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'Ewa Watershed Management Plan
Notes from Community Meeting #1
May 21, 2013

Meeting Purpose
The purpose of the meeting was to share preliminary research on the 'Ewa District, to discuss water resource issues, and to start the discussion on water demand and supply for 'Ewa.

The Honolulu Board of Water Supply (BWS) and Townscape, Inc. presented a slideshow that provided an overview of the following:

- Background on Watershed Management Plans (WMPs)
- Island overview of water supply and demand
- Profile of the 'Ewa Planning District
- Preliminary watershed issues
- Next Steps

The slideshow is available on the BWS website at:
http://www.boardofwatersupply.com/cssweb/display.cfm?sid=125018

After the slideshow, meeting participants were asked to share their issues and concerns about the watershed and water resources in 'Ewa. To start the conversation, the slideshow presented preliminary issues that were gathered through interviews with community members. A summary of the various questions, comments, and discussion are provided below. BWS and consultant comments and responses are in *Italics*.

Traditional and Cultural Practices and Places Should be Protected

- There are a lot of cultural features in Kalaeloa that need to be identified and managed.
- Development has stopped the flow of water in the underground streams.
  - The ponds in Kalaeloa are drying up because fresh water is no longer flowing into them.
  - These ponds need to be identified and protected.

- How do we solve the mystery about why there is no *limu* anymore. There are many theories as to why this happened: there is less fresh water flowing to the ocean because there is no sugar cane irrigation or because development has blocked the flows, the construction of the Airport Reef Runway changed the water circulation off of 'Ewa Beach, etc. There are still pockets of limu here and there.
- The Kanahili Cultural Hui was formed to manage cultural resources.

Concerns about Desalination Technology

- What will desalinated water be used for? Residential uses? Agriculture? Recharging the caprock aquifer?
- There are many people who are concerned about being stuck with drinking the desalinated water because 'Ewa is an urban growth area and the plant is located here.
- *Desalinated water is high quality water. Many bottled water products are purified using the same reverse osmosis demineralization technology. Desalination treatment costs are high and therefore, BWS is pursuing conservation, recycled water and ground water development to defer desalination into the future.*

BWS Water System

- Q: What water infrastructure will need to be replaced in 'Ewa?
  - *A: Much of the water infrastructure in 'Ewa is new. The master planned communities developed their infrastructure and turned it over to BWS for operation. The Watershed Management Plans will be looking at source and supply. The BWS Capital Improvement Program evaluates repair and replacement of water system infrastructure.*

Non-BWS Water Systems

- In the mid-1980s, there was a water consortium that concerned itself with management and use of 'Ewa caprock water. They took future development into consideration.
- The plantations used to have their own water management plans. They used large reservoirs to catch storm water for irrigation and for washing cane. The reservoirs below the freeway are gone, but you can still see some of the ones up higher on aerial photos.
  - *The WMP can look at stormwater reuse as an option for non-potable water demands.*
- We need to coordinate with the Hawai'i Community Development Authority (HCDA) for development in Kalaeloa, and Pural, the private company that is seeking to acquire the Navy water system.

- The public needs to be educated on non-BWS water system owners. Everyone thinks that BWS has a monopoly on the water, but they do not own the Kalaeloa water system, which will set its own rates.

Water Supply

- Q: Is there enough water for all of the development?
  - *A: Generally speaking, much of 'Ewa was previously cultivated for sugarcane, which is a water-intensive crop. It required about 10,000 gallons per acre per day (gpad) using the furrow method, which basically flooded the fields. When the plantations switched to drip irrigation, use dropped to 7,000 gpad. Single-family residential uses need about 2,500 gpad. Parks and golf courses use 4,000 gpad.*
  - *So there should be enough water if sugarcane lands are converted to residential and diversified agricultural uses. However, we need to take into account changes to the supply, since the amount of rainfall on Oahu has been documented as decreasing over the last few decades. There is also less recharge to the caprock aquifer because there is no plantation irrigation to feed back into the ground.*
  - *Increased efficiency and conservation has allowed BWS to reduce potable water production over the last 20 years by 9% islandwide.*
  - *There is water available, it just depends on how much we are willing to pay for it:*
    - *Ground water treatment costs are increasing because the EPA is lowering the maximum contaminant levels for certain contaminants.*
    - *Desalination is costly because it takes a lot of energy. BWS is looking at using renewable energy photovoltaics to power the desalination facility.*
- Q: Waiāhole Ditch has been changing the natural water cycles for about 100 years. Do we need to go back to pre-plantation days?
  - *A: The Water Commission regularly evaluates the sustainable yield[1] of the aquifers and has taken into account the reduced recharge as a result of the loss of return irrigation from the sugar plantations closing.*
- There are concerns that runoff that is detained in stormwater ponds for non-potable use will percolate into the ground and contaminate ground water.
- *When selecting water sources, we need to weigh environmental impacts and cost. There are places that we know have water, but they may have contaminants, so we will weigh the cost between a high level of treatment and desalination.*

[1] Sustainable Yield is the rate at which water may be withdrawn and still preserve the utility of the water from that source.

