free-swimming device that's battery powered. The device is a ball around 9 inches in diameter that rolls on the bottom of the pipe and is propelled by the flow of water. It collects about the same amount of information as Sahara II, but doesn't have the location precision since it's not tethered. Being untethered can be a benefit since you can go much further, as far as the battery works.

Another means of physical assessment is leak detection. The BWS does this regularly with a full-time crew that uses a non-invasive type of condition assessment. Probes are connected to the pipeline. A listening device and computers are used to calculate the leak's size and location. This is not as sensitive or accurate as inserting an instrument into the flow, but it's accomplished at a fraction of the cost and it's a good tool.

Wrapping up this segment of his presentation, Jon posed the question: Are all pipes of the same age the same condition? The answer is no. Is leak detection a good indicator of pipe condition? The answer is yes. Can pipe wall assessment help make the decision to repair or replace in the future? Again, yes.

Of the 2,100 miles of pipe the BWS has in its system, about 300 miles are large diameter pipe. The Water Master Plan Team has outlined a program for about 63 miles of large diameter pipe to undergo high-technology pipe wall assessment sometime in the future.

Jon then turned his attention to other assets covered by the Condition Assessment, starting with pump stations. Pump stations can be either indoors or outdoors. Assessing the condition of a pump station involves not only the mechanical portions of the pump, it also includes the electrical systems and the motor control centers. The Condition Assessment looked at 184 different pump stations. Around 73 projects were identified at medium and high priority, to be accomplished over the next 10 years at a total estimated cost of \$73 million, or \$7.3 million per year.

Another consultant team looked at the condition of the BWS treatment facilities, which are Granular Activated Carbon or GAC. Jon pointed out these are steel structures: steel pressure tanks, steel pipes, steel valves, etc. exposed to the weather. Of the BWS's 13 treatment facilities, 11 were found to be in good condition. A few need repairs at a total cost of \$5 million. Jon noted that these repair needs do not in any way affect drinking water quality. These are corrosion-type external issues related to maintaining steel facilities outdoors in a tropical environment.

Jon then transitioned from talking about what was done in the Condition Assessment, to how the Condition Assessment findings help to formulate the 30-year Capital Improvement Program (CIP). Currently, as required by Honolulu City Charter, the BWS prepares a 1-year and a 6-year CIP. The BWS has added a longer planning-level view in developing a conceptual 10-year CIP. This 10-year program includes specific projects and a fair amount of definition (e.g., for a pipeline project in a specific street, diameter of the pipe, cost estimates, etc.).

To prioritize projects, traditionally the BWS, like many other water agencies, has used the best available information regarding main break history, pipe age, public impact, as well as engineering judgment. These four tools are the common approach. Through the Water Master Plan, the BWS has added two more tools. One is the high technology testing (like Sahara II) that could provide information about pipes that have not yet failed but should be high priority because some aspect of their condition indicates they should be replaced before they start to fail.

Another tool is “risk prioritization”. For pipeline evaluation, risk is the product of *likelihood of failure* multiplied by *consequence of failure*. Likelihood of failure is primarily based on statistical evaluation plus information from the Condition Assessment. The Water Master Plan team multiplied that by consequence of failure to get a risk score. Hundreds of pipeline projects with a minimum length of 400 or 500 feet were identified and scored through complex computer evaluation tools. The projects with the highest risk scores would be given priority for funding and installation.

Jon displayed a chart representing the results of the risk scoring. There are only about 200 miles of high-risk pipe – 10 percent of the total system. If we could replace these 200 miles of high-risk pipe overnight (or in a 1-year period), the projection is that the number of main breaks would be cut in half. While the short timeframe is unrealistic, this analysis shows that

focused, targeted condition assessment, risk assessment, and replacement can be very effective in replacing the system at the most effective cost. The Condition Assessment tools can be very effective in making the selection and prioritization of replacement projects much more efficient.

Q. Have you been able to test whether the 10 percent of pipes identified for replacement are the ones that are breaking?

A. Yes. To test whether this is true, we held back the latest 3 years of pipeline data. We put together the model based on the BWS's GIS data, then tried to predict the number of breaks in those last 3 years. The model's projection came within 20 percent of the actual number, which is quite good.

Jon explained that if those 200 miles of pipeline were replaced over a more reasonable period of 10 years, the BWS would exceed its current CIP annual budget of \$80 million. And, this would be for pipelines only. Budget would not be available for replacement and renewal of pump stations, reservoirs, treatment and other facilities that need to be part of the CIP. So, trying to do all the pipelines in just 10 years is not feasible within the current CIP budget.

Jon said the team considered other budgeting scenarios:

- If the CIP funds were allocated proportionally to the type of asset (e.g. pipes, pumps, reservoirs, etc.), the vast majority of funds would go to pipelines.
- However, pump stations are considered the heart of the water system. The team estimated that \$7.3 million is needed to renew pump stations. But, if the CIP funds were allocated proportionally to the type of asset, only \$1.6 million would go to pumps. In many cases, the BWS will want to prioritize pump stations over pipelines.

