



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 Board'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 Board's mission of Water for Life. This includes repairing and replacing aging infrastructure, maintaining and updating components critical to delivering water.

The BWS is the largest municipal water utility in the state, serving roughly one million customers on Oahu with approximately 150 million gallons of water a day. 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, 90 booster pump stations, 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 Board also pursues federal and state grants to help subsidize BWS projects.

A seven-member Board of Directors 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 run 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 communications services and support to the department, including internal communication with employees and the Board of Directors; external communication with key stakeholder groups such as customers, community/advocacy groups, neighborhood boards, business/community leaders, media and elected officials.
- **Customer Care Division** – is the division that primarily interfaces with BWS customers. Services include 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** – is responsible for maintaining and repairing Oahu's water delivery system, which includes all pipelines, valves, and fire hydrants. This division also maintains the Board'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 Board'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 program, 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 by 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 Board in implementing industry best practices; and works to limit the department's exposures and 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 provide 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 and operates the department's diverse water systems, including pumps, reservoirs and booster stations; maintains various water treatment facilities; and inventories, maintains and repairs the department's fleet of motor vehicles, construction equipment and trailers.

HIGHLIGHTS

The Board's 529 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 and verifying the cause of leaks.
- 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 8.4 million gallons per day in FY 2009. A total of nine golf courses use recycled water; and various construction projects such as the North-South Road and the Mehana Development are using recycled water for dust control. Additionally, Hawaiian Electric Company (HECO) has started buying recycled water for the boiler feed at its Kahe power plant location.
 - 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. Additionally, the new HECO Campbell peaking power plant is in the process of connecting to the recycled water system. The BWS is also working with the City Department of Environmental Services to plan for recycled water at the expanded H-Power plant.
- 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 Board secured more than \$500,000 for drought mitigation programs. The grant, provided by the State Commission on Water Resource Management helped to fund three BWS projects – creating wildland fire protection to support the Honolulu Fire Department and the Department of Land and Natural Resources, extending the Board's successful toilet rebate program that promotes changing high-flow to low-flow toilets, and helping the Board purchase leak loggers for pipeline leak detection work.
- 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.
- **Work continues on the Koolaupoko watershed management plan.** This plan is 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 implemented and expanded upon a wide 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. Highlights from these programs include:
 - The BWS expanded its annual Water Conservation Week Poster Contest (open to students in grades K-6) by adding a new poetry contest for students in grades 7-12 and held in conjunction with the poster contest. Through these contests, all Oahu students can learn about the importance of water and water conservation. The winning posters and poems will be featured in the BWS's 2010 water conservation calendar, which will be available to the public at the end of 2009.

- To celebrate the 20th 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.



Water conservation education. Mayor Mufi Hannemann and BWS Board Chair Randy Chung (back row) pose with some of the winners from the 2009 water conservation week poster and poetry contest. Thousands of students learned about the importance of water conservation through these contests.

- Thanks to a partnership with the City and County of Honolulu, the BWS began offering 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 of Oahu's groundwater resources and provided easy tips for residents to reduce daily personal water use.

- Other public education programs, such as the annual Detect-A-Leak Week campaign, 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 Board's educational programs can be found at www.boardofwatersupply.com.

- The BWS understands its responsibility includes protecting and preserving the quantity of Oahu's water and ensuring the quality of the island's drinking water supplies. The Board continues to ensure the community's potable water supply complies with all Federal and State safe drinking water regulations the BWS monitors changes in safe drinking water regulations; and installs 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.

- The Board conducted more than 27,000 water quality tests this past fiscal year, collecting and analyzing water samples from the BWS's various water sources, distribution system locations and water treatment facilities to ensure all water served is safe to drink.

- Since 1998, the BWS has been providing information about the quality of the municipal water supply to all BWS customers through the Consumer Confidence Report (CCR), also known as the Water Quality Report. The 2009 CCR was mailed to all customers in June 2009, containing information about the quality of water for address-specific services within the BWS system. The reports were also made available on the BWS website, www.boardofwatersupply.com.

