



Water System Improvement Projects

Many Oahu communities were first established more than a century ago. As these communities age, major portions of our infrastructure, from roads to sewers to water mains, are also aging and nearing the end of their useful life spans. The Board of Water Supply (BWS) system includes nearly 2,000 miles of pipeline, with more than 40% between 30 and 60 years old. In an ongoing effort to provide a safe and reliable water supply, BWS carefully manages and plans for the renewal and replacement of its infrastructure.

How does BWS decide which mains to replace and when?

The BWS continually analyzes the water system to prioritize which mains need to be replaced.

There are four primary factors that BWS takes into account:

1. **Condition Assessment:** Utilizing maintenance and main break records for historical data and analyzing the factors that affect pipe longevity, like soil type and pipe material, in a predictive analysis, BWS engineers determine which pipe segments have the highest probability of near future failure.
2. **System Improvements:** The BWS identifies areas where the performance of the water system can be improved by adjusting water pressures, increasing main size, or by installing additional fire hydrants.
3. **Public Impact:** Higher priority is given to mains along major traffic routes where main breaks will have significant impacts on traffic. Mains serving facilities that provide essential services, such as hospitals, or that serve large numbers of customers are also given a higher priority.
4. **Project Coordination:** If there is a possibility to mitigate the impact on residents or motorists by combining projects with other City or State agencies, those projects are also given a higher priority.

What is the Water Main Replacement Process?

- **Design:** Once the above four factors are analyzed and the project limits are defined, a main replacement project must be prioritized against the many competing needs of the municipal water system infrastructure. Once funding is secured, design begins on the pipeline replacement. At this point, the BWS sends its first series of letters to the community's councilmembers, legislators and neighborhood boards to notify them that an upcoming construction project is being designed.
- **Construction:**
 - **Bidding Process:** Once the construction plans have been completed and approved by the various regulatory agencies, the BWS must budget for the construction project. Once funds are secured, BWS solicits bids from contractors through a sealed bid process in accordance with State procurement laws (which all government agencies must follow). Through this process, the BWS must award the contract to the lowest bidder.

- Notification: Before construction begins, the BWS sends a second set of letters to the community's councilmembers, legislators and neighborhood boards to notify them when construction of the project is set to begin. Notification letters are also delivered to residents along the project's route.
- Preparation Work: The contractor then secures all remaining permits and approvals and secures a location for a base yard for the project. To begin construction, the contractor first surveys the area, marking the locations of existing underground utilities and often "probes" or digs small holes to verify subsurface conditions. Then, they will saw cut the roadway to mark where they will excavate.
- Pipeline Installation: Excavation begins and the new pipe is laid per the design. After the pipe is laid and the laterals and fire hydrants are installed, the contractor backfills the trench and temporarily paves over the trench.
- Permanent Road Restoration: Once the new water mains are pressure-tested and all connections have been completed, the trench is permanently restored and re-paved per City or State Standards.

BWS recognizes the impact construction projects can have on a community. However, these projects are critical to reducing the number of emergency repairs and to ensuring a continued safe and dependable water supply. To find out if the BWS has a construction project in your area, log onto boardofwatersupply.com, pull down the "Community" tab, and click on "Construction Projects." Maps of active construction projects are posted by neighborhood board districts. For questions about a BWS construction project, contact the BWS Construction section at 748-5730.