



‘EWA CENTER WATERSHED MANAGEMENT PLAN (WMP) Notes from Community Meeting #3

Meeting Location: Kapolei Hale

Date: September 12, 2017

Time: 6:30 p.m.

Meeting Purpose

The purpose of the meeting was to share the Public Review Draft of the ‘Ewa Watershed Management Plan and to answer questions and receive comments. Fifteen people attended the meeting.

Townscape, Inc. presented a slideshow that provided an overview of the following:

- Background and Overview of the O‘ahu Water Management Plan
- The ‘Ewa District
- Water Demand and Sources: Existing
- Water Demand and Sources: Future
- Watershed Management Projects and Strategies
- WMP Approvals Process

The slideshow is available on the BWS website at:

<http://www.boardofwatersupply.com/water-resources/watershed-management-plan/ewa-plan>

Meeting participants discussed the material that was presented in the slideshow and provided comments on the Public Review Draft. A summary of the various questions (Q), comments (C), and answers (A) is provided below. BWS and consultant comments and responses are in *Italics*.

- C The O‘ahu General Plan is not specific about sustainability. It should have specific policies so the plans that fall under it (i.e., the Development/Sustainable Communities Plans and Watershed Management Plans) all have a coordinated set of goals.
- Q How much water is used for treating wastewater?
- A *The Honouliuli Wastewater Treatment Plant (WWTP) uses about 2 million gallons per day of R-1 recycled water for treatment processes. Potable water is used mostly for domestic and sanitation purposes.*
- C We need to identify wetlands in ‘Ewa to be able to protect them.
- A *Wetlands in the Honouliuli watershed have been identified in the plan.*

Q How do you replenish the 'Ewa caprock?

A *The caprock aquifer could be recharged using recycled water, where recycled water is applied to large areas or trenches and allowed to percolate into the ground. Surface water runoff could also be collected for infiltration into the caprock. The City Department of Planning and Permitting's low-impact design standards provide requirements for on-site storm water retention.*

Q Can you measure the health of the ground water aquifers?

A *CWRM evaluates sustainable yield when they revise the State Water Resource Protection Plan. Sustainable yield is the "maximum rate at which water may be withdrawn without impairing the utility or quality of the water source." Hydrologic indicators such as ground water levels, rainfall, and chloride content in well water are regularly monitored by CWRM to ensure aquifer health.*

Q Are the aquifers getting salty?

A *Caprock water is currently being used for irrigation and has been significantly reduced from sugar plantation days due to the loss of irrigation return water. Users are supposed to report not only how much they pump, but how salty the water is. When the chloride levels reach 1,000 mg/l, pumping from that aquifer needs to be reduced. Vegetation irrigated by water with chlorides at or above that level will start to brown out. Irrigation needs could be converted to recycled water if caprock aquifers become too salty.*

A *R-1 recycled water is not currently used for residential irrigation due to the potential for cross-connections with the potable water piping. The plan considers residential recycled water in the Ultimate Demand Scenario as climate change impacts reduce ground water sustainable yield in the leeward aquifers.*

A *Honouliuli wells were developed to provide water for 'Ewa Gentry, Ocean Pointe, and Ko Olina and while they remain a viable source, chloride levels are increasing. Makakilo Well chlorides have increased and must be blended with Kunia water. There is a concern that Wai'anae wells may also become salty or dry up if rainfall decreases and aquifer sustainable yields are reduced. To compensate, more Pearl Harbor aquifer water is planned to be transferred into Wai'anae. This is in part why the plan is fully exploring a ramp up of diversified water supplies for 'Ewa.*

C Stormwater runoff should be retained and used to recharge the aquifer. Retention would have multiple benefits: recharge, water quality protection of nearshore areas, and flood control. Possible areas: Kalo'i gulch and in Kapolei.

C Kalo'i Gulch used to be called "Chicken Creek" and wasn't very big. It can now carry a large volume of water and is designated to go right into the ocean.