Jon said that this is the essence of balancing risk and dependability, which the Stakeholder Advisory Group will become very involved in next year as we look at water rates. Questions that to be considered include:

- How much pipeline should be replaced?
- What level of service is appropriate?
- How will this affect customers' rates? It appears that, eventually, rates will need to be increased over time to accomplish all these things.
- Another consideration is, when do you start a rate adjustment? The longer we wait to adjust rates to cover what's needed to be done today, additional restoration and renewal projects will come up. Future rate increases become steeper the longer you wait.

Jon concluded with four key points:

1. There's a critical need to increase infrastructure replacement, particularly for pipelines.

2. Risk-based prioritization is rational and transparent, and it aids stakeholders and decision makers in balancing cost and dependability.
3. A risk-based prioritization reduces risk in a relatively short time period, with lower levels of investment.
4. The Stakeholder Advisory Group's involvement in the Water Master Plan and the rate study is going to influence the health of the water system for decades to come.

QUESTION AND ANSWERS

Q. How does the BWS fare in comparison to other municipal water systems in terms of breaks per year based on pipeline mileage?

A. The answer is very, very well. The BWS counts the number of breaks a little differently than some of the other agencies, including both breaks and leak repairs in its count. Together, the count is around 300, but that inflates it against other agencies who just count major breaks. The BWS has about 14 breaks and leaks per 100 miles of pipe per year. The industry average is slightly over 30, so the BWS is about half that number.

Q. You've showed there's going to be a need for increased investment in infrastructure, repair and maintenance. It almost sounds like we fell behind.

A. The BWS hasn't fallen behind the industry. There's an industry-wide initiative that shows pumps, pipes and things that are broken, but the nation has fallen behind in upgrades and maintenance. The American Society of Civil Engineers calls the initiative "Buried No Longer." It calls attention to the buried assets that have not received attention. Looking at the BWS's break record, they're doing quite well.

Q. Everyone inherits their predecessors' decisions. I'm wondering if decisions were made that were not ideal in the past.

A. BWS Manager Ernest Lau said many water (and wastewater) utilities are now dealing with their buried infrastructure. Cast Iron, which is much of the material that went in the ground early on, in some respects has performed pretty well over time. The pipe is extremely thick. But the graphitic corrosion that Jon talked about is catching up with us.

After the Second World War there was a lot of expansion in the country, with installation of a lot of infrastructure. For a time, the approach was: if it's performing properly, let's not worry about it. When it breaks, let's fix it. It was a reactionary approach to maintenance by many infrastructure-based utilities. Now, we've moved into an age of being more proactive. We also have new technology, new statistical tools, like the GIS. The mentality and approach has changed from reactionary maintenance to being more proactive and using preventive maintenance. Also, in the past they did not have as good tools as we have today. Technology has supported greater understanding of some of the problems with infrastructure. The regulatory environment has completely changed, and continues to change.

In the Water Master Plan, the BWS wanted to do two things differently. First, we wanted to look 30 years ahead, instead of a shorter-term horizon, because that may be the useful life

of some of our infrastructure, especially the pump stations and mechanical equipment. Second, we wanted to really push on the Condition Assessment. The Condition Assessment is an effort to try to define what our challenges are as extensively as we possibly can, given the current state of the technology and practices in the industry. We have challenges right now and we need to do something about it, with your help and your input in the process.

Q. I understand the choice of a 30-year horizon, but have you applied that analysis to the risk analysis work that you've done? If you move through and only 10 percent of facilities are at high risk, pretty soon you move to less risk. Would you really spend \$80 million or inflation rated \$80 million out into the future?

A. Jon said that the BWS used \$80 million in 2015 dollars. We assumed the BWS will continue to increase the CIP annually by the Consumer Price Index. So it's not a flat \$80 million; there's inflation built in. The second question relates to how long these evaluations are going to be valid. We think these evaluations will need to be refreshed on a 5-year or, in some cases, a 10-year basis. We'll have more information. We'll have better technology. The 30-year CIP doesn't lock the BWS into what's going to be built 25 years from now. It's trying to give us placeholders for times far out into the future. With the 10-year and 6-year CIPs, the BWS would adjust projects based on current priorities and the best information available at that time.

Q. What I saw here is a picture of the current system, not the system that we need in 30 years. You're going to need some new information about bringing new infrastructure to new places, and how that prioritizes against fixing an old pipe in our Capital Improvement Plan. We're going to have impacts of climate change. There will be erosion. Maybe there's infrastructure by the seaside that's going to be exposed that's perfectly fine pipe, but we've got to move it.

