

BOARD OF WATER SUPPLY

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POWERS, DUTIES AND FUNCTIONS

The Board of Water Supply (BWS) manages Oahu's municipal water resources and distribution system, providing residents with a safe and dependable drinking water supply. The BWS's 500-plus employees fully understand and embrace their crucial roles as stewards of Oahu's most precious resource and work together to accomplish the BWS's mission of "Water for Life." This includes repairing and replacing aging infrastructure and maintaining and updating components critical to delivering water.

The BWS is the largest municipal water utility in the State, serving approximately 150 million gallons of water a day to roughly one million customers on Oahu. To keep the water flowing, the BWS must carefully and proactively manage and invest in its intricate system consisting of 94 active potable water sources, 170 reservoirs and more than 2,000 miles of pipeline servicing nearly every community on Oahu.

The BWS is a financially self-sufficient, semi-autonomous City agency. Its operations and projects are financed with revenues generated by water transmission and distribution fees. The BWS also pursues federal and state grants to help subsidize BWS projects.

A seven-member Board presides over and determines BWS policies. Five members are appointed by the Mayor and confirmed by the Honolulu City Council. The remaining two serve in their capacities as the Director of the State Department of Transportation, and the Director and Chief Engineer of the City Department of Facility Maintenance.

The Board appoints the BWS Manager and Chief Engineer to administer the department. The Manager appoints the Deputy Manager. Together, they provide leadership and direction for the organization while supervising the department's day-to-day business activities.

MISSION

The Board of Water Supply's mission of Water for Life is to provide a safe and dependable water supply now and into the future.

Three main strategic objectives emanate from this mission: resource, economic and organizational sustainability.

ORGANIZATION

Currently, the department consists of 14 support offices and divisions that work together to implement the BWS's mission by effectively managing Oahu's water resources and distribution system. It includes:

- **Business Development Division** - investigates opportunities to improve and enhance the department's water utility business and oversees the compliance of the department's water operations with all applicable environmental rules and regulations.
- **Capital Projects Division** - implements the department's Capital Program, including the design and construction of new source, storage, treatment, transmission, and distribution facilities; and the renewal, replacement, and upgrades to the existing water infrastructure.
- **Communications Office** - provides comprehensive strategic communication services and support to the department, including internal communication with employees and the Board; external communication with key stakeholder groups such as customers, community/advocacy groups, neighborhood boards, business/community leaders, media and elected officials.
- **Customer Care Division** – interfaces primarily with BWS customers to provide services in the area of bill payments, delinquent bills, account inquiries, water service investigations, review of building permits, new water services or meter reading; and investigation of water leaks and possible causes for high water bills.
- **Field Operations Division** – maintains and repairs Oahu's water delivery system, which includes all pipelines, valves, and fire hydrants. This division also maintains the BWS's corporation yards and conducts landscaping work at all of its facilities.
- **Finance Division** - ensures the BWS's financial resources are efficiently and effectively managed by providing support for all of the BWS's financial and fiscal functions, including general accounting, payroll, accounts payable, planning and analysis, inventory, fixed assets, treasury and purchasing.
- **Human Resources Office** - administers and manages the human resources programs, including training and development, labor relations, classification, recruitment and examination, transactions, benefits administration and contract negotiations.
- **Information Technology Division** - provides complete computer, telephone and network related services to BWS employees.
- **Land Division** - acquires land and land interests for the BWS through purchase, condemnation, lease, easement and executive land order; disposes surplus real property; and manages land that is under the control of the BWS.

- **Legal Counsel Office** - provides legal counsel and advice to the BWS and its officers and employees; ensures compliance with federal, state and local laws; assists the BWS in implementing industry best practices; and works to limit the department's exposure to liabilities.
- **Office of the Manager and Chief Engineer** - administers the affairs of the department in accordance with policies and regulations adopted by the Board and the provisions of the City Charter.
- **Security Office** - develops, reviews and implements plans, policies and initiatives to improve the security of the BWS employees, water resources and distribution system, and provides a prompt and coordinated response, together with other city, state and federal agencies to appropriately respond to emergencies.
- **Water Resources Division** - directs the BWS long-range water resource and capital planning for the island's water system, and ensures that there is an adequate water supply for current and future customers.
- **Water System Operations Division** - monitors, maintains, repairs and operates the department's diverse water systems, including well and booster stations, control valves and the various water treatment facilities; and inventories, maintains and repairs the department's fleet of motor vehicles, construction equipment and trailers.

