

# WATER FOR YOU AND OUR COMMUNITY'S FUTURE

## *10 Things You'll Want to Know About the Board of Water Supply Water Master Plan*

To secure O'ahu's water future, the City and County of Honolulu Board of Water Supply has prepared a long-range Water Master Plan. The Plan is a comprehensive, broad-based technical program that includes the data, investigation, assessments, and projections to make decisions for the water system for the next few decades. We selected 10 highlights from that visionary plan to share with you in this "10 Things To Know" fact sheet.

Mahalo for your interest!

### **1 The Water System is Aging; Parts are 100 Years Old**

As part of the Water Master Plan, the Board of Water Supply completed a rigorous assessment of its vast and aging water system. Pipelines, reservoirs, pumps, treatment plants and other facilities were inspected and evaluated. Detailed analyses and new technologies resulted in a wealth of information, new insights, and vital data about the water system's general health. Evaluation results indicate where investment in renewal and replacement projects is needed to keep the system flowing and strong.

### **2 Water Infrastructure Will Be Planned and Built at the Right Time and Right Place**

Using the power of computer modeling as well as sophisticated statistical tools, the Board of Water Supply has looked ahead 30 years to see where and how the water system needs to expand to dependably serve a growing population. The Water Master Plan anticipates that the greatest need for water will be in 'Ewa-Waipahu and the densely populated urban center area from downtown Honolulu and Waikiki to Hawai'i Kai. Knowing when and where demand for water will increase, and by how much, enables the Board of Water Supply to efficiently plan and build new infrastructure at the right times and the right places.

### **3 We've Gained New Insights About Water Main Breaks**

Reducing water main breaks has been an important focus for Water Master Plan investigations. Certain pipe materials and corrosion have been identified as the main reasons why pipes break on O'ahu. Cast iron pipes were the industry standard for water pipelines starting in the late 1940s. Now among our oldest, these cast iron pipes are more prone to corrosion. Other factors that can reduce the useful life of pipe are smaller diameters, higher water pressures, and corrosive soils. By understanding these underlying causes, the Board of Water Supply can proactively replace pipes to reduce the risk of future breaks.

### **4 Future Infrastructure Plans Consider Risk**

The Water Master Plan recommends using risk as one of the main factors for deciding which of the many important water system projects to pursue first and which can be deferred to a future time. Risk considers the likelihood of failure as well as the consequence of failure. For example: a break in a large water main near a school or hospital could have severe consequences compared to a break in a small water main adjacent to a parking lot. Thus, the large main would have a higher risk factor. Projects to renew or replace pipelines with the highest risk factors will be prioritized over others with lower risks.

### **5 We Must Adapt to Hawai'i's Changing Climate**

Evidence of climate change abounds in Hawai'i. Rainfall on O'ahu has steadily decreased since the 1920s. In the future, rainstorm intensity is expected to increase, with more water runoff into the ocean and less water retained to recharge our natural aquifers. Sea level is rising and the ocean is growing more acidic. Metallic pipelines will corrode faster in soils that absorb the encroaching seawater. Coastal erosion threatens the stability of water pipelines. The Board of Water Supply is working with the University of Hawai'i and others on climate change research, and has commissioned expert studies of impacts on water infrastructure. Study results will be combined with findings of the Water Master Plan to anticipate and adapt to climate change impacts.



## 6 There Should Be Enough Water for Our Future, Thanks to You

O'ahu's natural geological features are ideal for capturing rainwater and storing it underground in aquifers. To protect and sustain these aquifers, the State places stringent limits on how much water can be safely drawn from them. As stewards of our island's water, the Board of Water Supply takes care to pump far less than is allowed by these limits. This is possible largely because you and other residents, employees, and business owners all make conservation a daily practice. In addition, the Board of Water Supply produces recycled and non-potable water for industrial uses, and for golf course and park irrigation. The Water Master Plan forecasts that, if we all do our part, O'ahu's excellent water supplies can meet our needs well into the future.

## 7 Conservation is Key to Saving Water and Money

Conserved water is the least expensive water we have. Every gallon of water conserved keeps a gallon in the aquifer for another use. Conservation reduces the need to expand infrastructure, pump more water, treat more water, and run more water through the pipelines. Water use on O'ahu has been steadily declining since the 1990s, reflecting conscientious conservation. New real estate development opens up opportunities to install advanced water conservation measures such as ultra-high efficiency plumbing, smart-irrigation controls, sub-meters for multi-family structures, and gray water use. Industrial customers may convert to advanced innovations in cooling towers, air conditioning condensate reuse, recycled water, and rain catchments to reduce potable water use.

## 8 It Takes a Village

The Board of Water Supply engaged a Stakeholder Advisory Group of nearly 30 community leaders, each lending constituent-based ideas and values to the Water Master Plan's development. The Board of Water Supply is an active partner in the Hawai'i Community Foundation's Fresh Water Initiative to increase water security for the Hawaiian Islands. It has formed numerous partnerships to protect and enhance O'ahu's watersheds, including with local and Federal government agencies, landowners, schools, and community groups. Working with the State Commission on Water Resource Management and Department of Health, the Board of Water Supply helps sustain precious groundwater resources for this and future generations.

## 9 This is a Visionary Plan, While Not Focusing on Costs (YET)

The Water Master Plan has analyzed the condition of O'ahu's water infrastructure and identified the components that need renewal or replacement. It looked ahead at the growing demand for water and determined what new facilities are needed to make sure water is available in 2040, as it is today. The plan gathered information on emerging conditions likely to impact our island and recommends ways we can adapt to changing climate conditions. Based on all of this information, the Water Master Plan recommends many improvements to be made over time. The next step is to turn the recommendations into a 30-year Capital Improvement Program. Initial cost projections for that program will enable the BWS to plan and budget for projects. A financial plan will determine how to best pay for those projects. A 2017 rate study will evaluate the types and levels of customer charges necessary in the future to carry out this visionary plan.

## 10 Sustainability Matters to All of Us

The Board of Water Supply's role as a water steward for O'ahu carries the obligation to sustain the water supply for today and for generations to come. The Water Master Plan reflects a long-standing commitment to integrate environmental sustainability, economic viability, and community and Hawaiian cultural values. This commitment links the Water Master Plan, which is infrastructure-based, with the Board of Water Supply's Watershed Management Plans and Conservation Plan. The Water Master Plan identifies the infrastructure, policies, and programs necessary to provide safe, dependable, and affordable water. The Watershed Management Plans balance protection of groundwater and surface water resources with managed use and development. The Conservation Plan promotes water savings by customers and within the distribution system.

### Want to Know More?

Go to the Board of Water Supply's website [www.boardofwatersupply.com](http://www.boardofwatersupply.com) to access:

- [The Water Master Plan Summary](#)
- [The Water Master Plan full document](#)
- [The Capital Improvement Program, anticipated by end of 2016](#)

You can also contact the Board of Water Supply at 808-748-5347 or [BWSWaterMasterPlan@hbws.com](mailto:BWSWaterMasterPlan@hbws.com)

