



Meeting Minutes

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Prepared for: Board of Water Supply (BWS)
Project Title: Central Oahu Watershed Management Plan
Project No.: 144702

Purpose of Meeting: Community Meeting #1
Meeting Location: Mililani Mauka Elementary School
Minutes Prepared by: Brown and Caldwell (BC)

Date: December 11, 2014
Time: 6:30 p.m.

Attendees: Bernadette Luncsford, NRCS (USDA)
James Nakatani, ADC
Lenore Ohye, CWRM
Barry Usagawa, BWS
Kathy Sokugawa, DPP
Bob Stanfield, DPP
David Cho, Office of Senator Dela Cruz
David Paul, Aqua Engineers
Greg Wilson, Aqua Engineers
Robert Pagliai, Certified Water Management
John McHugh, DuPont Pioneer
Mark Takemoto, DuPont Pioneer
Stephanie Whalen, HARC
Elson Gushiken, ITC Water Management
Taylor Kellerman, Monsanto Kunia
Mike Dau, Kipapa Acres Water System and NB #25
Marilyn Lee, NB #25
Karen Loomis, NB #25
Dick Poirier, NB #25
Mel Elliott
Shari Kimote
David Marks
Mitchell Ohye
Darin Izon, BC
Dean Nakano, BC
Susan Mukai, BC

Meeting Objective

The objective of this meeting was to share preliminary information and seek public input on the Central Oahu Watershed Management Plan (COWMP). The presentation by the Honolulu Board of Water Supply (BWS) and Brown and Caldwell (BC) included the following information:

- Background and Overview of the Oahu Water Management Plan
- Profile of the Central Oahu District
- Discussion of Preliminary Water Issues
- Next Steps

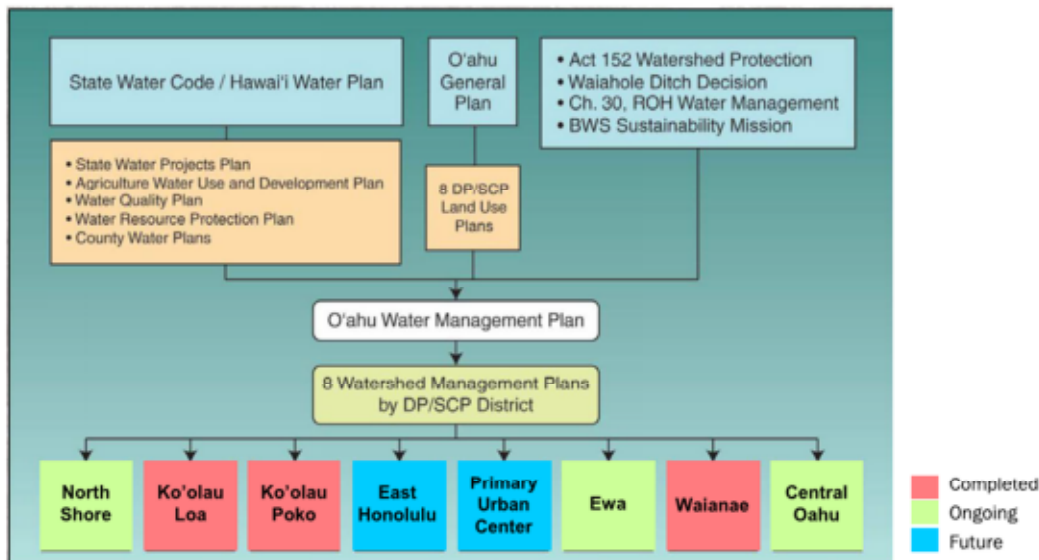
The presentation is available on the BWS website at:

<http://www.hbws.org/cssweb/display.cfm?sid=125063>

The slideshow presented an overview of the COWMP and preliminary findings that were gathered through stakeholder input, agency consultations, and from prior Central Oahu watershed-related studies.

Overview of the Central Oahu Watershed Management Plan

- The COWMP is one component of the Hawaii Water Plan, which is mandated by the Hawaii Water Code (Chapter 174C, Hawaii Revised Statutes). The COWMP must incorporate and be consistent with the other components of the Hawaii Water Plan as well as the City & County of Honolulu's Sustainable Communities Plan (SCP) for Central Oahu.



