WATER FOR LIFE

Safe, dependable, and affordable water now and into the future

Board of Water Supply
City and County of Honolulu

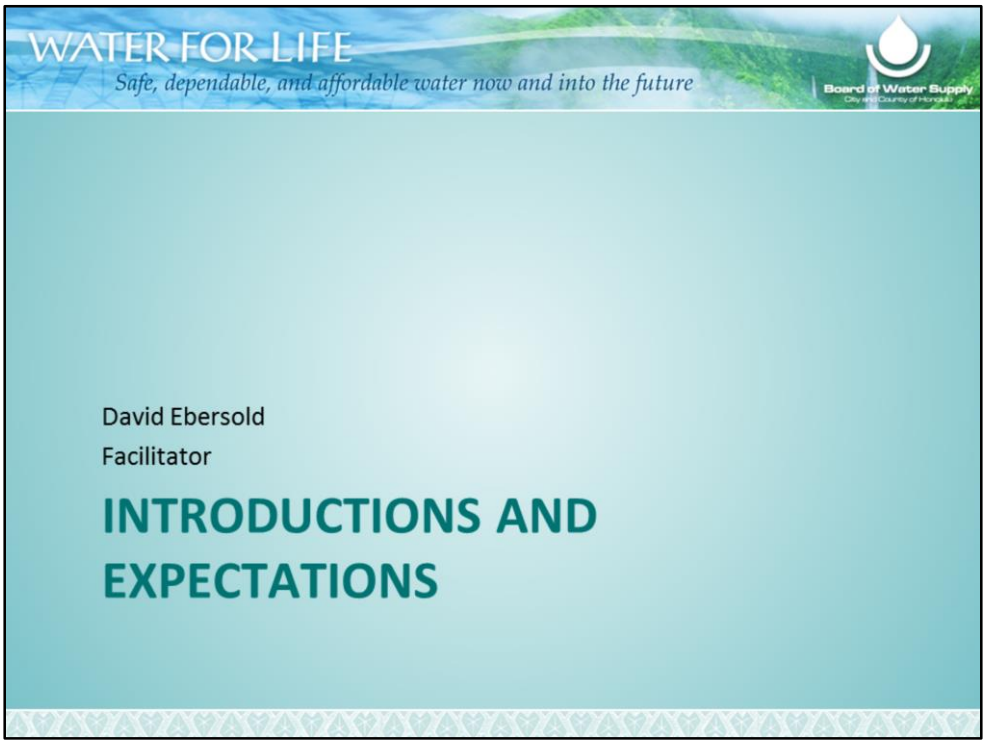
Stakeholder Advisory Group Meeting #1

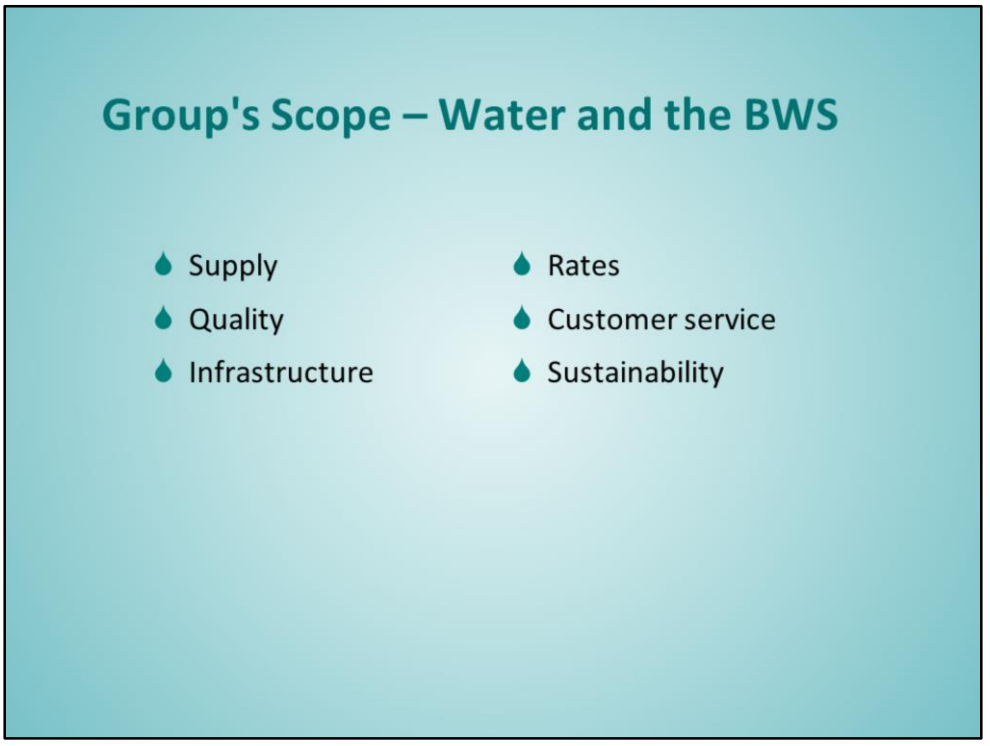
Board of Water Supply
City & County of Honolulu

Tuesday, May 5, 2015

Self Introductions

- Name
- Organization
- What you hope to get from this process


WATER FOR LIFE
Safe, dependable, and affordable water now and into the future
Board of Water Supply
David Ebersold
Facilitator
INTRODUCTIONS AND EXPECTATIONS



The scope for this Stakeholder Advisory Group is very broad - anything that is directly related to the BWS's mission of providing safe, dependable and affordable water now and into the future.

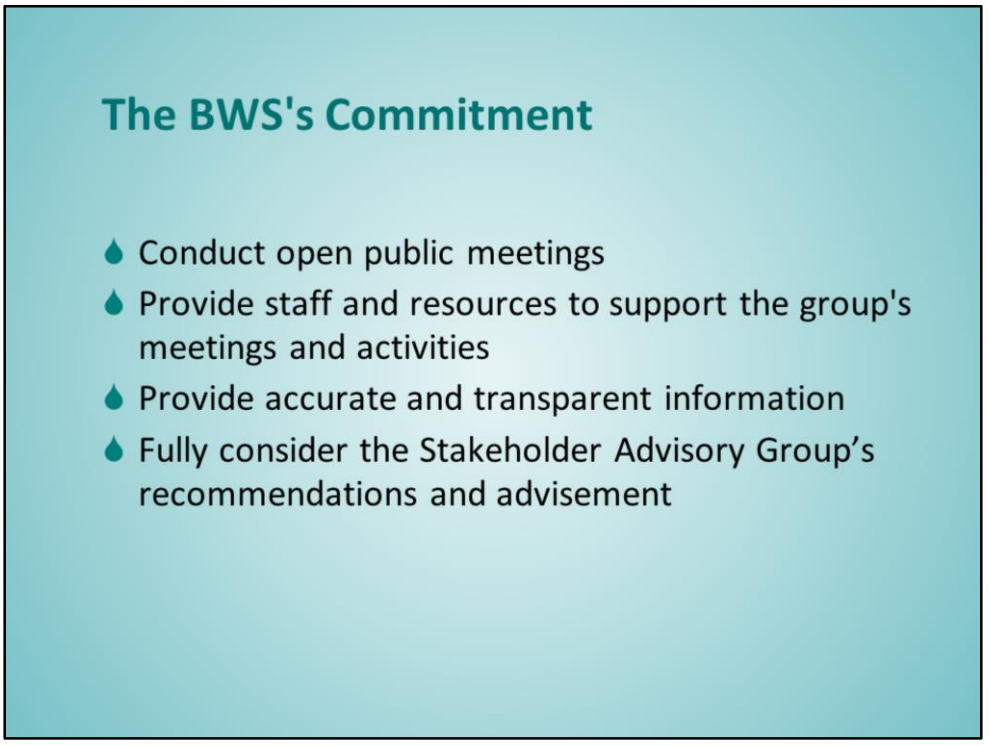
As you'll hear more about in few minutes, one of the BWS's most important initiatives is the development of its Water Master Plan. While the BWS is very interested in your input on this plan, later today we'll also be seeking input on your highest priorities.

Recommendations will be Consensus-Based

- Opinion or position reached by the group as a whole; Not unanimity
- Focus on discussion and consider input of all participants
- Cooperatively seek mutually beneficial and mutually acceptable solutions
- The group's recommendation may not be your preference, but is something you can live with

Formal Voting not Expected

- Voting is a procedure, not a process
- Polling may be used as a technique to assess the level of support for a particular idea or suggestion
- You may be asked to verbally confirm your position



Also note that the BWS Stakeholder Advisory Group is not subject to the Hawaii Sunshine Law, even though we are being open and transparent.

Discussions are not confidential.

Your Commitment

- **Attend and participate** in all meetings.
- **Be prepared** to discuss issues on the agenda and any information distributed by staff in advance.
- **Be willing to explore** goals, constraints, and options.
- **Listen attentively** with an open mind. Respect ideas and perspectives of others. Give everyone a chance to speak. Avoid side discussions. Don't interrupt.
- **Maintain focus** on the topic currently under discussion. Avoid repeating issues that have already been raised or recorded.
- **Achieve consensus**.

What if I Have to Miss a Meeting?

- Materials and updates will be provided
- Staff can meet with you for an individual briefing
- No alternates (due to loss of continuity)
- Contact me for any concerns

WATER FOR LIFE

Safe, dependable, and affordable water now and into the future

Board of Water Supply
City and County of Honolulu

Mahalo!

Questions & Answers

Planned Meeting Topics

Category	Water System	Water Master Plan	Focused Topic
May 2015	Introduction to BWS and O'ahu's Water System	Introduction to Water Master Plan	
Jul 2015		Main Breaks and Condition Assessment	Customer Survey and Focus Group Results BWS Progress on Auditor Recommendations
Sep 2015	Watersheds and Sustainability	Demand Forecasting and Water System Analysis	
Nov 2015	Water Treatment and Quality	Condition Assessment Update	Red Hill
Jan 2016	Transmission, Storage and Distribution	Water System Analysis Update	Automated Meter Reading Study
Mar 2016		Water Master Plan and 30-Year CIP Development	

WATER FOR LIFE

Safe, dependable, and affordable water now and into the future

Board of Water Supply
City and County of Honolulu

Ernest Lau, P.E.
BWS Manager and Chief Engineer

OVERVIEW OF THE BWS

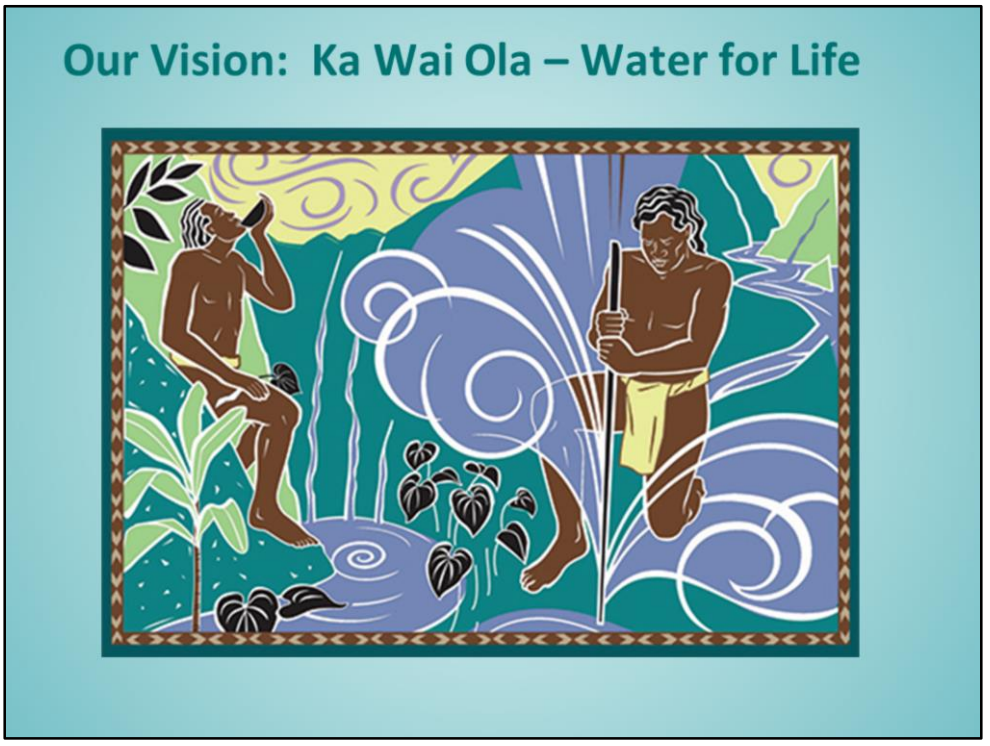
WATER FOR LIFE

Safe, dependable, and affordable water now and into the future

Board of Water Supply
City and County of Honolulu

The Board of Water Supply

- Established in 1929
- Semi-autonomous City agency
- Policies set by an appointed 7-member Board of Directors
- Among the 50 largest water utilities in U.S.