HIGHLIGHTS

The BWS's 539 full-time employees work diligently to provide safe and dependable water service to its customers by concentrating their efforts on the following current strategic objectives:

Resource Sustainability

This strategic objective ensures that natural groundwater supplies are protected and managed efficiently. The BWS plans for a variety of strategies and projects in conservation, potable groundwater and alternative water supplies, including brackish, recycled and desalinated water to meet future demands. Its efforts also focus on protecting the natural environment, important watersheds and water sources by monitoring Oahu's rainfall and aquifer water levels and salinity, and taking appropriate precautions and actions to ensure the reliability of the island's potable water supplies.

The BWS's comprehensive water conservation program continues to foster effective water management policies and practices that reduce per capita use of potable water to encourage sustainable behavior and practices to all users across the island of Oahu. Resource management, alternative water supplies, BWS water system optimization and consumer education combine to form a holistic approach to this growing and expanding program that also involves collaborating with other utilities to learn and implement industry best practices.

- BWS investigators responded to numerous customer calls of water seepage on public property, pinpointing underground water leaks for repair.

- Recycled water is another important component of a host of conservation strategies to reduce potable water consumption. The department continues to support the use of recycled water in the Ewa area as an appropriate and more efficient source of water for irrigation and industrial purposes.
 - Recycled water use from the Honouliuli Water Recycling Facility continues to expand in Ewa for irrigation and industrial purposes. Recycled water production averaged 8.6 million gallons per day in FY 2010. A total of nine golf courses use recycled water for irrigation as well as the newly renovated Fort Weaver Road median landscaping project. The East Kapolei development along North-South Road is using recycled water for dust control. Additionally, Hawaiian Electric Company (HECO) has expanded its use of demineralized recycled water for boiler feed at its new Campbell peaking power plant in addition to the Kahe power plant, which started using recycled water in 2009.
 - The State Department of Hawaiian Home Lands' administrative complex along Kapolei Parkway, the City of Kapolei, and two parks are also slated to begin using recycled water. The BWS is also working with the City Department of Environmental Services to use demineralized recycled water for the H-Power plant expansion.
- In April 2010, the BWS signed on as a partner in a public-private partnership that will work to preserve and protect the watershed in Waianae. Watershed management partnerships allow the BWS to join with other organizations with similar goals to strengthen mutual watershed protection efforts and increase rainwater recharge of our island groundwater supply. Other coalition members of the Waianae Mountains Watershed Partnership (WMWP) are the United States Army Garrison Hawaii, the United States Navy Region Hawaii, the State Department of Land and Natural Resources (DLNR), the Gill-Olson Joint Venture, Kaala Farm and MAO Organic Farms.



Public-Private Partnership. BWS Deputy Manager Dean Nakano signs a Memorandum of Understanding to join other organizations to preserve and protect the watershed in Waianae.

- The Waianae and Koolauloa Watershed Management Plans will be adopted by the City Council in August as Bills 9 and 10, respectively, revising Chapter 30, Revised Ordinances of Hawaii (ROH). These plans are the regional component of long-range strategic water plans for the City and County of Honolulu. The watershed management

plan follows the community land use plans adopted by the City as a guide for water resource management. Watershed management plans provide the strategic planning framework for watershed protection projects and water use and development for the BWS's long-range capital program, ensuring that adequate water supplies and water system infrastructure will meet Oahu's future water demands.

- The BWS continues to participate in the Mayor's Energy and Sustainability Task Force to conserve water in City facilities. The next update of the Sustainability Plan is forthcoming.
- The BWS continues to promote the U.S. Environmental Protection Agency's (EPA) Water Sense-labeled products, which identify water-using products or programs as high quality and water-efficient.
- The BWS implemented an array of activities that support and reinforce efforts to educate customers about the BWS and its programs, while continuing to stress the importance of conserving water throughout the year.
 - Through BWS's Water Conservation Week contests, all Oahu students can learn about the importance of water and water conservation. The poster contest component is open to students in grades K-6 and the poetry contest component is open to students in grades 7-12. The winning posters and poems will be featured in the BWS's 2011 water conservation calendar, which will be available to the public at the end of 2010.



Water Conservation Education. Mayor Mufi Hannemann and BWS Manager and Chief Engineer Wayne Hashiro (back row) pose with some of the winners from the 2010 water conservation week poster and poetry contest. Thousands of students learned about the importance of water conservation through these contests.