- The COWMP is guided by 5 objectives: 1) Promote sustainable watersheds 2) Protect and enhance water quality and quantity 3) Protect Native Hawaiian rights and traditional customary practices 4) Facilitate public participation, education, and project implementation and 5) Meet future water demands at reasonable costs.
- There are two major components to the COWMP:
 - Projects and Programs, which shall be developed based on the needs identified from stakeholder input and literature review – to support watershed health
 - Water Use and Development – This component includes water resources, current water use, estimates of potential future water use in the district to the year 2035, and shows how projected demand may be addressed with available water supply.

Meeting attendees were then asked to share their comments and concerns about the watershed and water resources in Central Oahu. A summary of the various questions, comments, and discussions are provided below.

Discussion about Central Oahu Watershed Resources and Issues

- Water pollution in Central Oahu.
 - The Kipapa Acres Water System received a notice from DOH in 2011 stating that the granular activated carbon (GAC) treatment does not remove all of the known contaminants. Concern was raised regarding the migration of contaminants and the time it takes until it is detected in drinking water wells. Detection time based upon a straight vertical migration of contaminants may be as little as one year, whereas horizontal migration of contaminants may take several decades before it is detected.
 - Some Central Oahu wells contain residual agricultural chemicals from prior sugarcane and pineapple cultivation as well as some contaminants from military practices.
 - BWS treats its wells using GAC, which removes organic chemicals such as pesticides and herbicides from the water to meet Safe Drinking Water Standards.
- Update to the 2002 Central Oahu Sustainable Communities Plan (COSCP).
 - The Department of Planning and Permitting (DPP) is working with BWS to evaluate the impacts of climate change and to ensure that these changes in climate do not negatively impact the water supply.
 - There was discussion about the COSCP's proposal to align the community growth boundary along the Koolau Mountain range to the 50-inch annual rainfall isohyet.
 - Climate change may cause sea level rise, which could impact low lying coastal areas like Waipahu.
 - Some things that could be done to address or counter the impacts of climate change include:
 - Water conservation.
 - Development of alternative sources.
- An agricultural stakeholder noted that the DOH needs to come out with a strong policy statement (for or against) the use of recycled water over the potable aquifer system.
 - DOH's current Guidelines for the Treatment and Use of Recycled Water notes that DOH has long been an advocate for water reuse as long as it does not compromise public health and our valuable water resources. Promotion of the use of recycled water is one of the department's high priority goals.
 - Per DOH, wastewater management practices that protect, conserve and fully utilize water resources are vital to Hawaii. Increasing the safe use of recycled water can greatly assist in meeting water requirements of the State, enhance the environment, and benefit public health by preserving resources upon which public health protection is based.
 - The Safe Drinking Water Branch, in an abundance of caution, is still concerned about the impacts of reuse to the underlying potable aquifer.
 - This results in potential conflicts between safe drinking water and food safety of certain agricultural crops grown with recycled water, and therefore, the following actions are being pursued:
 - DOH is currently updating its Guidelines for the Treatment and Use of Recycled Water, which was last updated in May 2002.

- CWRM recently completed a 2014 report titled the Central Oahu Non-Potable Water Master Plan which identifies current areas of non-potable water use and potential sources of non-potable water supply that may be available to meet current and future water.
- There are three studies that are being undertaken or that are planned to be done in the near future:
 - The USGS/BWS study will look at the effects of irrigation with treated wastewater on groundwater quality in North-Central Oahu, particularly in regards to emerging contaminants of concern including endocrine disrupting chemicals, pharmaceuticals, and trace elements. The study approach includes sampling irrigation water and (20) ground water wells upgradient of, beneath, and downgradient of the irrigation area using treated wastewater in North-Central Oahu.
 - The DOH study will model the leaching potential of wastewater contaminations by identifying what contaminants are removed by the conversion/treatment of sewage to R-1 quality water; determining the role that Hawaii soils play in the removal of retardation of remaining contaminants; identifying which contaminants are most likely to migrate to the groundwater; and assessing what areas in Hawaii are most suitable for application of reclaimed wastewater.
 - Department of Agriculture/UH Water Resources Research Center has a project to study the leaching and plant uptake of selected constituents in R-1 treated wastewater used for leafy vegetable crop irrigation. The study will seek to understand the transport behavior of contaminants in recycled irrigation water through the unsaturated (vadose) zone to the underlying groundwater as well as the uptake of those chemical by plants irrigated with recycled water.
 - There is a difference between Hawaii and California in terms of the caution and potential concern regarding the use of recycled water. Hawaii has other water supply options aside from recycled water, whereas California has a limited water supply with recycled water being one of their few options.
- There are opportunities for partnerships between the Natural Resources Conservation Service (NRCS) and other stakeholders.
 - The main priorities are water quality and quantity.
 - It would be good if there were programs for different types of landowners that are site specific.
- Stormwater and storage in Central Oahu.
 - While recycled water and stormwater reuse have viable benefits, the use of captured stormwater has its own water quality challenges.
 - While water supply is important, agriculture needs more storage to accommodate periods of low rainfall and drought.
 - Due to dam safety concerns, the trend has been to decommission existing reservoirs and dams, but additional storage is still needed.
 - The potential climate change impacts forecast fewer but heavier storm events, a problem that could be lessened if there was more storage to retain this water.
 - There needs to be more plans and projects to promote infiltration and recharge.