The Board of Water Supply (the BWS)'s vision expresses the critical need for water; that water is the basis of life.

Water in Hawaii is a public trust.

It is central to everything we do.

The way we sustain, capture and deliver water for our customers is with this trust in mind.

The BWS is a steward of this precious resource, and we have a duty to manage our water resources for present and future generations.

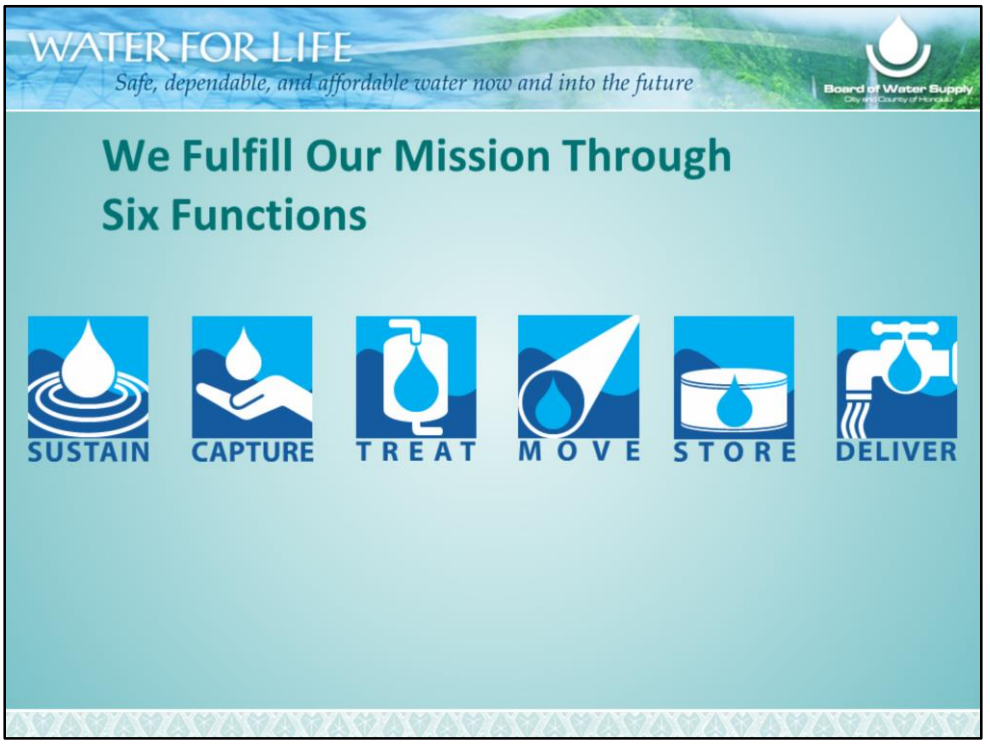
WATER FOR LIFE

Safe, dependable, and affordable water now and into the future

Board of Water Supply
City and County of Honolulu

Our Mission

To provide safe, dependable, and affordable water now and into the future



Among the first things we've planned for the Stakeholder Advisory Group is to provide input to our Water Master Planning process. But, we're looking to you for input –over time– to all major components of our commitment to sustain, capture, treat, move, store and deliver water all across O'ahu. We expect this will include topics like:

- customer service
- conservation
- the balance between dependability and affordability
- potential future rate adjustments

We have fewer employees now than we did in the 1980s, while our responsibilities have grown substantially.

We have tightened our belt:

- Fewer employees
- Larger population
- More regulations

Our new strategic plan aligns directly with our mission.

“Safe” refers to our resource sustainability – to protect and manage our groundwater supplies and watersheds through adaptive and integrated strategies.

“Dependable” refers to our operational sustainability – to foster a resilient and collaborative organization utilizing effective and proactive operation practices. Consistent with current industry practices.

“Affordable” refers to our financial sustainability – implement sound fiscal strategies to finance our operating and capital needs to provide dependable and affordable water service.

WATER FOR LIFE

Safe, dependable, and affordable water now and into the future

Board of Water Supply
City and County of Honolulu

Mahalo!

Questions & Answers

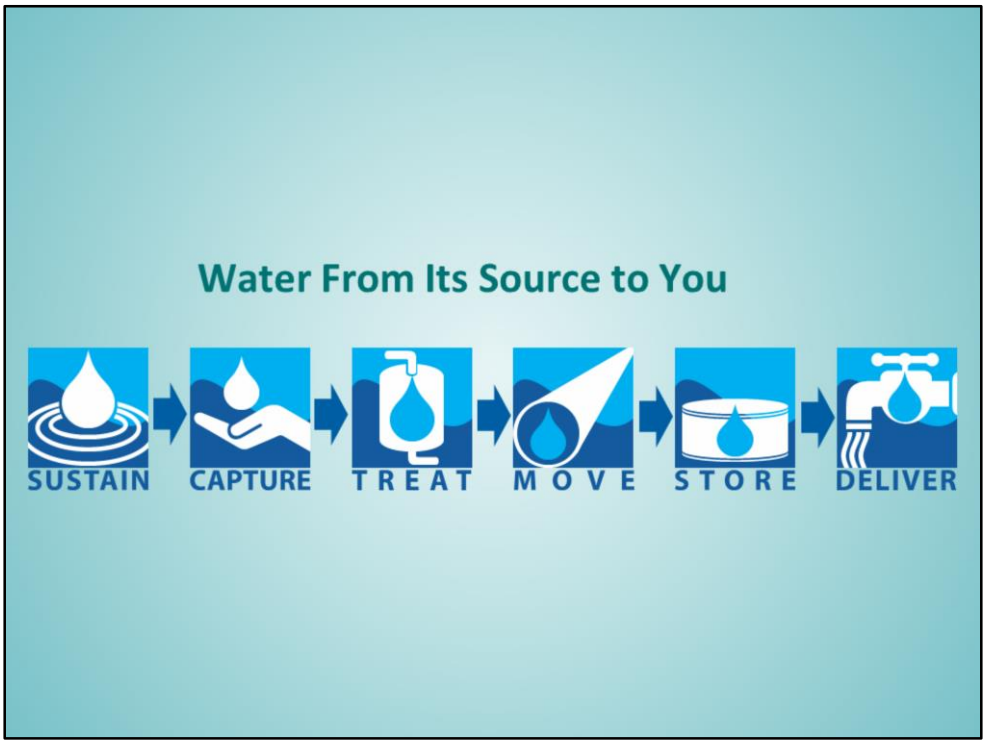
WATER FOR LIFE

Safe, dependable, and affordable water now and into the future

Board of Water Supply
City and County of Honolulu

Barry Usagawa, P.E.
BWS Water Resources Program Administrator

O'AHU'S WATER SYSTEM



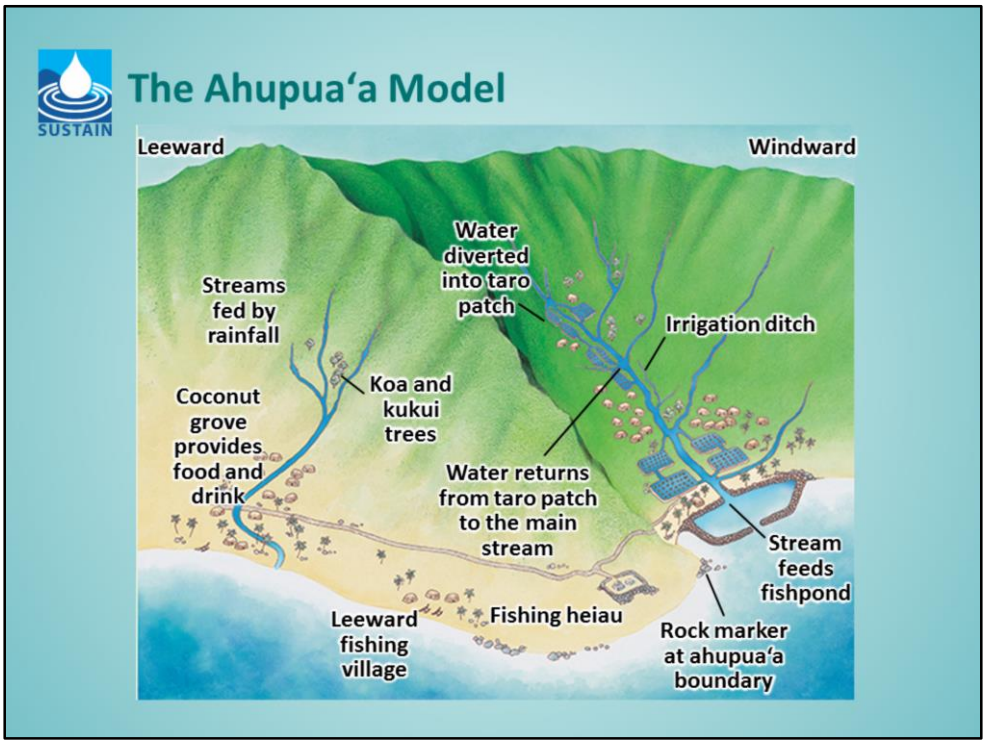
Ernest talked about these steps in the big picture.

I'm going to provide an overview of the BWS water system and how water is delivered from its source to you.

There are 6 key components/aspects: Sustain, Capture, Treat, Move, Store and Deliver.

The first is “Sustain” water resources.

We have a sustainability model that you may be familiar with…



In pre-contact Hawaii, the land was divided into ahupua‘a that mirrored the lines of natural watersheds and ecosystems. Their boundaries extended from the mountains, through upland forests, streams and lowlands, and to the coral reefs. There was access to upland forests for timber, stream water for drinking, agricultural lands for crops and the ocean for fishing and travel by sea.

Cultural concepts like Kuleana (responsibility), Pono (fairness and morality) and Kapu (code of conduct of laws) governed the ahupua‘a. No one could take more than what they could use, and stiff penalties existed. The ahupua‘a system ensured natural systems were kept in balance and acknowledged inherent relationships between land and sea (mauka and makai), natural resource management and cultural practices (they’re one and the same), and between water and life. Rules guided people’s behaviors.

The ahupua‘a model is more than a division of land. It also embodies resource management through a balance of environmental, economic and social/cultural values.

As we were developing our watershed management plans through community outreach and consultation with Kupuna (elder teachers) in Waianae and Koolauloa, we were searching for a watershed based model that was environmentally holistic, community based and economically viable. A watershed model that balanced the protection of natural resources and rights with managed water use and development.