- To celebrate the 21st Anniversary of the BWS's Halawa Xeriscape Garden Open House and Unthirsty Plant Sale, the BWS held an Extreme Xeriscape Garden Makeover Contest, valued at \$20,000, at the event. Hundreds attended the daylong event to enter the contest, which was sponsored by Steve's Gardening

- Services, Rain Bird and the Friends of Halawa Xeriscape Garden. The contest helped to further promote water conservation through efficient landscaping.
- Thanks to a partnership with the City and County of Honolulu, the BWS continued to offer free mulch at the Halawa Xeriscape Garden on Saturdays. Mulch reduces pooling of water and evaporation so plants don't have to be watered as often. Over the past fiscal year, hundreds visited the garden to fill up their bags and trucks with free mulch, providing the BWS with the perfect opportunity to reach new audiences to promote outdoor water conservation techniques.
 - During the summer months, television and radio public service announcements encourage consumers to use the water they need, but not to waste it. The water conservation media campaign helped customers understand the importance of sustaining Oahu's groundwater resources and provided easy tips for residents to reduce daily personal water use.
 - Other public education programs, such as the year-round facility tours program, various outdoor water conservation classes offered throughout the year at the Halawa Xeriscape Garden, and numerous school presentations and event educational booths also helped teach thousands of Oahu's youth and the general public about the island's finite water supply. More information about the BWS's educational programs can be found at www.boardofwatersupply.com.
- The BWS understands its responsibility includes protecting and preserving the quantity as well as the quality of our island's drinking water supplies through compliance with all Federal and State safe drinking water regulations and the installation of new and replacement water treatment facilities.



Ensuring Water Quality. Board of Water Supply chemists and microbiologists understand the importance of their roles in providing safe drinking water to Oahu residents. Each year they conduct thousands of water quality tests and learn state-of-the-art techniques and procedures.

- In FY 2009 – 2010 the BWS conducted more than 28,000 water quality tests on various samples collected from its water sources, distribution system and treatment facilities to ensure all water served is safe to drink.

- In June 2010, BWS completed its annual production and delivery of the Consumer Confidence Report (CCR), also known as the Water Quality Report, to all BWS customers. The report provides information on the quality of the water delivered from the BWS system and was mailed to all customers on record. The report is also available on the BWS website at www.boardofwatersupply.com. The department also placed ads in Honolulu newspapers, including various ethnic language publications, to inform community members of the distribution.
- In December 2009, BWS began complying with a new regulation called the Ground Water Rule. The rule requires BWS to monitor and install treatment on any water source that shows the confirmed presence of fecal contamination. The rule also requires regular inspection of the BWS water system and facilities by the State Department of Health and to implement corrective action for any significant deficiencies found.

Economic Sustainability

The second strategic objective calls for a sound financial strategy to support the department's operating and capital needs. While operation and construction costs steadily increase, the BWS continues to focus its efforts on improving its core services, by addressing aging infrastructure and ensuring the reliability and quality of water provided to all customers in the City and County of Honolulu.

- The BWS implemented an 8 percent water rate increase on July 1, 2009. The additional revenue is necessary to fund infrastructure repair and replacement programs and to keep up with the rising cost of delivering water to customers.
- On July 1, 2009, the BWS implemented a power cost adjustment to help pay for unexpected electrical cost surcharges incurred during the prior fiscal year (FY 2009). The power cost adjustment was 5.8 cents for every 1,000 gallons of water used and will be reviewed annually so that the adjustment only recovers unanticipated energy cost surcharges from the prior fiscal year.
- A total of \$9.1 million in construction contracts and over \$2.5 million in professional services contracts were awarded as of June 30, 2010. The repair and replacement projects aim to address the needs of the BWS's aging infrastructure to ensure continuity of core services:
 - Aging and corroded water mains are systematically identified and replaced throughout the municipal water system to improve system reliability, reduce main breaks, and provide sufficient pressure during periods of peak demand. In conjunction with main replacement projects, existing fire hydrants are replaced and new hydrants are installed to improve fire protection and ensure that current standards are met. Water main installation projects were recently completed in the Ewa, Haleiwa, Kalihi, Lanikai and Tantalus areas, including Phase I of a transmission main project along Farrington Highway. Contracts were awarded by the BWS for water main construction projects in Manoa and along Kamehameha Highway in Sunset Beach.
 - The BWS continues to identify deficiencies and improve the appearance and integrity of aging BWS water facilities. Such facilities include water reservoirs,

