TOWNSCAPE, INC.
Environmental & Community Planning

900 Fort Street Mall Suite 1160 · Honolulu, HI 96813 · PH: (808) 536-6999 · FAX: (808) 524-4998 ·
www.townscapeinc.com

‘Ewa Watershed Management Plan
Notes from Community Meeting #2
November 19, 2014

Meeting Purpose
The purpose of the meeting was to share existing (as of calendar year 2010) water demand numbers for the ‘Ewa District and preliminary water demand projections and to have a discussion on how the ‘Ewa community wants to move forward in planning for its water needs.

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)
- Overview of ‘Ewa water supply and demand
- Preliminary water demand projections through 2035 and beyond
- ‘Ewa WMP Sub-Objectives
- Next Steps

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

Meeting participants discussed the material that was presented in the slideshow and ideas on how the ‘Ewa community wants to move forward with water resource planning. A summary of the various questions, comments, and discussion is provided below. BWS and consultant comments and responses are in *Italics*. Additional comments have been added to clarify some of the discussion points.

- We need to identify wells and springs – development should be kapu in these areas through protected management rules.
- Irrigation of the sugar plantations recharged the underlying aquifer.
  - *In ‘Ewa, sugar irrigation makai of the H-1 Freeway recharged the caprock aquifer, which extends as high up into ‘Ewa as the H-1 Freeway in some locations. Sugar irrigation occurring mauka of the H-1 Freeway recharged the basal aquifer.*

- Q: Are we confident in our water demand projection numbers? Will there be enough water to be able to approve developments that apply for permits?
  - *A: The water demand numbers, especially in the ultimate growth scenario, are big numbers, but they are still preliminary projections. Once verified, an assessment of water availability will be conducted in this plan. The ultimate growth scenario allows BWS to evaluate regional water supply and demand through several water supply options and policies such as how aggressive water conservation and green infrastructure programs need to be for ʻEwa.*
  - *A: A master planned development has many steps to obtain land use approvals, such as master planning, State land use boundary amendments, City zoning, and subdivision and building permits. Projects are often implemented in phases. BWS commits water to large developments incrementally when building permits are submitted for approval, not for the whole project at one time. In this way, a developer cannot bank water for its entire development.*
  - *A: Large developers are responsible for installing water system upgrades for their development if current water availability assessments within the City Department of Planning and Permitting planning horizon to 2030 indicate that ground water supply is available. Only in the ultimate full build-out scenarios will growth approach and possibly even exceed ground water supplies. This plan attempts to assess that future and develop strategies to ensure that there is water for all uses in the watershed.*
- Q: Have the future water demand scenarios taken transit-oriented development (TOD) into account?
  - *A: The High-Growth scenario assumes that the rail has been constructed and that the three TOD projects slated for East Kapolei, UH West Oʻahu, and Hoʻopili are in various stages of development. The "Ultimate-Growth" Scenario assumes that TOD plans have been implemented.*
- Q: In the "Ultimate-Growth" scenario, additional lands mauka of the H-1 Freeway are put into agriculture. Should the "Ultimate" scenario consider the possibility that the Community Growth Boundary is moved mauka and that those lands are converted to urban mixed use?
  - *A: No. The "Ultimate-Growth" scenario assumes that all of the currently planned residential units within the Community Growth Boundary have been developed and that all of the agricultural lands outside of the boundary are cultivated. Future iterations of the ʻEwa WMP will incorporate any changes to known planned land uses.*

- Q: Will sea level rise affect our fresh water aquifer?
  - *A: The caprock in ʻEwa will protect the fresh water basal aquifer that is inland of it. The caprock extends as far inland into ʻEwa as the H-1 Freeway in some locations.*