What resonated with the community was the ahupua‘a model that sustained Hawaiians for centuries. Using the ahupua‘a model as a guide, we have a vision of O‘ahu’s Sustainable Future. A future where forested watersheds are heathy, streams flow and provide water for agriculture to grow our own food and to provide high quality drinking water for people.

Ahupua‘a provides a model of sustainability that balances environmental, economic and social/cultural values in the modern context.

Water Resources Strategies that the BWS is pursuing to ensure resource sustainability and support climate change adaptation:

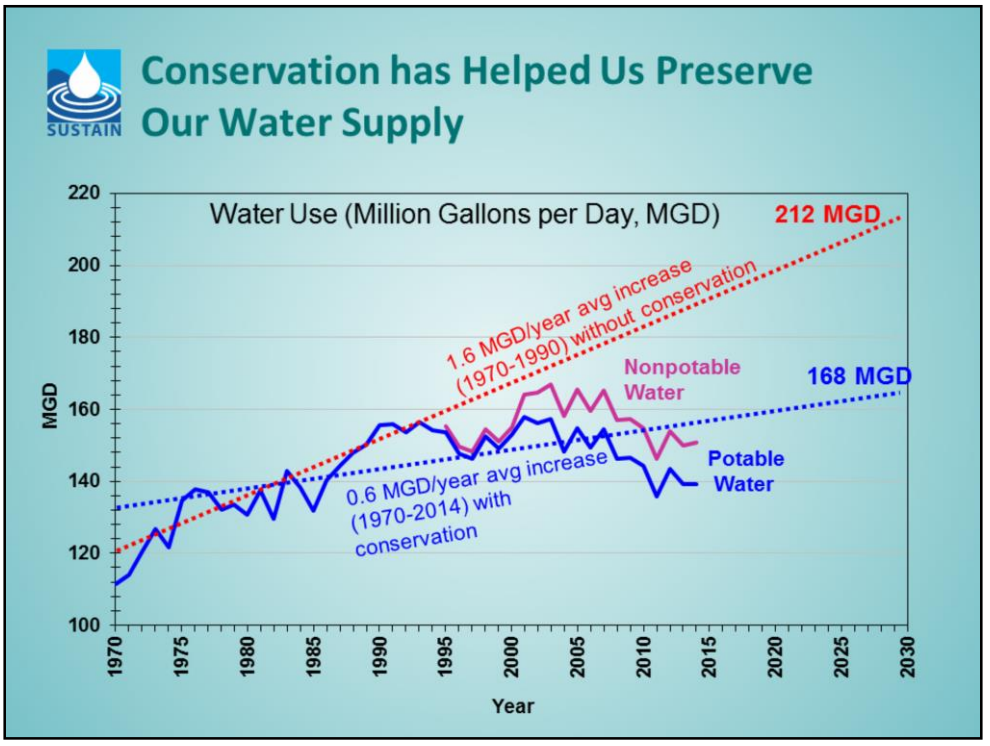
Watershed Management protects the supply
- Protects forested recharge areas
- Controls invasive species through participation in the Koolau and Waianae mountain watershed partnerships
- Provides land use conditions to ensure source water protection

Water Conservation preserves the resource by promoting wise use of water
- Water conservation conserves the resource for future generations
- Demand side management programs reduce water use
- The BWS's infrastructure efficiency programs reduce water loss in delivery systems

Diversifying water supplies ensures system adequacy and reliability
- Our drinking water is 100% groundwater
- Surface water is used for agriculture and kept in streams
- Recycled and brackish nonpotable irrigation extends potable water resource
- Desalination utilizes new technology and renewable energy systems, reduces costs and dependence on imported oil

Climate Change Adaptation: These water resource strategies will help the BWS adapt to climate change by:

- Ensuring forests are healthy to sustain our streams and aquifers
- Pursuing conservation to reduce demand on natural resources
- Developing drought proof sources of supply like reuse and desalination.



- The blue solid line is historic potable water use
- The purple solid line is historic nonpotable water use, i.e. Glover, Kalauao Spring, Barbers Point Brackish and R1 and RO demineralized recycled water

Water conservation programs have helped preserve our water supply. In 1990, O‘ahu was using 157 million gallons per day (mgd) of potable water, but in 2014, O‘ahu’s potable water use dropped to 140 mgd.

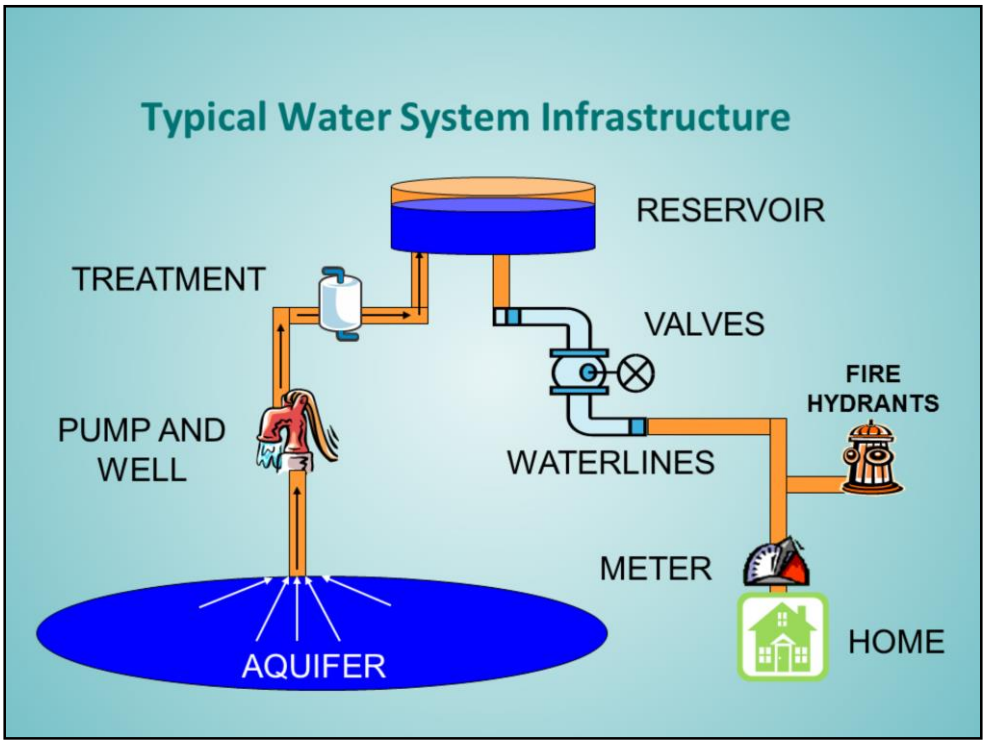
The dotted lines are projected trends through 2030. The top red dotted line is without conservation, and the bottom blue dotted line is with conservation. Without conservation, we project that by 2030 we would be using 212 million gallons per day. With conservation, we project that by 2030 we will be using 20% less than that, or 168 MGD.

Potable water use has dropped by 10 percent from 1990 to 2014.

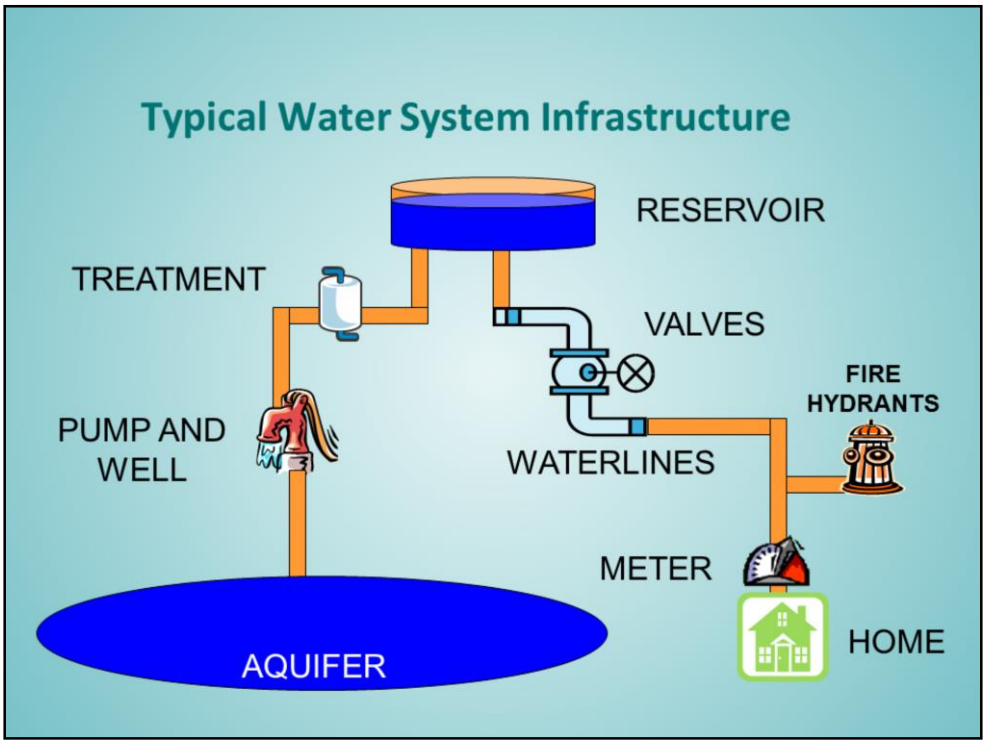
In Windward: Every gallon conserved = 1 gallon that stays in the streams or is stored in aquifers so there’s more stored water for droughts.

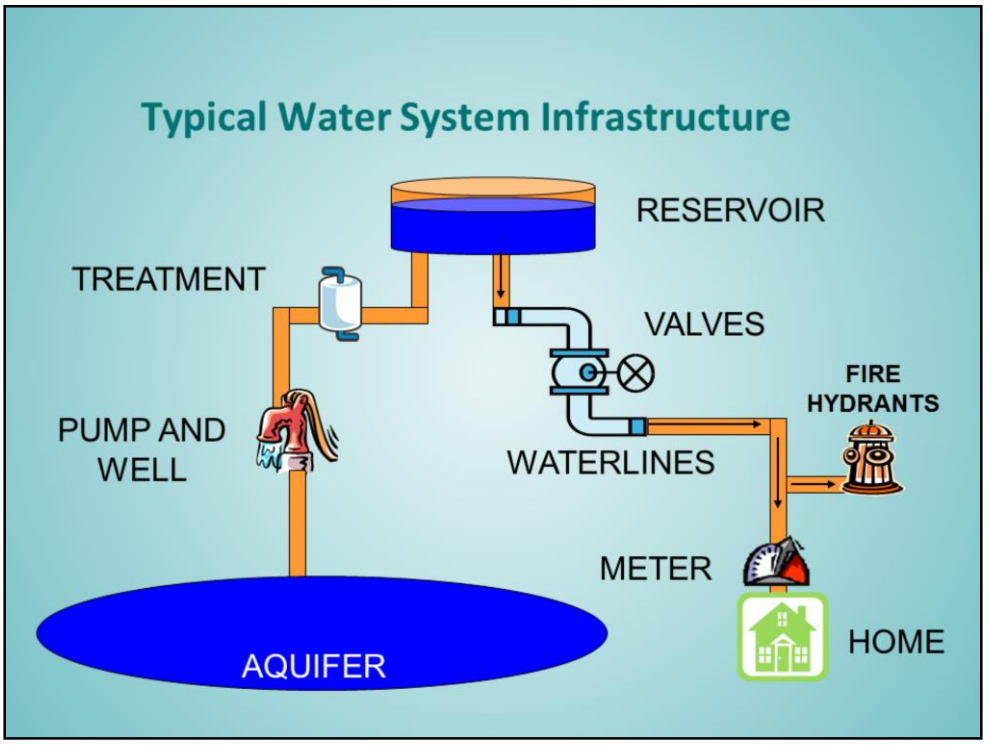
In Leeward: Every gallon conserved = 1 gallon of available system capacity and reduces the need to tap more groundwater resources.