- Information from the 2008 CWRM report titled An Appraisal of Stormwater Reclamation and Reuse Opportunities in Hawaii, which discusses various opportunities for augmenting groundwater supplies with stormwater, will be reviewed and incorporated as part of the plan.
- Grey water usage and dual pipelines.
 - The Water Code, Chapter 174C, HRS, provides that the CWRM may require the installation of dual water lines, but this is not a mandatory provision.
 - However, CWRM evaluates and considers the availability of non-potable sources in its current review/approval of Water Use Permit applications.
 - BWS rules provide that if non-potable water is available, the proposed development must utilize non-potable water for irrigation purposes.
 - Example: Ewa master planned areas such as Hoopili, Gentry, and Kapolei Villages are required to install dual lines. The required use of recycled water is currently planned for large landscaped areas such as golf courses, roadway landscaping, parks, schools, non-residential and multi-family irrigation needs.
 - In areas where no non-potable or recycled water systems exist, the infrastructure has been designed and constructed such that when recycled water becomes available, the irrigation water supply system can be connected and switched to the recycled water supply.
 - The Central Oahu SCP supports the use of recycled water and the installation of dual lines for new projects, such as Koa Ridge, provided that such use is allowed/approved by DOH and BWS. There remains some caution due to the potential concern regarding the use of recycled water over the potable aquifer, however, studies are underway to address these concerns.
 - In addition to reviewing the Koa Ridge Water Master Plan for source, storage, and transmission requirements, BWS also requested that proposed common areas be planned with dual lines for landscape irrigation.
 - Irrigation of Koa Ridge's common areas would be initially through the use of potable water until such time as recycled water becomes available for use.
 - One of the options identified in the CWRM's 2014 Central Oahu Non-Potable Water Master Plan included the potential integration of a Mililani R-1 Water Facility, which could be implemented as an independent, regional, non-potable water supply. Existing wastewater flows from Mililani could be treated to R-1 water quality for non-potable irrigation use such as the current irrigation of the Central Oahu Regional Park.
 - Use of recycled water could be implemented in several ways: a) mandated by ordinance or statute; b) implemented in accordance with applicable policies; or c) by working with the developer to incorporate recycled water use within master plan approval process, which has been the practice by BWS
- Expanded water conservation measures.
 - There is a need for greater water conservation efforts, particularly with respect to the island's tourist population (of approximately 8 million visitors a year).
 - These efforts should include more visitor/public education such as in the arrival messages shown on in-bound aircrafts to Hawaii, similar to the informational videos shown on Hawaii's invasive species.
- Water demand scenarios.

- The COWMP will develop 4 water demand scenarios: low, mid, high, and ultimate.
- The proposed ultimate water demand scenario will project full agricultural cultivation on ag lands and full development within the Community Growth Boundary as the basis for determining the Central Oahu region's total ultimate water requirements.
- This information, along with continued stakeholder input, will guide the development of future policies and strategies to meet this potential demand.

Additional Comments and Questions Regarding Central Oahu-Specific Issues Received through Stakeholder Surveys