For stakeholders like us and the general public, I think you want to demonstrate the return of the investment like this against the goals we gave you. We're concerned about quality, health and safety. Where are we now in terms of that? What are the key metrics or indicators at that? How do we rate with other districts and where do we want to be?

We're concerned about cost and affordability. Are we investing in innovation, figuring out some measure of investment in what's going to be new? What are we doing for water sustainability? Are we reducing water loss reliably? Are we optimizing recharge? Are we optimizing sustainable withdrawal and how we withdraw from the system to make sure there's going to be water for the next generation? Overall, how do we relate what you're doing and how you're doing it to the goals we gave?

A. Dave said that Jon's presentation focused on the Condition Assessment, which covered just one part of these questions. He asked that we hold back on these terrific questions and come back to them after Barry's Water Master Plan presentation.

Q. In the Condition Assessment, did you consider location of pipelines next to things like electrical cables or sewer lines that have different corrosive conditions, or attenuation of electromagnetic fields on your pipes? Similarly, when you start to address climate change

and start moving pipes along the coastline, that will result in more brackish water next to them. Was that taken into account?

A. The issue of utilities being in locations like these is pretty universal. GIS records generally show pipelines in the street; not the exact location nor the location of other utilities. So, we were not able to evaluate the impact of proximity to other utilities because that data do not exist on a large scale. We did look at the impact of HART and its facilities, to make sure the new rail alignment takes into account impacts on existing or planned BWS facilities. We looked at existing risk, but didn't project risks down the road as sea level rises. As this plan is refreshed and those data become more apparent, this can be modified as well.

BWS Manager Ernest Lau came forward to explain that the BWS is working with the Water Research Foundation, a national organization, to look at the potential impacts of climate change, sea level rise, changes in rainfall, and their impacts on the BWS's facilities. The Water Research Foundation is sharing the cost of this effort.

He said the Water Master Plan is not a static document. We anticipate as frequently as every 5 years, or as new information becomes available, or as conditions change, the BWS will look at our assumptions and ideas in the Water Master Plan and do updates. When the climate change vulnerability assessment is completed, we'll see if adjustments are needed.

Another issue with coastal infrastructure is, our infrastructure largely goes where there's highway right-of-way. We are working closely with the State Department of Transportation as they make plans to harden or relocate highways to adapt to climate change and sea level rise.

Q. I'm concerned about the intermingling of utilities to maintain the integrity of the system. There should be at least some discussion on this with all the planning organizations.

A. BWS Manager Ernest Lau said he couldn't agree more. When our island was developed, it would have been great if utility corridors were created below ground for different types of utilities. This has become part of the challenges of doing major pipeline replacements.

Q. We are very concerned about disaster preparedness. What would happen to the BWS's infrastructure in the event of a Category 4 or 5 hurricane? Do you have a contingency fund? Do you go to FEMA?

A. The BWS has an emergency management plan and our structures are designed for hurricane loads. We have an operating reserve. Also, we could qualify for FEMA public assistance because we are a government utility. For the BWS, power will be the biggest challenge because we have 94 well sources that require electricity. We are installing additional emergency generation for backup power.

Q. On the graphic for the Capital Improvement budget, the third biggest item was "other", which is what was cut the most when the budget is pushed forward, as you showed. What is included as "other"?

A. Other includes base yards, the Beretania complex, and the other half-dozen or so BWS corporation yards. It includes information technology, computer systems, and communication systems. Also, that category includes capacity expansion as well as repair and replacement that we do every year. It also includes security for facilities.

Q. Are those some of the same things that would help moving projects forward? My concern is that you may be cutting tools that can help you grow the system better going forward.

A. You're exactly right. That was the point of making that simple illustration – to highlight those tradeoffs. When we discuss rates next year, those are conversations you're going to have: How do you balance those types of investments with other types of infrastructure, including capacity projects?

Q. Of the \$80 million budgeted, how much of that is just for direct expenditures, or does that include debt service?

A. The \$80 million is our capital program. The debt service is in our operating budget.

Q. What is the debt service cost?

A. The BWS has about \$15 million a year in current debt service. That includes principal and interest.

OVERVIEW OF THE WATER MASTER PLAN

Dave explained that the Draft Water Master Plan would be publicly released and posted on the BWS web site the next day. Strategies to inform the public about the Water Master Plan include a 10-minute presentation about the plan's significance and its content, targeted to Neighborhood Boards and other organizations.

Barry Usagawa, Board of Water Supply Water Resources Program Administrator, came forward to deliver the presentation, after which Dave invited the group to provide comments and questions.

QUESTIONS AND ANSWERS

Q. Putting on my Neighborhood Board hat, I think you need to have in your back pocket current data and specific information for each community. For example, it's great that you show 2014 system-wide usage, but people are going to want to know how that compares to current usage. They're going to ask how many water pipe breaks have been in my community over the last 10 years. On the North Shore, we're going to want to know about residential versus agricultural use for the future, and how this plan is going to help ag use. And, people will ask how many pumps we have in our area.