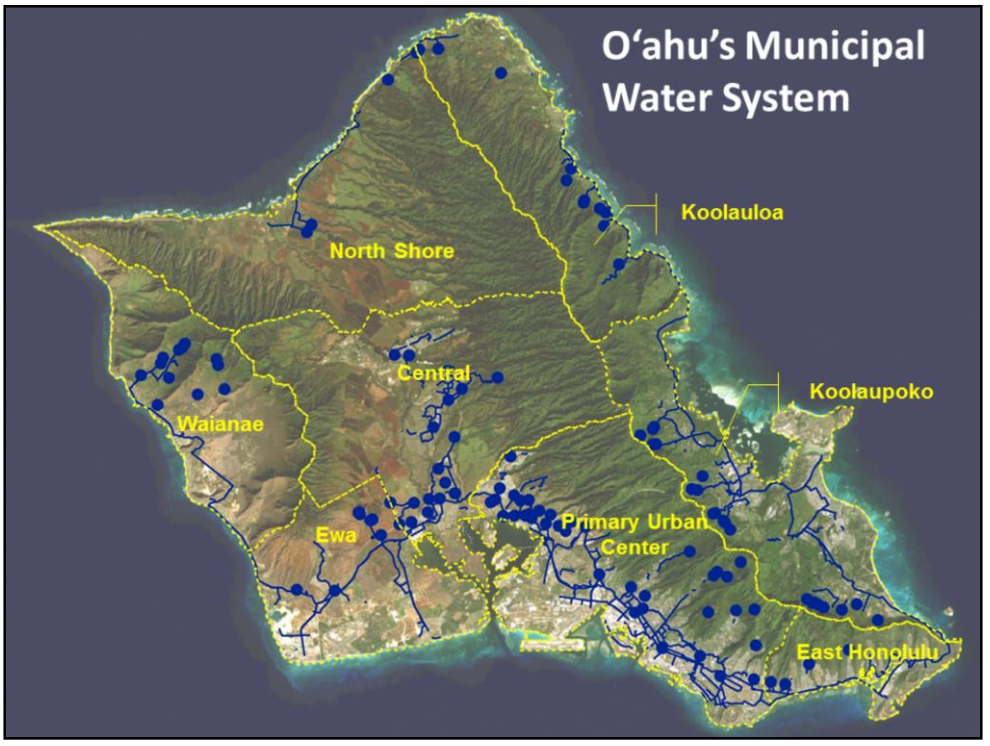
We have a complex system that works together, so I want first talk to you about the water system as a whole, then we'll talk about individual components.



A typical water system consists of a well with pump, chlorination/disinfection treatment, reservoir, waterlines and a fire hydrant or water meter where the system connects to a house or business.


Typical Water System Infrastructure
RESERVOIR
TREATMENT
VALVES
FIRE HYDRANTS
PUMP AND WELL
WATERLINES
METER
HOME
AQUIFER


Typical Water System Infrastructure
RESERVOIR
TREATMENT
VALVES
FIRE HYDRANTS
PUMP AND WELL
WATERLINES
METER
HOME
AQUIFER



Multiply that simple system all over O‘ahu and you will get the system as shown on this map.

- The blue dots are water sources (wells and tunnels)
- The blue lines are major pipelines

The water system is integrated (connected for reliability) from Hauula around Makapuu, through Honolulu and Leeward to Makaha. North Shore, Kahuku, Wahiawa/Mililani are separate systems.

Water moves from Koolauloa to Koolaupoko. Also from Central O‘ahu (Pearl Harbor aquifer) to East Honoluu and from Central O‘ahu to Ewa and then to Waianae. Water also moves from Waialua to Pupukea on the North Shore.

The BWS system includes:

- 94 source stations (wells and tunnel sources). With distributed water sources, there is no central water treatment plant.
- 2,100 miles of pipelines
- ~170,000 water services
- Serving 1 million customers including tourists

To understand the water system, we need to understand where the water is…

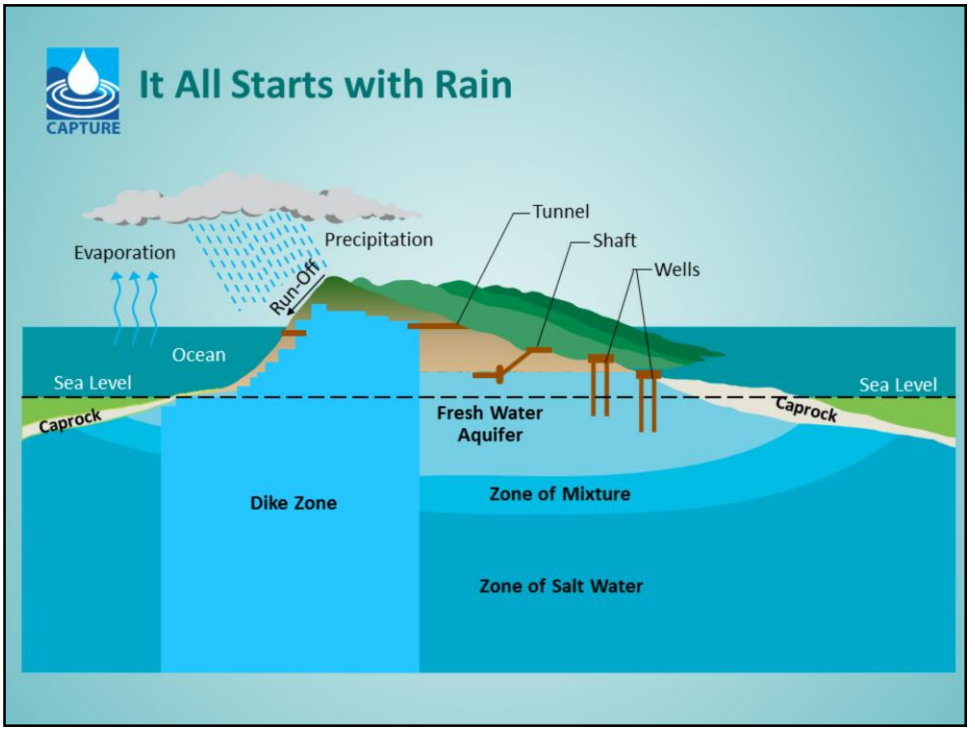
Now we will talk a bit more about the step called “Capture.”

100% of all our drinking water comes from groundwater, a majority of which is extracted through pumps like the one shown above, coupled with a few gravity tunnel sources.

Unlike surface water potable systems, stored groundwater is more resilient to droughts and of higher, more consistent water quality, requiring less treatment. Groundwater is naturally filtered through basalt rock providing high-quality drinking water.

The BWS potable water system averaged about 140 mgd during the 2010-14 period. Water demand fluctuates with weather.

The BWS also owns brackish and recycled water nonpotable systems.



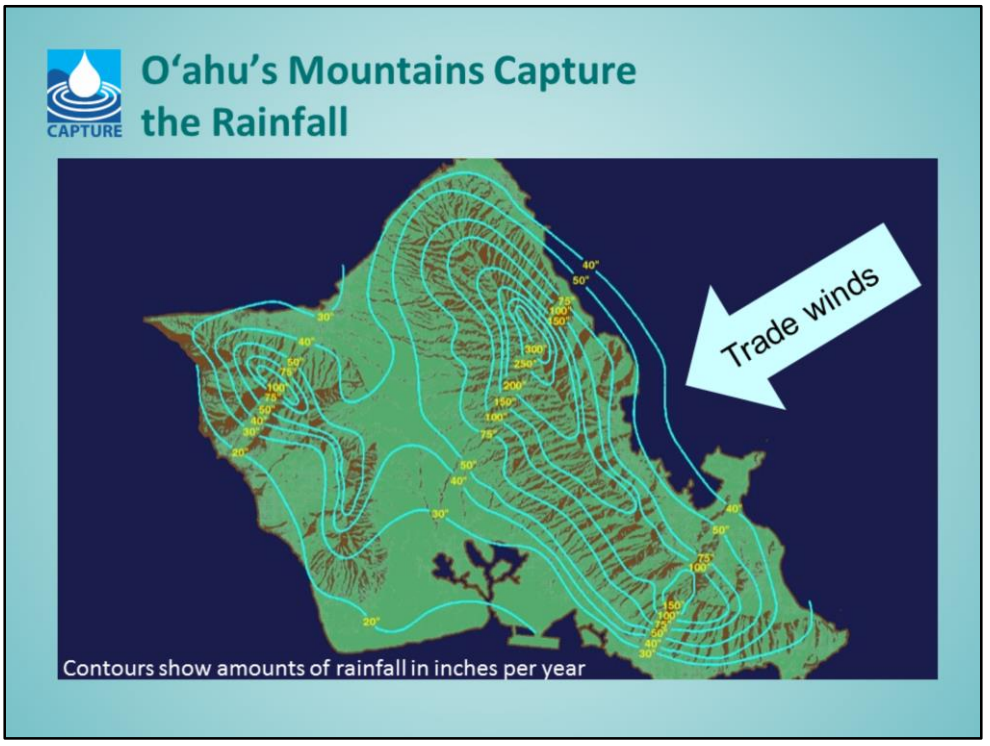
It all starts with rain.

Rain falls from clouds and trade winds that blow over the island. It flows into streams and some of it soaks into the ground to become groundwater. Groundwater is stored naturally in porous geologic formations called aquifers. It's like a big sponge. In these aquifers, water fills the pore spaces and fractures in the rocks. Groundwater is a renewable resource, constantly fed by rainfall.

O'ahu is blessed with an abundance of groundwater. Rain recharges aquifers and there are 2 main types on O'ahu: high level dikes and basal.

Thick porous basalt (lava flows) formations exist in most areas of O'ahu. Basal aquifers can be 700'-800' thick, created by confining caprock formations of corals and sediments along the coast formed by rising and falling ocean levels.

The younger Hawaiian islands don't have caprock and thus have much thinner aquifers.



This is a rainfall map showing lines of equal rainfall, like an elevation contour map.

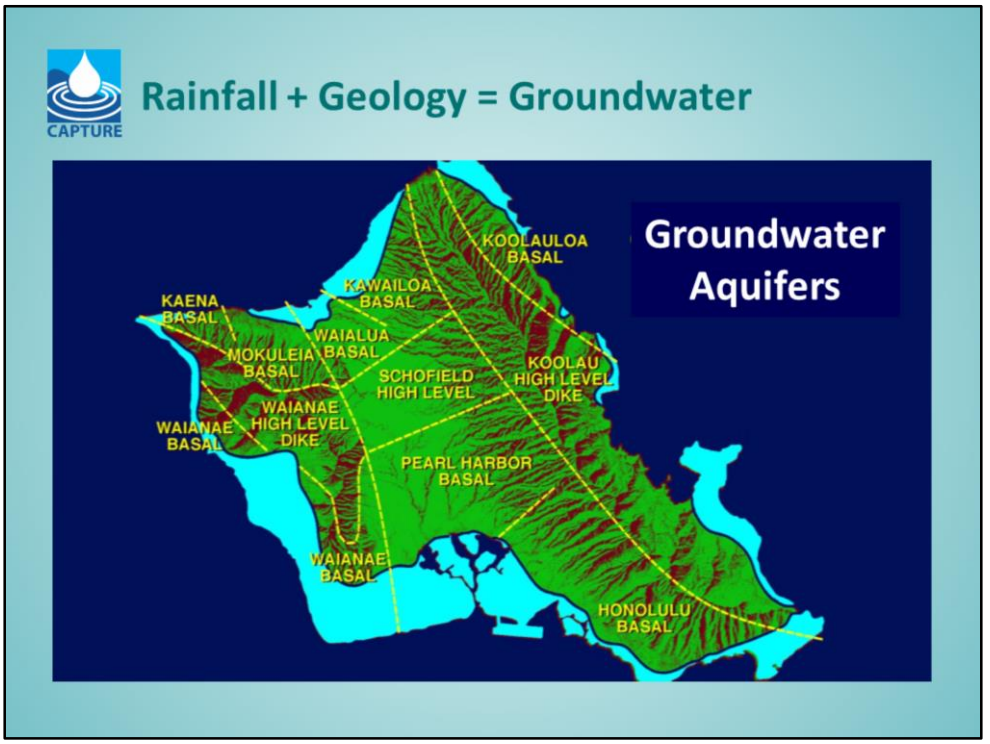
You may have heard the phrase, "The rain follows the forest," but the mountains create the rain.