- well and booster stations, and administrative offices belonging to the Department. Projects completed this past fiscal year included fencing improvements at Manoa 405, Nuuanu 640, Roundtop 705, and Diamond Head 180 Reservoirs and Wilder Wells. During this fiscal year, new contracts were awarded to repair, renovate and/or reroof the Bella Vista 180 Reservoir, Makakilo 675 Nos. 1 & 2 Reservoirs, Newtown 285 Reservoir, Palolo 405 and 605 Reservoirs, Waahila 405 Reservoir, Waimanalo 230 and 364 Reservoirs, and Waipio Heights 395 Reservoir.
- Renovation projects ensure the dependable service and operational efficiency of the Department's pump and booster stations. This year, construction contracts were awarded for the renovation of the mechanical and/or electrical systems at Barbers Point Line Booster, HECO Waiiau Wells, Kahuku Wells, Kunia Booster, Maakua Well, Manoa Well II, Mililani Wells I, Mililani Wells III, Mililani Wells IV, Waiiau Wells, Waipahu Booster, and Waipahu Wells III. Renovation projects were completed for Kaamilo Wells, Kahuku Wells, Kalihi Uka Booster, Moanalua Wells, Palolo Tunnel, Pearl City Wells II, Punaluu Wells III, Waialeale Well I, and Waipio Heights Wells II.
 - Construction was completed on the Nanakuli 242 Reservoir, a new 2.0 million gallon reservoir that increases the storage capacity in the Leeward water system. Situated at strategic locations throughout the island, reservoirs ensure a reliable supply of water and maintain adequate pressures within the water distribution system.



Reservoir Construction. *The newly constructed Nanakuli 242 reservoir adds two million gallons of potable water storage capacity for the Leeward water system .*

- While the replacement of aging water mains helps to reduce the amount of water emergencies, main breaks are still an acknowledged part of the water utility industry and can have a tremendous impact on the public. BWS crews respond 24 hours a day, seven days a week to water emergencies. In calendar year 2009, BWS employees responded to a total of 395 main breaks or about 19 breaks per 100 miles of pipeline. According to the American Water Works Association, water utilities nationwide should

strive for roughly 25-30 breaks per 100 miles of pipeline. The BWS ratio was better than the national benchmark. BWS employees were also consistently commended for their efforts to quickly repair and restore water service to customers in a timely manner, often under difficult conditions. In addition to working on pipeline repairs, BWS crews provided affected customers with water by stationing water wagons in the neighborhood and/or installing a tap on a fire hydrant during repairs. Because BWS pipelines are typically under roadways, BWS crews also cleared the area of debris and repaired the damaged roadway as quickly as possible to allow normal traffic to resume.

- As part of the BWS's objective to optimize work efficiency, the department continues to roll out its Computerized Maintenance Management System (CMMS) to supervisors in its Water System Operations Division. The CMMS captures labor, vehicular/equipment, and parts and materials costs that are automatically calculated at job completion, and an integrated electronic map makes data readily available so crews can be more informed in the field. The system is tightly integrated with the BWS's Time and Attendance and Financial Systems and has decreased the time employees have to spend on paperwork.
- The BWS's HONU GIS (Honolulu ONline Utilities Geographic Information System) has been upgraded to use the ArcGIS Server platform with the Microsoft Silverlight framework. It gives the department access to updated imagery, contains exciting new functionality and performs faster. This system and its new features were presented to the world-wide user community at the international ESRI Users Conference in San Diego this year to rave reviews. The system continues to identify BWS assets in the field so it can be scheduled for maintenance, located by crews and used in hydraulic modeling. The ongoing asset collection and verification project started in Halawa and has progressed clockwise around the island with survey crews collecting asset locations in Manoa and McCully at the end of the 2010 Fiscal Year. To date, 200,055 BWS assets have been located and mapped and more than 30,812 asset locations (e.g. meters, valves, hydrants and manholes) have been added. Many of these assets had been asphalted over, buried, overgrown with brush or never spatially inventoried as BWS equipment.



Asset Management. Contractors help map BWS assets using Global Positioning System technology.

- The BWS has also embarked on a program to ‘virtualize’ all the computer servers, which essentially eliminates most of the individual server boxes and moves the software onto one large machine that can logically separate its functions. The merger of a large number of servers has dramatically lowered power requirements and the air conditioning load at the Beretania Control Center.
- The BWS completed the initial phase of its wireless initiative, with the target goal of having an island-wide, secure, broadband, disaster-hardened communications network. The initiative completed network links from the BWS’s Beretania location to the major corporation yards at Kalihi and Manana, the disaster recovery site near the Airport, and extended the BWS’s wireless backbone from Makakilo to Koko Head, covering the leeward coast. This is the first step of a large-scale project to eventually link all BWS facilities.