- *The Water Commission is working on a non-potable water master plan that may give us more non-potable water options. As an example:*
  - *The Mililani wastewater treatment plant could be retrofitted to generate recycled water for irrigation use.*
  - *Wahiawā is upgrading their wastewater treatment facility and will be producing R-1 quality water this year. Treated wastewater is currently going to the North Shore, but if they do not need it, it could be redirected toward Central O'ahu.*
- A list of all existing wells would provide a good resource for the community.
  - *The Water Commission has a record of all wells, but it is restricted from providing details like exact location due to security concerns after the September 11, 2001 attacks. Perhaps we can provide a map of the non-potable wells.*

Water Quality

- Q: Does wastewater treatment remove pharmaceuticals?
  - *A: Current wastewater treatment does not remove pharmaceuticals. Wastewater is not used for drinking and tests have shown that when treated wastewater is applied as irrigation water, the soil filters any pharmaceuticals and other organic compounds out. The soil does not filter pesticides and chlorides.*
  - *A: Recycled water is not planned for potable water use but using recycled water for irrigation would free up potable water for human consumption.*
- Does BWS do water quality testing?
  - *A: BWS regularly sends samples from its sources to a laboratory on the mainland for testing and actively participates in initiatives to protect source waters. It has even sued the chemical manufacturers producing persistent pesticides that have contaminated ground water.*
  - *A: It is important to note that what land uses affect the ground water that we use for drinking. Certain places like Kaimukī and Aiea have had legacy pesticides[2] used for ground termite treatment start to show up in minute amounts in the ground water.*
  - *A: We can educate and encourage people to reduce the wide-scale over-application of chemicals like pesticides and fertilizers to protect our water sources.*
- The Department of Health (DOH) has been testing the nearshore water at 'Ewa Beach, but they only seem to be sampling at low tide. They need to test at high tide too because conditions are different.
- How is the landfill affecting ground water?
  - The landfill is lined and not near any sources of drinking water.

[2] Legacy pesticides are those that were previously used but have since been banned. Termiticides such as chlordane and dieldrin were applied to the soil around house foundations and have started to show up in streams and ground water as they take years to migrate through the soil.

Flooding

- What are the flooding problems related to Makaīwa?
  - The Makaīwa drainage master plan will install the necessary infrastructure to address potential flooding.

Education and Community Engagement

- Community engagement is very important in this dry area.
- BWS does a good job with their education and conservation messaging. The calendar and poetry contest are especially effective.

Planning

- Land use plans do not take into account water needs.
- Q: Are the Central O‘ahu and ‘Ewa WMPs working together?
  - *A: The ‘Ewa Plan is about six months ahead of the Central O‘ahu plan but they will coordinate closely since Central O‘ahu exports water to ‘Ewa, Wai‘anae, Primary Urban Center (PUC), and East Honolulu.*
  - *A: Central O‘ahu has a lot of ground water and more opportunities for diversification of sources that ‘Ewa, e.g., recycled water, storm water capture, etc. so we are trying to find out how much water ‘Ewa will need.*
  - *A: The WMPs are also coordinating with other planning efforts such as the Water Commission’s studies to the potential for recycled water and stormwater reuse.*
- Q: How do the WMPs tie in with the State’s Watershed Plans (i.e., “The Rain Follows the Forest”)?
  - *A: The State’s initiative focuses on efforts to fence areas of the upper watershed to protect native forests from ungulates. The BWS supports their efforts and has testified at the legislature in favor of their initiative. However, this program was not fully funded. The WMPs can include language that supports these efforts.*
- We need to bring together all of the plans into one big “quilt” to be able to see how they all interconnect and to see where all of the critical points are.
  - *Response: The WMPs are intended to be brought together into one holistic document. In the meantime, the “Overview” section in each district plan is updated with each new plan and provides the island-wide context for water resources.*
- The 2035 General Plan is being finalized now.

General Comments

- While conservation will protect the resource and delay the need for additional technologies, developers will be energized because water will not be a limiting factor. It’s a double-edged sword.

- Q: How do developers subsidize water development?
  - *A: When the area was fist being developed, Campbell Estate, Gentry, Haseko and Ko Olina put in a large-capacity transmission line, wells and reservoirs anticipating future development. Other developers pay a connection fee to obtain water service.*
  - *A: If BWS needs to develop additional sources or transmission lines, then developers are charged the BWS impact fee.*
  - *A: Developers are also required to install their own on-site water distribution system for their development.*

Additional Comments Made After the Meeting

- Are you familiar with the City's new drainage standards which require on-site percolation and sedimentation? Would this have an impact to underlying water resources? Would this conflict with the requirements for infiltration above the BWS "no-pass" line[3]?
  - *Generally, drainage retention over the potable aquifer will not impact water quality. The BWS No-Pass Zone applies to individual wastewater systems discharging into the ground, other wastewater treatment systems and landfills.*
  - *DPP indicates that there are other options available when there are conflicts between the City drainage standards and infiltration above a protected aquifer.*

Next Steps

- *The Planning Team will project water demand for low-, moderate-, high-, and ultimate-growth scenarios for 'Ewa and will identify projects, programs, and strategies that may address both water demands and watershed issues.*
- *Initiatives with champions that are or will be implementing them will be written up as projects or programs. Concepts without champions will be identified as strategies and will not be described as fully as the projects and programs.*
- *The next Community Meeting will share the water demand projections and a preliminary list of projects, programs, and strategies for discussion. We are expecting to hold this meeting toward the end of this year (2013).*

If there are any additional questions, comments, or issues, please contact:

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[3] The BWS No Pass line restricts waste disposal sites *mauka* of the line, and generally follows the Farrington Highway in 'Ewa.