

## Letter/Notice to the Public

Businesses and residents that may be affected by the work are notified by a letter from the Board of Water Supply (BWS). If necessary, project signs and message boards are also installed to inform the public of the upcoming and/or ongoing work.



## Planning and Surveying

Prior to on-site construction, significant planning is required to ensure that



Pre-construction photos help to understand the area. the water main is completed in the most efficient way possible.

## Excavation and Installation

To minimize roadway damage, the pavement is first saw-cut and removed to allow workers to dig below the road surface. The subsurface is probed and inspected to locate existing utilities to

avoid damaging them during construction. Once the examination is complete, the construction crew



An archaeologist monitors work as an excavator removes material from the trench.

carefully excavates to the required depth. If necessary, an archaeologist is present during excavation to monitor for any inadvertent historic finds. After excavating to the specified depth, a crushed rock layer of cushion material is laid at the bottom of the trench to protect the new water main.

Then, the construction crew installs the new water main in accordance with the construction plans and specifications.



Crews carefully install PVC pipe and secure it tightly.

Water service laterals are then placed in order to connect businesses and residences to the new water main. As required, work also includes the installation of fire hydrants and valves.

After the new water main and service laterals are properly installed, more cushion material is placed to protect the new main and then the trench is backfilled in accordance with the project specifications. The backfill material protects the main and supports the roadway above. The excavated areas are temporarily repaved with hot mix asphalt.



Base course and backfill over installed pipe.



Crews install temporary asphalt to fill the trench until final restoration of the road.

During construction, representatives from other agencies, such as the City Department of Planning and Permitting, the State Department of Health, the State Department of Transportation, and Hawaiian Electric Company, may observe the work as needed to ensure compliance with their standards.

## Final Steps

Throughout the excavation and installation process, the original main has continued to provide water service and fire protection to the neighborhood and businesses. Before connecting customers to the new main, there are a series of final steps that must be completed before the main can be used to provide water to the public. First, a pressure test is performed to ensure that the newly-installed water main and connections will perform leak-free under operating pressures. Next, the new main is flushed and chlorinated, followed by thorough testing to ensure water quality standards are maintained. Third, the new main is connected to the municipal system and water services are transferred one-by-one from the old main to the new main, minimizing the duration of residents' water outages. Finally, the trenched area is repaved in accordance with City and State trenching requirements and all traffic markings are restored.



Valves and pipes are pressure tested before final connections.

## WHY IS THIS NECESSARY?

To minimize main breaks and prevent water quality problems, the Board of Water Supply (BWS) systematically programs proactive replacement of water main pipes before they fail.

Since 1990, the BWS has been able to steadily reduce the number of pipeline breaks per year. With improved methods and materials, replacing waterlines prior to failure will help to continue to reduce the number of breaks, and ultimately help the BWS fulfill its mission to provide the people of Oahu with safe, dependable, and affordable water.

The BWS understands that the process of repairing and replacing water mains can be disruptive to the public. While the BWS makes every effort to complete the necessary work as quickly as possible and minimize disruptions to the public, system integrity and job site safety are of utmost importance. As much as possible, every effort is made to prevent unnecessary or extended interruptions to water service, safeguard the existing water system and appurtenances, and minimize inconvenience to the public.

To Receive BWS Alerts:

**HNL.Info**



## Water for Life

**WATER IS ESSENTIAL FOR LIFE.** The Board of Water Supply (BWS) is committed to providing the people of Oahu with safe, dependable, and affordable water now and into the future. To secure Oahu's water future, the BWS has prepared a long-range Water Master Plan. The Plan is a comprehensive, broad-based technical program that includes data collection, investigations, assessments, and projections to make decisions for the water system for the next few decades.

**OAHU'S WATER SYSTEM IS EXTENSIVE AND COMPLEX.** Each and every day, the BWS pumps an average of 145 million gallons of water to serve 1 million people, and maintains a massive infrastructure composed of 2,100 miles of pipeline, 192 booster pumps, 212 water sources (groundwater wells, source pumps, tunnels, and shafts), and 171 potable water reservoirs.

**UNDERGROUND OR OTHERWISE OUT OF SIGHT.** For the most part, this water infrastructure is subjected to ongoing wear from the island's volcanic soils, earth movement, ground settling, weather, natural corrosion, and the flow of water through it. Water main breaks are perhaps the most visible signs of wear.

**THE BWS IS INVESTING IN IMPROVEMENTS TO PROTECT AND MAINTAIN THE WATER SYSTEM.** These investments are helping to continue to sustain, capture, treat, move, store, and deliver water for all of Oahu today and for generations to come.

## MESSAGE FROM THE MANAGER

As sections of Oahu's 2,100 miles of water main age, the Board of Water Supply (BWS) must construct water system improvement projects at various locations around the island. These proactive projects help to reduce the frequency of main breaks, improve fire protection, and ensure system reliability. To help you understand what to expect when we are in your neighborhood, we compiled this informational brochure to provide you with an overview of the process and the work involved in the replacement of water mains. We appreciate your kokua and patience as we work to best serve you now and in the future.

Mahalo,  
ERNEST Y.W. LAU, P.E.  
Manager and Chief Engineer

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## Water System Improvements: Water Main Replacements



Water for Life  
Ka Wai Ola