If you look at the orientation of the Koolau mountains relative to the normal trade winds, you find that they are perpendicular and they are at the right elevation. The moisture laden trade winds are trapped by the Koolaus and lift the trades high enough to cool and condense the moisture into rainfall. So if the Koolaus mountains were shorter or oriented parallel with the normal trades, O'ahu would not see so much rain. These windward and mauka showers amount to about 60% of rain on O'ahu, with the remaining 40% from frontal storm systems (Kona storms).

The Koolaus get most of the rainfall, as much as 280 inches/year in Wahiawa, Kahana, and Punaluu, while Waianae, which is in the trade wind shadow of Koolau, gets much less, 60 inches/yr, (2011 UH Rainfall Atlas). The lowest rainfall, like the Ewa plain receives, comes to about 20 inches/yr, just like the rainfall on the oceans surrounding the island.

To understand the BWS water system, we need to understand where the water is.

- Water is where it rains…
- But also, where the large aquifers are…



The largest aquifers on O‘ahu are the basal aquifers of Honolulu, Pearl Harbor, Wahiawa and Waialua.

So when the Koolau mountains make the trade winds rain, the trades push the rain to the leeward side of the Koolau crest and it fills (recharges) the largest basal aquifers on the island. The dike aquifers of Windward and Waianae have much less water storage capacity than the basal aquifers and thus are much more susceptible to extended drought.

Although the Windward water system is connected to Honolulu for reliability:

- Most of Windward water has to stay Windward to ensure the dike aquifer levels remain high, for drought.
- The trade winds also sustain Windward streams and nearshore ecosystems.
- How water is shared is a conscious win-win the BWS policy and a direct outcome of the ahupua‘a concept.
- Total groundwater sustainable yield for O‘ahu = 407 mgd (not including Waiahole Ditch). Groundwater use has been less than 200 mgd or <1/2 of water on O‘ahu.

Most of the water supply in South O‘ahu is fully utilized and most of the unused water supply is in the rural areas of Wahiawa, North Shore and Windward O‘ahu.
Now that we understand where the water is, we can understand why the sources in our water system are spread throughout the island.

Note:

- Most of us live over our drinking water aquifers. What you put on the ground will end up in your drinking water.

The next step is “Treat.”

Because our ground water is naturally filtered in basalt rock and relatively clean, we only use two types of treatment.

The equipment you see in the left hand photo is a chlorination system. Like all other water agencies in the U.S., we use chlorine to prevent waterborne diseases like cholera, typhoid and dysentery.

Activities above ground, like using pesticides, affect the water quality below ground. These pesticides can be removed by the equipment you see in the right hand photo, granular activated carbon, which is like a charcoal filter for kitchen faucets.

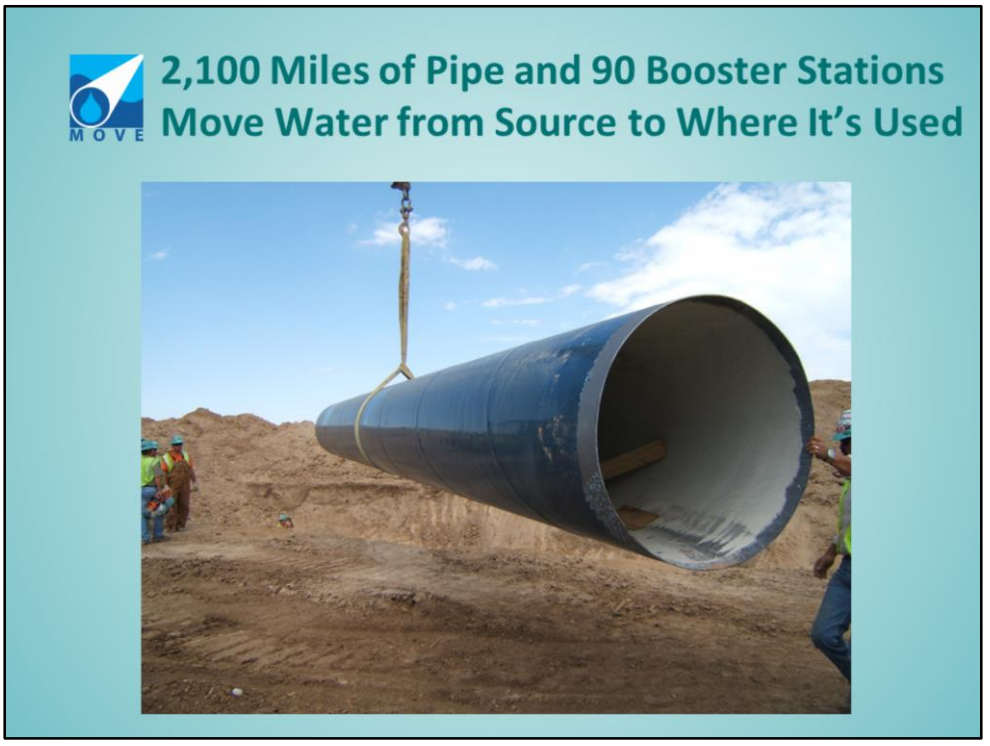
- O'ahu has porous soils overlying fractured porous basalt. Organics and chemicals that are not consumed biologically or absorbed chemically will pass through to the aquifer.
- Because we live over our drinking water aquifers, what you put on the ground will most likely end up in your drinking water. So we all have a kuleana to dispose of our waste products properly.

Both the Department of Health and the BWS test for compliance with the Safe Drinking Water Act. The Safe Drinking Water Act regulates 90 contaminants. The BWS conducts over 30,000 water quality tests annually to ensure the water we provide is safe to drink.

We also conduct tests (micro and chlorides) to help us adjust our treatment processes and operations. For example: if the test shows a rising chloride trend, we may be getting seawater intrusion and so we cut back pumping.

The BWS sends out an annual water quality report to every customer that summarizes the results of our water quality testing. This speaks of the transparency of our compliance with Safe Drinking Water Act regulations.

The next step is “Move.”



Water is moved from its source to where it is used. The aquifer water levels are at about 15' to 20' above mean sea level (except in high level sources, like Windward, Waianae and Wahiawa).

Up: If you live on a ridgeline, water is pumped from the source up the hill in increments of about 200+ feet at a time, called lifts.

Around: In the BWS's integrated island-wide water system, water is also moved laterally, along the coast, from:

- Waialua to Pupukea
- Punaluu to Waimanalo
- Pearl Harbor (Waipahu, Waimalu) to Hawaii Kai
- Pearl Harbor (Waipahu, Kunia) to Waianae

The integrated water system adds reliability in the event of a large transmission main break. The water can be temporarily reversed, for example, from Pearl Harbor through Hawaii Kai to Waimanalo.

The next step is “Store.”

We store water in 171 enclosed potable-water reservoirs like this all over the island, so it's close to you and ready whenever you need it.

This method allows us to deliver adequate volumes of flow and pressure to you.

Total potable storage capacity is 196.5 million gallons.
Design standard for storage is 1.5x average day demand.

There is a storage deficit in the Metro low service system, which will be addressed in the Water Master Plan and the Capital Improvement Plan.

The final step is “Deliver.”

"Deliver" is not just the amount delivered whenever a faucet, fire hydrant, sprinkler system or any water using fixture is turned on.

1st and foremost: "Deliver" carries an inherent trust that the water is safe to drink (quality).

2nd: The water delivered is dependable; always there, as much as operationally possible. Even after natural disasters.

3rd: The water delivered is affordable, meaning that explicit, transparent actions are taken to ensure delivery efficiency. Pumping power cost controls, new technology, water loss controls, leak detection and repair, timely infrastructure replacement, efficient organizational/work practices controls, etc. are employed to keep the BWS costs down to ensure water is affordable to all customers, including low income and seniors on fixed incomes.

Inherent in the delivery of water is the delivery of the BWS programs and services like main break repair, pump maintenance and repair, customer service, billing, permit reviews, financial management, planning and engineering, IT, Communications and Human Resources that are behind the scenes, often unnoticed to most…services that enhance the quality and definition of what delivery means.

The BWS was formed in 1929 as a response to threats to the water supply brought on by extreme over-drilling, un-metered leakage and the loss of forests due to ranging cattle that caused groundwater levels to drop quickly and cause water pollution.

The BWS understands our public trust responsibility to do our part to manage the water resources under our jurisdiction, for the people of O‘ahu.

It is our responsibility to sustain, capture and deliver water for our customers and plan for the future of water on O‘ahu.