Organizational Sustainability

The third objective calls for strategies to maintain a strong, flexible organization that is able to resolve economic, regulatory, and service challenges while continuing to provide exceptional service and value to our customers and the communities we serve.

- The BWS successfully processed more than 195,000 customer calls regarding bill payments, delinquent bills, account inquiries, set-up and closing of water service, water service investigations, building permits, new water services or meter readings during the fiscal year. BWS employees were consistently commended for their efforts to resolve customer’s needs in a timely and efficient manner.
- The BWS works closely with its agency partners such as the City Department of Emergency Management, Honolulu Police Department, Honolulu Fire Department, State Civil Defense, and others in a continuing effort to develop plans and procedures to protect its assets and to respond effectively to emergency situations whether it be a hurricane, electrical system failure, pandemic flu, tsunami, or other event.
 - An emergency action plan was developed for the Nuuanu Dam as required by state law.
 - With the additional threat of the H1N1 flu, the BWS collaborated with the City Department of Emergency Management in collective efforts to mitigate potential threats. A Continuity of Operations Plan (COOP) was developed to address potential impacts to the BWS’s workforce.
- The BWS implemented a number of new programs to help employees and supervisors to be the best that they can be.
 - A new employee performance evaluation system was introduced this past fiscal year. Key to this program is the discussion at the beginning of the evaluation period between the supervisor and employee about performance expectations and specific goals to be accomplished. This strategy has helped employees perform better and supervisors identify performance areas in which an employee may require more guidance and help.
 - To improve as leaders, supervisors also require feedback on how well they are performing. The new Upward Evaluation Program provides subordinates an

opportunity to evaluate and provide constructive feedback to their immediate supervisor on key factors – supervision, communication, problem solving, decision-making, planning, organizing, innovation, and appraising employees. Completing an evaluation is voluntary and submitted to the supervisor’s manager who includes the comments in the supervisor’s annual performance evaluation. So far, there has been a 33 percent participation in this program.

- To sustain a viable organization, it is important that employees are equipped with the skills and knowledge to perform successfully. During the past fiscal year, a Professional Business Writing workshop for managers and professionals was held as a refresher and to help hone employees’ writing skills.
- Recruitment outreach continues to be important to the viability of our organizational sustainability even during an economic downturn.
 - The BWS continues to be an active participant in the City’s successful Po’okela Internship Program. A few of the interns have continued employment with BWS after graduation.



Po’okela Internship Program. *Interns learned about the BWS and where Oahu’s water comes from during a tour of Waihee Tunnel.*

- The BWS continues to be committed to improving labor-management relationships with our public employee unions, the Hawaii Government Employees Association (HGEA) and the United Public Workers (UPW). Management employees are encouraged to participate in the annual joint Labor-Management Seminars sponsored by HGEA and UPW that cover topics that address working together more effectively. The BWS continues to meet quarterly with the department’s shop stewards to promote open communication. The meetings are a forum where stewards are able to obtain clarification and guidance on personnel-related questions and concerns that are brought up by their co-workers. These sessions help to limit misinformation and clarify issues that could turn into future grievances.
- Employee recognition programs are a key element to foster employee morale and encourage continual excellence. These programs are an important part of the BWS’s human resources development:

- In October 2009, Amy Tsuneyoshi, BWS Watershed Specialist III, was chosen for the William Y. Thompson Award by the Hawaii Water Works Association (HWWA). The award is given each year to an outstanding member in the water industry whose work exemplifies distinguished service, loyalty and love for the people of Hawaii.
- In June 2010, the BWS Women Pipe Tapping Team won the National Championship title for the Women's Division at the American Water Works Association's annual conference in Chicago, Illinois. The pipe tapping contest tests the skill, strength and speed of participants who drill into a live water main and set up a connection to a working faucet in the fastest time while maintaining industry standards. The pipe tapping team members Susan Oda, Water Meter Mechanic; Danielle Ornellas, Multi-Skilled Worker III; Carolyn Sawai, Civil Engineer IV; and Coach Gary Fernandez, Scheduler, turned in a winning time of two minutes, 12.47 seconds (2:12.47).
- In July 2010, the BWS selected Karen Tom, Executive Assistant I, and Dominic Dias, Civil Engineer V, as the Department's Manager and Employee of the Year, respectively. Both Karen and Dominic represent the high caliber of the BWS workforce with their initiative and dedication in serving the communities of Oahu. Both will compete for the overall City award at the City's recognition and awards ceremony in November 2010.