- Q: Will sea level rise affect the brackish caprock wells?
  - *A: Yes, sea level rise will push salt water inland along the coast, affecting caprock wells closest to the shore. In addition, since brackish water floats over seawater due to density differences, as sea level rises, the brackish lens will rise such that the bottom of some wells may start to draw seawater. Well modifications may become necessary to adjust to sea level rise.*
- The ʻEwa karst is unique and should be studied as a special resource. There was an attempt to study the karst but developers opposed it.
- The karst system supports the nearshore waters here so it is of vital importance to the nearshore ecosystem. Without the flow of karst water, the reefs will die! How does this Plan direct City and State policies for this unique area?
  - *A: Unfortunately, the development of ʻEwa's sugar plantation and later urban development have changed ʻEwa's landscape. The remaining intact karsts and cultural sites within Kalaeloa are planned for protection and restoration.*
- Q: Will development in the Primary Urban Center (PUC) direct water away from ʻEwa?
  - *A: The aquifers in the PUC have limited unpumped sustainable yield (SY). Water conservation savings of approximately 15 mgd from 1990 to 2010 have freed up available SY however, recent and proposed Water Commission actions to reduce the sustainable yields in the Moanalua, Nuʻuanu, and possibly Waimalu aquifers will reduce water availability there. Additional water demand will have to be supplied by the Waipahu-Waiawa aquifer, which also provides water supply to Central Oʻahu and ʻEwa. There is about 50 mgd of unused SY in this aquifer.*
  - *A: The remaining watershed management plan areas to be developed are the PUC and East Honolulu. This will allow BWS the ability to understand the water needs of the other districts first. Earlier WMPs for wet, water-rich areas (i.e., Koʻolau Loa) and dry areas (Waiʻanae) gave us an understanding of some basic policies with regard to water transfers:*
    - *The needs of the water-rich areas should be accomodated before exporting water.*
    - *Areas that need to have water imported need to use water wisely and not waste it by developing other water supplies like recycled water and having advanced water conservation programs.*
    - *If water needs cannot be met with resources from within the watershed, we incrementally move outward regionally to meet those needs.*
- Q: Do the water demand projections get reviewed in the future?
  - *A: The best water use numbers come from U.S. Census years (i.e., 1990, 2000, 2010, etc.) because we know how many people were being served. The population and water use numbers are constantly being updated and each update of the WMPs will incorporate the best and most current available information.*

- We need to take climate change into account when looking at the availability of fresh water supplies. If we have less rainfall, the aquifers won't have as much water. So shouldn't we only plan to use a fraction of the current SY anticipating that there will be less water in the future?
  - *The State is regularly updating its understanding of how much fresh water is available. It has already adjusted SY in areas where large plantations no longer contribute irrigation return water to the ground water aquifer and is actively participating in studies on climate change, precipitation, and evapo-transpiration and is working new information into their models.*
- Q: Does the Honouliuli Water Recycling Facility generate two different types of recycled water?
  - *A: Yes. The Honouliuli Water Recycling Facility produces R-1 water that is used primarily for irrigation and R-O (reverse osmosis demineralized) water that is used in electrical power generating and oil refining processes.*
- We should make recycled water use mandatory. We need policies that will direct developers to use recycled water. We don't want to end up like California where they are scrambling to lower water demands and find enough water sources. How much recycled water are State agencies using?
  - There is a learning curve associated with recycled water. Users and the public need to understand the benefits of using recycled water so that it is more accepted.
  - *A: Those non-potable water users that were easy to convert to recycled water, such as golf courses, are already on recycled water (eight of the nine golf courses in 'Ewa use recycled water and the remaining one irrigates with brackish water).*
  - *A: The amount of recycled water users has remained stagnant for a few years, in part because of infrastructure needs. BWS is currently working on acquiring land to construct a recycled water reservoir next to the potable water reservoir below the H-1 Freeway and above the UH West O'ahu campus. This reservoir will then be able to provide consistently high pressures and volumes for UH West O'ahu, Ho'opili, East Kapolei, Kalaeloa, and the City of Kapolei.*
  - *A: Until the East Kapolei recycled water reservoir is constructed, BWS has required large landscaped areas to install a separate irrigation meter to be recycled water ready for when the reservoir and R-1 water becomes available. Residential developments are not currently required to have dual plumbing to provide for recycled water use.*
  - *A: Depending on the final ultimate growth scenario findings, we may develop more aggressive low impact growth policies that require or incentivize green infrastructure on-site for commercial and residential developments such as grey water reuse, dual plumbing for new construction to flush toilets with recycled water, and rain catchment systems for new residential homes. The 2012 Uniform Plumbing Code (not yet adopted) already includes provisions should a developer or homeowner choose to pursue green infrastructure. The State Department of Health has adopted*

"Guidelines for the Reuse of Gray Water" (2009). Should 'Ewa's water policies be this aggressive?

- *A: The City General Plan could address recycled water issues. The "Transportation and Utilities" section could include City policies regarding recycled water use.*

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

Sherri Hiraoka
Townscape, Inc.
(808 536-6999, ext. 6
sherri@townscapeinc.com