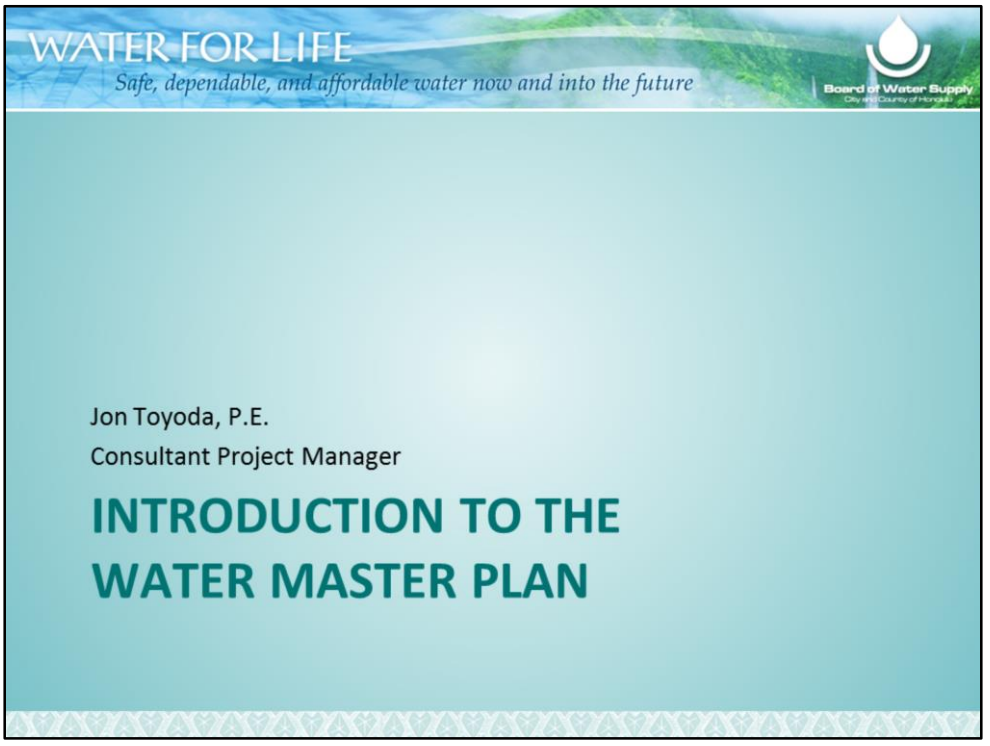
WATER FOR LIFE

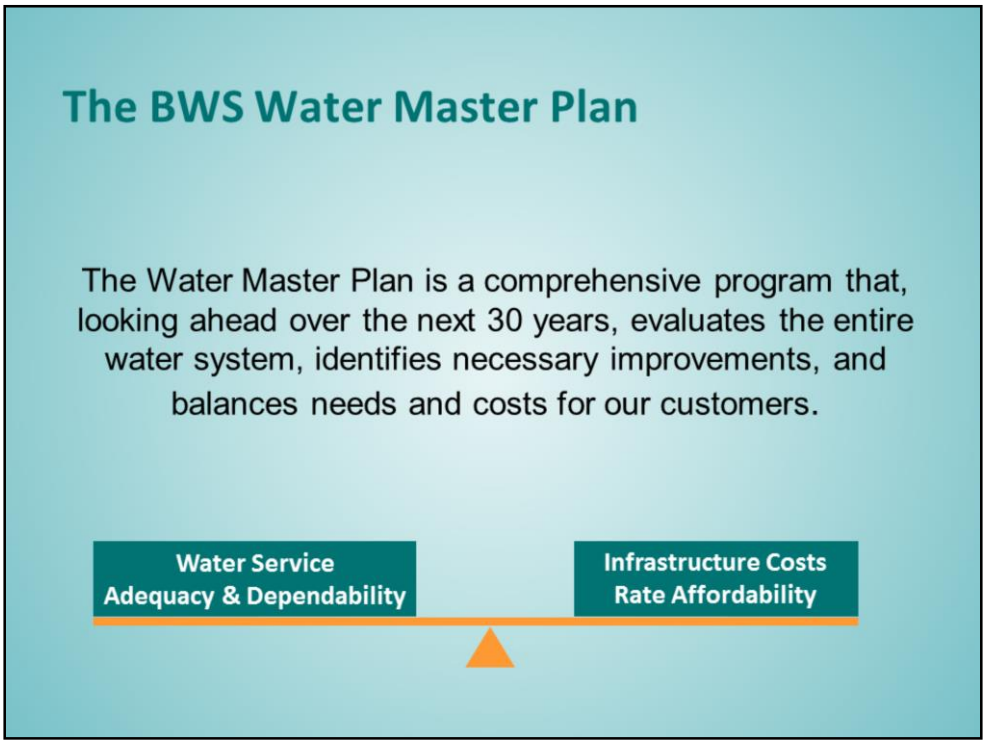
Safe, dependable, and affordable water now and into the future

Board of Water Supply
City and County of Honolulu

Mahalo!

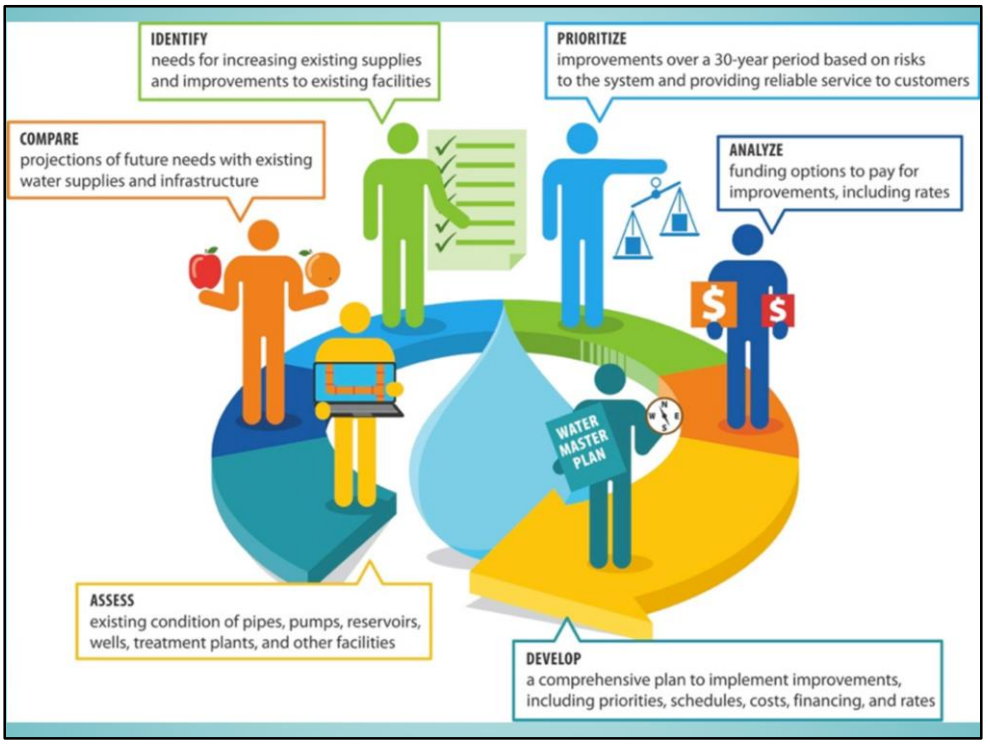
Questions & Answers


WATER FOR LIFE
Safe, dependable, and affordable water now and into the future
Board of Water Supply
City and County of Honolulu
Jon Toyoda, P.E.
Consultant Project Manager
INTRODUCTION TO THE
WATER MASTER PLAN



A Water Master Plan (WMP) is a best practice of water utilities to ensure stewardship of water supplies and infrastructure.

The BWS's WMP will provide information for policy makers to make decisions about balancing water service adequacy and dependability with the cost of infrastructure improvements and rate affordability to the BWS's customers.



The major components of the WMP are shown here in six general steps:

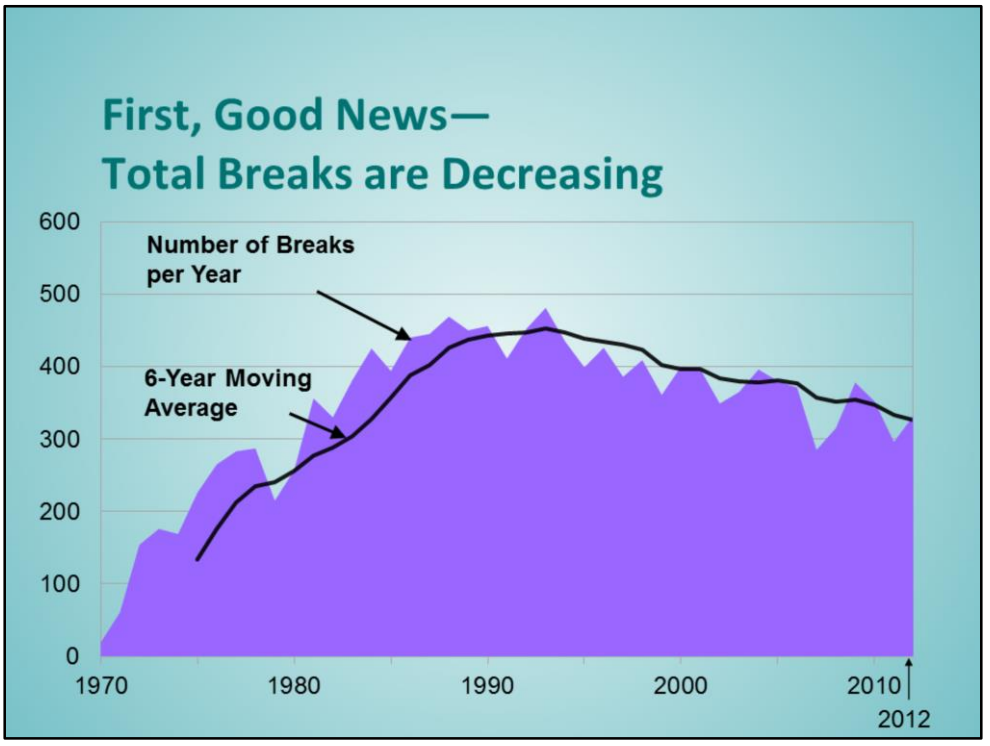
- Assess
- Compare
- Identify
- Prioritize
- Analyze
- Develop

STEP 1 is to "Assess Condition," means to evaluate the actual state of existing assets.

This is a simple concept but in reality it is not always easy to do.

Some cases are relatively straightforward: pumps, water treatment facilities, and reservoirs. These assets can be visually inspected, tested, and records of past performance can be reviewed.

Pipeline assessment is more complex because they are more difficult to inspect visually. Pipes are the largest dollar value asset of the BWS.

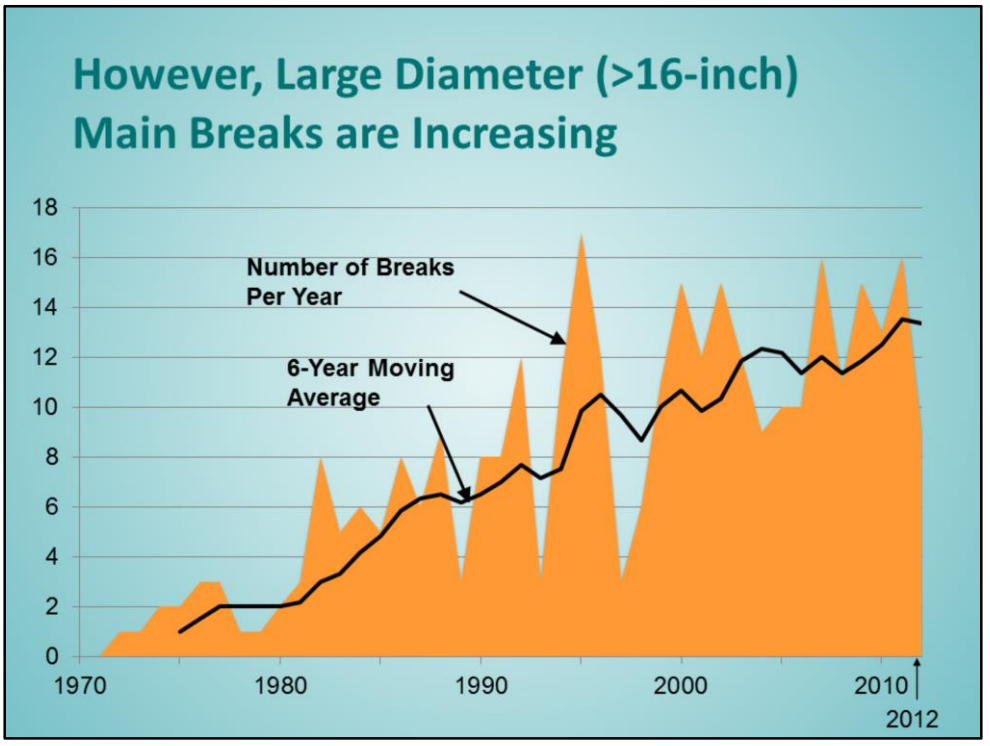


The horizontal (x) axis shows the years, from 1970-2012, across the bottom of the graph. The number of pipe breaks are shown along the vertical (y) axis.

As the graph shows, the BWS has done an excellent job of reducing pipe breaks.

In the past year there were approximately 300 total pipe breaks in the BWS system. Is 300 breaks per year a lot?