This is a lot of information to digest. Some people may think that 45 days is not enough time to review and comment on the plan.

A. Great points. We need to tailor the presentation to the area, anticipating questions.

Q. Also be prepared to respond to rates for large families. For example, what do you do for families that have 10 in the house?

If I had known about this presentation yesterday, I could have put it on the agenda for my Neighborhood Board meeting next week. Like other Neighborhood Boards, we'll end up juggling this presentation into August, which gives us only a week or week and a half to provide comments. You might want to consider your 45-day period and expand it out to maybe 60 days.

A. We talked about when we should inform Neighborhood Boards. We were trying to respect the Stakeholder Advisory Group and inform you first. The deadline needs to be discussed. Tomorrow, we will consider these comments and suggestions and rethink the process.

Q. I'd recommend adding some nice data points for reference. That would take the narrative, which is idealistic and value-based, and give it a sense of on-the-ground reality. And, the final slide is a nice picture to leave us on, but there's no narrative to go with it. The narrative you left us on was money. Is that the last word you really want to put in people's mind? I think that what you want at the end is to ride off into the sunset; not a big dollar sign.

A. We can bring some of the sustainability slides from the beginning to the end.

Q. The presentation is about 5 minutes too long. It should be no more than 10 minutes long. Also, it would be best to simply deliver the presentation and not to read it.

A. Agreed.

Q. The slide that caught my attention was about analyzing needed capacity out to 2040. I understand this is not a 100-year plan, but what if someone asks: What is the process to look beyond 2040? If you're adding more pipelines, repairing and replacing, you're going to be doing that for much longer than the next 24 years. Where does that get addressed?

A. We had to pick a horizon for the plan. The demand forecast number mentioned was the high-demand scenario, which assumes all new development includes very-high efficiency water fixtures. With this scenario, the existing population does not convert to these ultra-high efficiency fixtures. That means there'll be need for quite a bit of water by 2040.

But growth doesn't stop in 2040, and we have to size for that growing demand. When we put in a transmission main, we're going to size it in consideration of this. The more modular components of the systems can be handled in phases, starting smaller. We also know we need to update the plan over time. The Water Master Plan includes a section about Adaptive Management. As we move forward and see the pace of growth, we can adjust the level of focus we put on conservation.

Dave Ebersold went on to explain the format and content of the Water Master Plan. A summary of the plan will soon be available on line. Copies of the summary will be available when we go out to Neighborhood Boards. A flyer called “Top 10 Things You’ll Want to Know About the Water Master Plan” and comment cards are available right now.

The plan is divided in 3 sections.

Part 1 is the Water Master Plan approach. It includes related BWS initiatives including the vision, mission, strategic plans, other programs, and initiatives that drive the Water Master Plan, like the O’ahu General Plan, Freshwater Initiative, and watershed planning efforts. It includes the Water Master Plan Objectives that the Stakeholder Advisory Group developed. There’s a section on sustainability that focuses on watershed management plans, partnerships, groundwater protection, conservation and alternative sources of supply. There’s a section on planning criteria developed by the state and how they’re applied to the Water Master Plan and an overview of the BWS water system.

Part 2 is the technical evaluation, including historical and future demands, current and future water sources. There’s a section on water quality regulations. Then, the plan gets into system capacity evaluation and the condition assessments.

Part 3 is the findings and recommendations.

Dave said there is a period for public review and comment. Comments can be made by email or by mail. There’s a phone number if people have questions. The BWS will not accept comments by phone. Comments need to be made in writing so we can document and respond to them.

Public outreach includes a Water Master Plan presentation team, Neighborhood Board announcements, informing front line BWS employees, a news release, and also mailing the Top 10 fact sheet to all customers.

Barry, Ernest and others want to be out and speaking with as many people as possible. We ask the Stakeholder Advisory Group to help with this process. Stakeholders were asked to send an email or get in touch with Audrey. Also, Dave asked stakeholders to please join in when the BWS is presenting to their organizations or other groups they know.

SUMMARY AND NEXT STEPS

Dave reminded the group of the next Stakeholder Advisory Group meeting, Wednesday, September 14, which will be a joint meeting with the BWS Board, from 4 to 6:30pm, at the Capitol, in the House of Representatives Conference Room 309. He said that at the meeting we will go through public comments received and get the Stakeholder Advisory Group’s feedback as well as the BWS Board’s input, and have a conversation at that meeting. As with all Stakeholder Advisory Group meetings, it’ll be open to the public.

Dave thanked the group for their continuing input and presence that evening. He invited them to dig in and enjoy the information in the Water Master Plan and companion

documents. Dave closed on a note of appreciation for group members' commitment and continued effort.