- C What is the City policy: development or long-range sustainability?
- A *The City is promoting sustainable, low-impact development.*
 - A *The City is implementing new green infrastructure rules, which will provide for on-site reuse, low-flow plumbing fixtures, and stormwater retention for new developments.*
- C Decreased rainfall due to climate change may lower sustainable yields. We need to factor lower sustainable yields into our analysis.
- A *Reduced aquifer sustainable yields due to reduced rainfall in the Leeward aquifers is expected, although the State Commission on Water Resource Management (CWRM) uses historical rainfall and recharge trends instead of forward looking climate models to estimate changes in SY. The 'Ewa WMP is anticipating lower ground water supplies by emphasizing advanced water conservation, recycled water expansion, and desalination to mitigate future droughts.*
- C *It should be noted that the climate studies anticipate increased rainfall in the Ko'olau Mountains, which will sustain the Pearl Harbor and Honolulu aquifers. The 'Ewa and Wai'anae aquifers are expected to decrease and therefore, ground water can continue to be transferred to 'Ewa and Wai'anae. The objective of the plan is to ensure 'Ewa's water supply is sustainable by diversifying the water supply: ground water, caprock, recycled water, desalination, stormwater, and advanced conservation.*
- C Rainfall could be reduced more than the 15% that is used in the "Ultimate" scenario, especially looking at the map of expected reductions in rainfall due to climate change.
- A *The 15% reduction in rainfall was used in 'Ewa's Low-, Mid-, and High-Demand scenarios because Hawai'i has seen a 15% reduction in rainfall over the past 20 years. The Ultimate Demand Scenario considers the climate change maps that show expected reductions in wet season rainfall of 65% by 2100 and provides more diversified water supply strategies as stated above.*
 - A *The Plans are revised periodically with new and updated information.*
- C There should be more watershed management projects to protect the mauka forests that can capture rainfall and ensure healthy aquifers. The forests face threats from wildfires and non-native species.
- A *The project team would appreciate review of the writeup for Project 12 Wai'anae Mountains Watershed Partnership, and suggestions for additions and changes.*
- Q Have the benefits of native forests been quantified?
- A *BWS is partnering with the University of Hawai'i to study the benefits of native and invasive forest covers in dry and wet climates. Research is currently being done in Mākaha and another site is being proposed in the Ko'olau Mountains.*

- C We need island-wide (and perhaps State-wide) policies that address watershed management and recycled water. Watersheds should be protected for retention and percolation. Most of the watershed lands are State-owned.
- A *The WMPs include water resource policies, and the various water demand scenarios (Low, Mid, High, and Ultimate) provide guidance on how aggressive we should be in applying those policies. The Ultimate Demand Scenario was developed to evaluate water resource policies as the limits of ground water sustainable yield are approached.*
- C All wastewater treatment plants should recycle water.
- A *Honouliuli WWTP has low chlorides and should have a plan to recycle all its water. Other WWTPs, such as Sand Island, 'Aikahi, Hawai'i Kai, and Wai'anae have high chloride levels and cannot readily be used for recycled water without desalination to reduce chlorides.*
- C We need to use more reclaimed water and consider dual water systems for new buildings.
- A *The Ultimate Demand Scenario considers expanded recycled water use that could include dual plumbing and residential irrigation.*
- C The entire island should be using more recycled water, not just 'Ewa.
- A *There are other areas that are starting to use recycled water, including the old Galbraith lands, which are now owned by the Agribusiness Development Corporation, which uses recycled water from the Wahiawā WWTP. Recycled water at Mililani and Wahiawā WWTP will be evaluated in the Central O'ahu WMP.*
- Q Will BWS initiate and manage all of the recycled water on O'ahu?
- A *BWS is working with the City Department of Environmental Services to implement new recycled water projects, where practical.*
- C *BWS would like to get 'Ewa as source-sustainable as possible because other areas do not have as many water source options and will need supplemental water from the Pearl Harbor aquifer.*
- C We need to be more holistic in our approach to water resources.
- C BWS Watershed Management Plans have to address and support adopted City land use plans.
- C An article will be released in Civil Beat on Hawai'i's need for food self-sufficiency, the challenges in achieving that, and what needs to be done.
<http://www.civilbeat.org/2017/09/major-food-crisis-coming-for-hawaii-by-mid-century/>

- C The Ultimate Demand Scenario is important, as it makes us think about a situation where our water resource limits are approached.
- C We need to emphasize native and drought-tolerant plants. We should talk with developers to get them to implement things like dual water lines and native plantings. We would need dryland plant nurseries to implement this.

Additional information on the ‘EWA WATERSHED MANAGEMENT PLAN, including a PDF of the PUBLIC REVIEW DRAFT, may be found at:

<http://www.boardofwatersupply.com/water-resources/watershed-management-plan/ewa-plan>

Hard copies of the Public Review Draft are available at:

‘Ewa Beach Public and School Library
91-950 North Road
‘Ewa Beach, HI 96706

Kapolei Public Library
1020 Manawai Street
Kapolei, HI 96707

Hawai‘i State Library
478 S. King Street
Honolulu, HI 96813

Please send comments on the ‘Ewa Watershed Management Plan Public Review Draft by **October 31, 2017** to:

Sherri Hiraoka
Townscape, Inc.
900 Fort Street Mall, Suite 1160
Honolulu, HI 96813
sherri@townscapeinc.com