- Water quality.
 - Are there areas that should not be developed that could be put into easements to strategically protect water quality?
 - State Conservation Districts have been established for the purpose of managing and protecting watersheds and water sources, scenic and historic areas, parks, wilderness, open space, recreational areas, habitats of endemic plants, fish and wildlife, and all submerged lands seaward of the shoreline. In addition, the Department of Land and Natural Resources is responsible for designating and managing forest reserves as a means of protecting and enhancing important watershed areas to promote recharge of our water supply sources (e.g., ground water, springs, and streams). There are also forest stewardship programs involving private landowners that have been established to manage, protect, and restore important watersheds, native vegetation, timber resources, fish and wildlife habitats, and populations of rare and endangered plants.
 - There are several programs available to help landowners manage their runoff and protect water quality from infiltrated water.
 - Regarding the quality of water, there are the issues about pesticides and the continual need to filter Mililani water.
 - What is the status of pesticide contamination and the cost to filter the water?
 - BWS continues to fully treat Central Oahu's drinking water by filtering agricultural pesticides through GAC treatment plants. The GAC is costing BWS approximately \$1 million per year.
- Water quantity.
 - Water needs to stop being wasted (ex. sprinklers watering concrete).
 - Sufficiency of water to meet both residential and agricultural needs in light of climate change should be addressed.
 - Is there enough water for future needs 30-50 years out for both residential and agricultural uses?
 - One of the specific goals of the COWMP is to quantify projected water demands to the year 2035 for both residential and agricultural uses. At the same time, the COWMP will assess the status and availability of future potable and non-potable water supplies to meet these projected demands. This information is currently being developed and will be shared with the community and stakeholders as part of our ongoing public outreach and future community meetings.
- Alternative water sources.
 - Are there any new sources of water such as recycling, desalination, etc.?

- Increased use of recycled water and development of additional non-potable water supply such as recaptured stormwater are potential future sources of non-potable water supply. BWS has also studied the feasibility of using desalination and has acquired two parcels for proposed desalination facilities in Ewa: the Kalaeloa seawater desalination site and the Kapolei brackish desalination site. BWS continues to include this alternative in its mix of future water supply options.
- The option of stormwater as an alternative source needs to be further studied. There needs to be a storage facility or facilities to capture stormwater runoff.
- Military involvement in this watershed management plan.
 - How is the military water system incorporated into the plan? What is their involvement?
 - We are meeting with the military as part of our stakeholder consultations to discuss their water system supply and demands. The findings of these discussions and research will be incorporated within the plan.
 - Does BWS have any plans to take over the military water systems?
 - The military is not interested in contracting the operations of its water systems.
- Protection of Native Hawaiian rights and traditional and customary practices.
 - Are there cultural features that are unrecognizable?
 - Should information on cultural features be identified during the course of the data collection phase of this project, such information will be appropriately noted within the plan. There is a significant cultural site near Whitmore Village called the Kukaniloko Birthstones.
- Land use.
 - Gulches qualify for the Conservation Reserve Enhancement Program (CREP) now.
 - Consider higher density urban use in existing urban areas, and take advantage of recycled water.
 - Maintenance of the watershed despite development pressures and invasive species.
 - Support commercial solar energy farm programs to preserve Central Oahu agricultural lands.
 - There needs to be programs and policies to protect open space inside the Central Oahu Community Growth Boundary from development.
- Support water for agricultural use. Improve R&M of non-potable water infrastructure.
- There were no community questions raised about agricultural or domestic water rates, though this issue can be expected to be raised in subsequent community meeting due to the large mix of urban and agricultural water demands within the project area.

Next Steps

- Brown and Caldwell (BC) in coordination with BWS and DPP will identify current water supply and demand in the Central Oahu District and will develop water demand estimates for low, mid, high, and ultimate growth scenarios.
- Based on the issues identified, BC will seek continued stakeholder and community input in identifying and developing strategies, programs, and projects that address these issues or concerns.
- The objective of Community Meeting #2 will be to share the forecasted water demand projections and a preliminary list of strategies, programs, and projects for stakeholder

discussion. The meeting time and location will be announced and is tentatively scheduled for sometime in the first quarter of 2015.

Phase 1	<ul style="list-style-type: none"> . Conduct background research on Central Oahu's water resource needs and issues . Develop Central Oahu-specific sub-objectives . Quantify current and future agricultural water supply and demands . Develop future (potable/non-potable) water use scenarios: low, mid, high, and ultimate 	 Stakeholder and Public Outreach, including Community and Neighborhood Board Meetings 
Phase 2	<ul style="list-style-type: none"> . Identify water resource management strategies to address critical water resource issues . Research and document watershed management projects that address critical water related issues 	
Phase 3	<ul style="list-style-type: none"> . Develop and compile Preliminary Draft COWMP . Present the Public Review Draft to the community/stakeholders for input 	
Phase 4	<ul style="list-style-type: none"> . Compile and review comments from the Public Review Draft of the COWMP . Revise the Public Review Draft of the COWMP . Compile Final Draft of COWMP 	
Phase 5	<ul style="list-style-type: none"> . Present the Final Draft COWMP to the (5) Neighborhood Boards for endorsement of the plan . CWRM Adoption Process . City Council Adoption Process 	

Contact Information

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

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