No. Given the size of the system, the BWS experienced fewer breaks than most other U.S. utilities. The national average, as reported by the American Water Works Association Water Research Foundation is 25 breaks per 100 miles of pipe each year. Last year the BWS experienced 300 breaks over its 2100 miles of pipe, which equates to 15 breaks per 100 miles. This is significantly below the national average.



However, the total number of large diameter main breaks (pipes larger than 16 inches) is increasing. The horizontal (x) axis shows the years, from 1970-2012, across the bottom of the graph. The number of pipe breaks are illustrated along the vertical (y) axis.

Large diameter (larger than 16") pipes comprise less than 20% of the 2,100 miles of water mains on O'ahu.

There are about 12 large-diameter pipe breaks per year, which is about 4% of the total breaks in the BWS system. This is a relatively small percentage of pipes and number of main breaks, so why such concern? Because large pipe breaks result in:

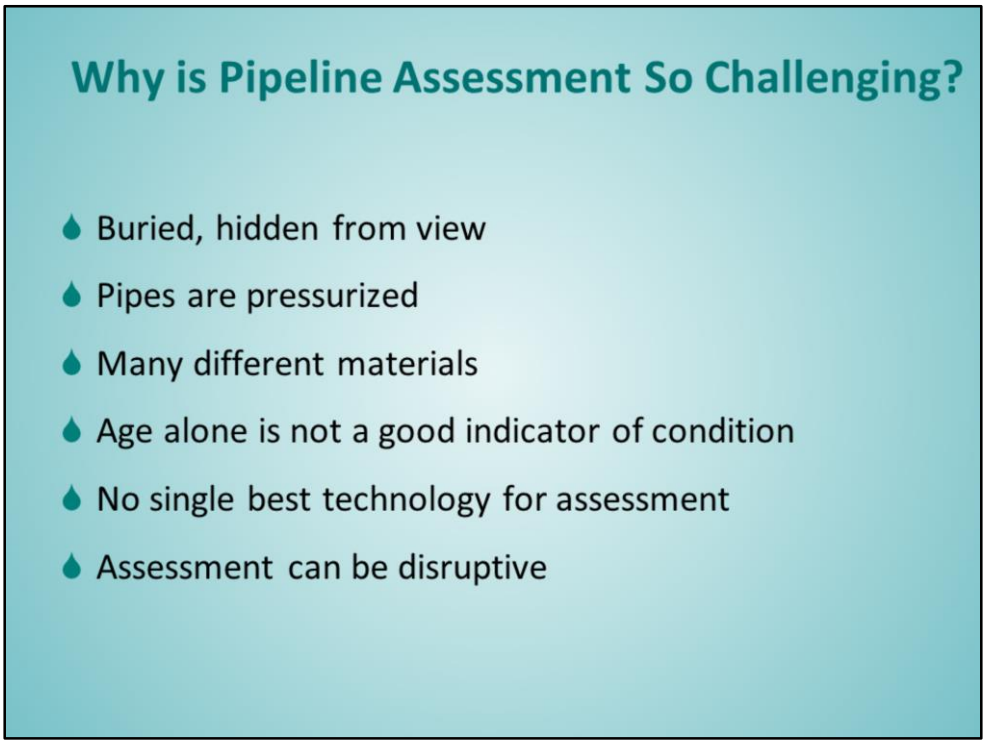
- Greater potential for property damage.
- More people out of water when a large main fails.

These are the most expensive mains to replace.

Because they have not been breaking very often, little is known about the condition of these large mains. Many of these large pipes in the BWS's system are greater than

70 years of age.

This is why the pipeline condition assessment is so important. Learning about the condition of large diameter pipelines helps us to make better decisions about when and where to replace these important assets.



- Pipeline assessment is challenging because pipes are buried, hidden from view and are typically below streets and pavement.

- Water pipes are pressurized and difficult to tap into. In contrast, much of the City's sewer system is a gravity system. Sewer pipes flow partially full and there are manholes that provide access at frequent intervals. Therefore, it is easier to inspect the interior of sewers.

- Because pipes are made out of many different kinds of materials, they all perform differently, and vary even within one material type. Pipes in the BWS's system are made from cast iron, ductile iron, steel, concrete composites, PVC, etc.

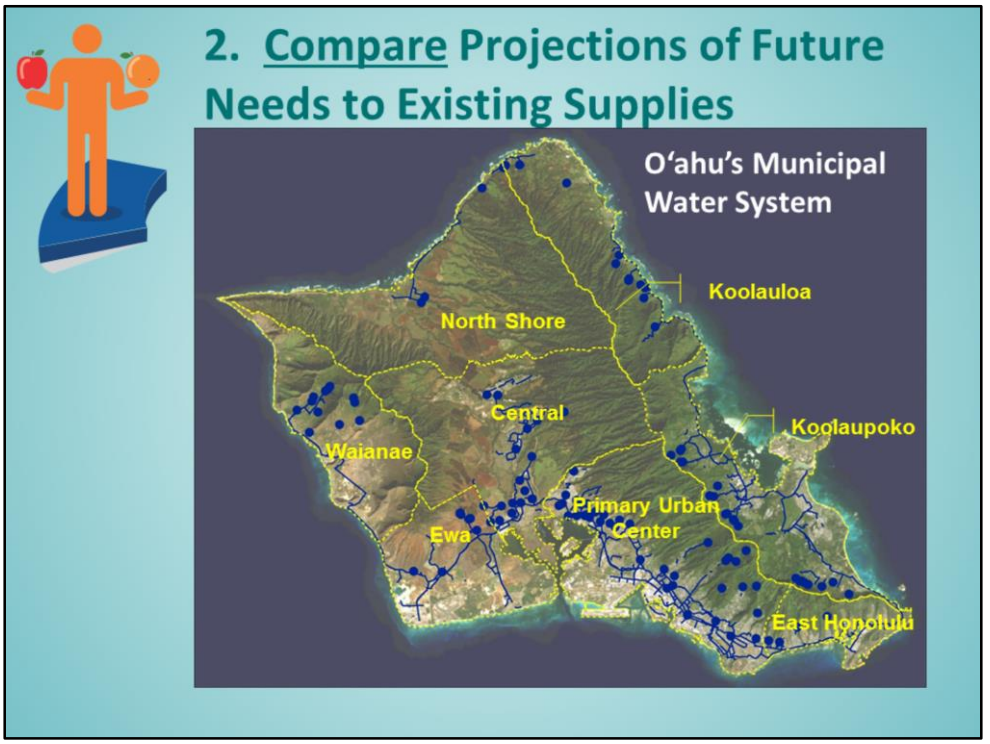
- Although there are industry "averages" for pipe service life (varies from 50 – 125 years), age alone is not a good indicator of how any particular pipe is actually performing. And there is no single tool suitable for assessing all pipe types.

- The more advanced assessment technologies require using an electronic device inside the pipeline, which is difficult to do without some disruption to customers, traffic and normal system operations.

We are using some of the most advanced technologies available.

The photo shows some of the newest equipment to perform advanced leak detection. Pipe breaks often begin as small leaks.

We are also using state-of-the-art technology that uses electromagnetics to determine pipe wall condition for certain types of metallic pipes. External corrosion is the biggest culprit that reduces the service life of the BWS's metallic pipes. We are planning series of tests in the fall on several miles of critical, large diameter pipelines.



STEP 2 is to compare future needs to existing water supplies.

This map shows where the majority of O'ahu's groundwater supply is located. When we evaluate existing sources, we look at both quantity and quality of water.

- We know current safe and allowable yields from various supply sources; limits are established by the Water Commission.
- We compare those yields to projected water demands (usage) in 2040 based on population and land use data provided by the City and County.

Based on this, we evaluate:

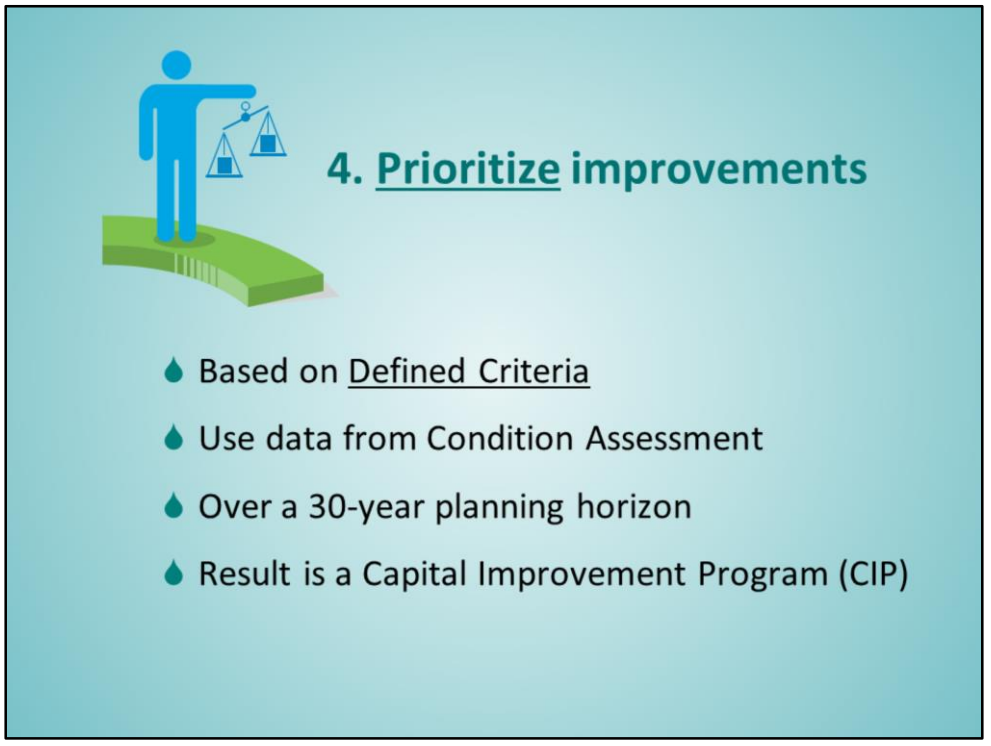
- Is there enough water supply for future uses? Yes, with the caveats that climate change, drought, contamination to groundwater, and other factors can change that.
- Is it in the right locations? Yes, and we will need to continue to move water, much as the BWS does today.

STEP 3 We Identify Needs and Potential Improvements based on:

- Condition assessment
- Capacity
- Standards – the BWS and State Standards for reservoir storage, fire flow, minimum pressure and Department Of Health requirements for water quality:
  - Existing requirements
  - Emerging contaminants
  - Potential regulatory changes
- Natural hazards
  - Seismic
  - Hurricanes
  - Power failures (often related to storms)

Types of improvements include:

- Sources
- Piping
- Pumping
- Reservoirs
- Water Treatment
- "Other" such as: Supervisory Control and Data Acquisition Systems (SCADA), emergency power, and the BWS yards.

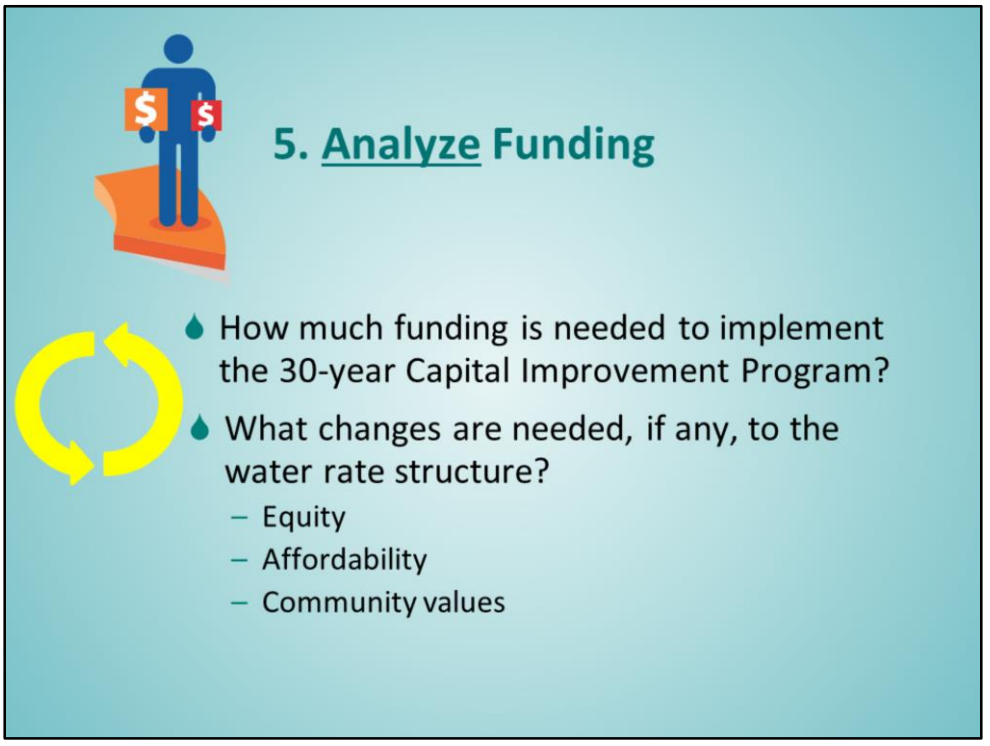


STEP 4 Prioritize

Why do we need to prioritize?

- Hundreds of projects can't all be done at once. We must consider in what order to replace pipelines as well as numerous other projects such as pump station upgrades, emergency power, control system upgrades and water treatment plant improvements.

- Risk is a fundamental consideration in deciding what projects are to be done and when. We also prioritize based on defined criteria.



STEP 5 Analyze Funding.

There are two fundamental parts of the process to analyze funding: How large is the 30-year CIP? How is it financed/funded?

There are many, many different ways to structure water rates to address:

- Equity
- Affordability
- Community values

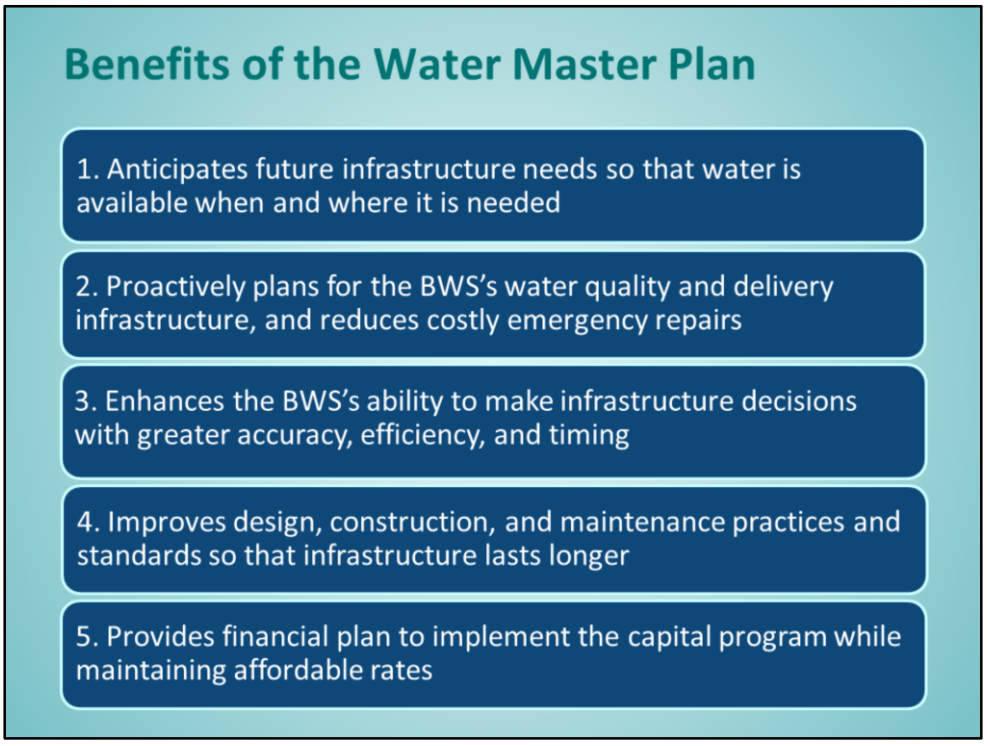
Two important points:

- Funding analysis is an iterative process.
- The stakeholder group will be engaged in providing input in this very critical balancing act.

STEP 6

The Water Master Plan will include:

- What improvements are required?
- In what order, or priority, should they be implemented?
- What is the overall schedule over 30 years?
- How much will it cost?
- How will it be financed?
- What is the rate structure to support the Plan?



There are multiple benefits to the WMP. Here are five of the most important:

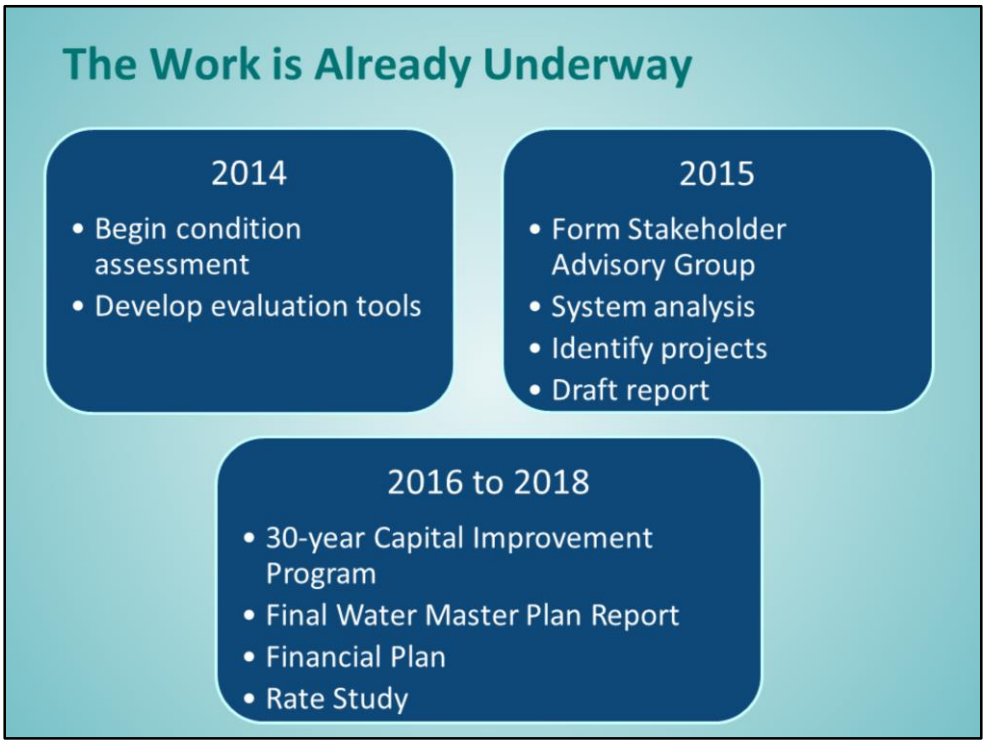
- This supports the Board's Mission of a "Dependable" water supply.
- The key word here is proactive. This supports the Board's Mission of a "Safe" water supply.
- One of our most important legacies of our program is developing a 30-year CIP that is sound, defensible and implementable.
- One of our tasks is to make recommendations in these areas.
- The financial plan supports the Board's Mission of an "Affordable" water supply.

Long-range planning is an ongoing process.

The Water Master Plan is not a one-time process. It creates a "Living Document." A large component of technology transfer (training) to the BWS staff is part of this process, so going forward many of the activities will be performed by internal staff.

The key takeaways from this slide are:

- Water Master Planning is a continuous process (the Loop)
- Although they might not do all the steps in a similar level of detail, most water agencies update their WMPs every 5 -10 years.



Here is the overall schedule of the WMP.

Work on the Water Master Plan is underway, but there is a lot more to do.

The key takeaway on this slide is that the Stakeholder Advisory Group will be involved through the remainder of this project. In doing so, this group will help shape the future of the Board of Water Supply.

WATER FOR LIFE

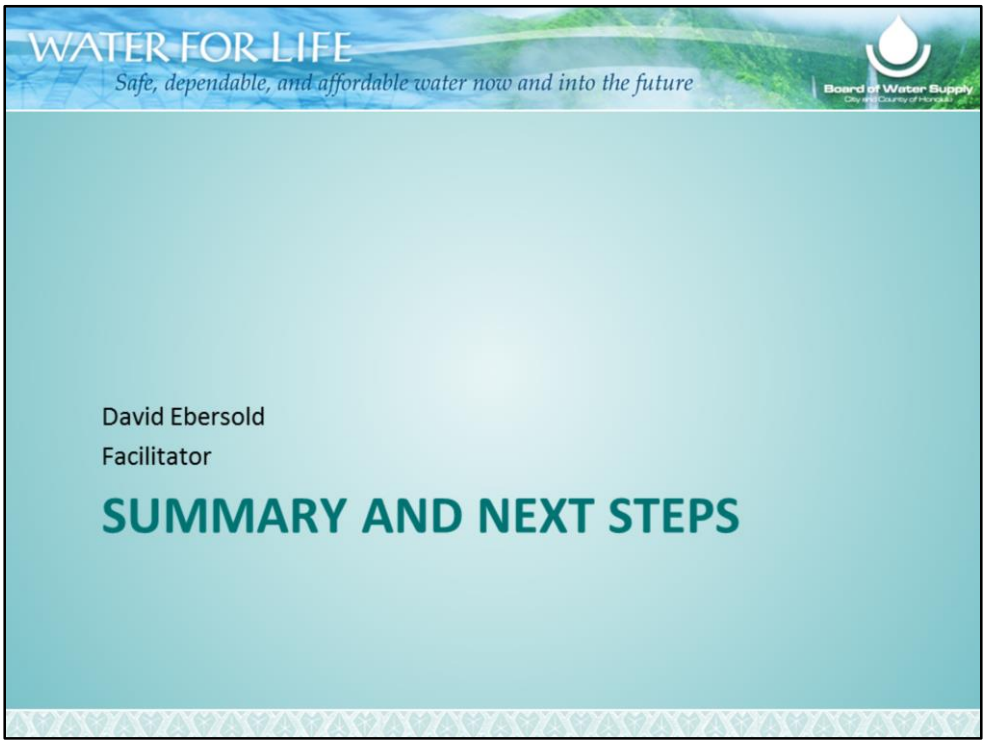
Safe, dependable, and affordable water now and into the future

Board of Water Supply
City and County of Honolulu

Mahalo!

Questions & Answers


WATER FOR LIFE
Safe, dependable, and affordable water now and into the future
Board of Water Supply
David Ebersold
Facilitator
TOP PRIORITIES OF THE STAKEHOLDER ADVISORY GROUP


WATER FOR LIFE
Safe, dependable, and affordable water now and into the future
Board of Water Supply
David Ebersold
Facilitator
SUMMARY AND NEXT STEPS


WATER FOR LIFE
Safe, dependable, and affordable water now and into the future
Board of Water Supply
City and County of Honolulu
Next Workshop Dates
Tues July 21, 4:00 – 6:30 pm
Wed Sept 16, 4:00 – 6:30 pm
Wed Nov 18, 4:00 – 6:30 pm

WATER FOR LIFE

Safe, dependable, and affordable water now and into the future

Board of Water Supply
City and County of Honolulu

Mahalo!