Prior to mailing the CCR, the department placed ads in Honolulu newspapers, including various ethnic language publications, to inform community members of the distribution.

- The BWS worked with the City's Department of Environmental Services to comply with storm water discharge regulations. The department has also prepared for a new regulation called the Ground Water Rule and completed the monitoring required under the Unregulated Contaminant Monitoring Rule (UCMR) Phase II.

- To ensure the safety of Oahu's drinking water, the BWS tested the island's 6,000-plus backflow prevention devices to ensure the devices are functioning properly. These devices help to ensure the safety of Oahu's drinking water by preventing



Diesel Retrofits. BWS trucks were retrofitted with devices that burn off and filter out much of the diesel particulate matter before discharging it.

“cross connection,” thereby preventing a potential connection between the potable water supply and a source that may pose a health risk to the public. The BWS also continued its efforts to educate the public on cross-connection control and backflow prevention.

- As managers of Oahu’s potable water resources, the BWS understands the need to incorporate earth-friendly technologies in its operations whenever possible to protect the quality of Oahu’s environment. The BWS installed diesel retrofits on four medium-duty trucks to reduce particulate matter emissions. The retrofit installations are completely funded by private business and a federal grant.

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 a 10 percent water rate increase on July 1, 2008. The additional revenue is necessary to fund proactive infrastructure repair and replacement programs and to keep up with the rising cost of delivering water to customers. Additional increases are scheduled for the next two years on July 1 of each year.
- On July 1, 2008, the BWS also implemented a power cost adjustment to help pay for unexpected electrical cost surcharges incurred during the prior fiscal year (FY 2008). The Power Cost Adjustment was 9.4 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 \$18.4 million in construction contracts and more than \$1 million in professional services contracts (infrastructure design, archaeological and environmental assessment services) were awarded as of June 30, 2009. The repair and replacement projects aim to proactively address the needs of our aging infrastructure to ensure continuity of core services:
 - Aging and corroded water mains are being systematically identified and are programmed to be replaced throughout the municipal water system to improve system reliability, reduce main breaks, and to ensure 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 Haleiwa, Kailua, Liliha, Manoa, Wahiawa, and Waikiki areas. Nearly \$10 million was awarded by the BWS for water main construction projects in Haleiwa, Kaneohe, Kapahulu and Pacific Heights. The BWS works diligently to communicate and work with the surrounding communities of these projects to insure that they are aware of the projects.
 - The BWS continued to identify and improve the operations and integrity of aging water facilities. Such facilities include water reservoirs, well and booster stations, and other facilities belonging to the department. Projects completed this past fiscal year include the installation of irrigation systems at the Aina Koa 1100, Hawaii Loa 800 and Wilhelmina Rise 605 Reservoir sites; repair of the Kalihi 614 Reservoir Access Road; repainting and/or fencing improvements at the Aina Haina 170, Aina Haina 395, Kapunahala 272, Mariner’s Ridge 170, Niu Valley 170, Palolo 605, Pohakupu 272 Nos. 1 and 2, Waialae 180, Waialae Iki 865, Kamehame 500 and Waimanalo 230 Reservoir sites; demolition of abandoned structures within the Manoa watershed area; and the removal of the Beretania Pump Station underground storage tank. During this fiscal year, additional construction contracts were awarded to replace the post-tensioning system at



Reservoir Construction. Crews work on the foundation of the new Honouliuli 228 Reservoir No. 3.

the Moanalua 405 Reservoir No. 1 and for drainage and site improvements associated with the construction of the new Honouliuli 228 Reservoir No. 3.

- Renovation projects ensure the dependable service and operational efficiency of the department's pump and booster stations throughout the system. Renovation projects were completed for the Hahaione Booster, Honouliuli Line Booster and Mililani Wells IV. This year, construction contracts were awarded for the renovation of the mechanical and/or electrical systems at Barbers Point Line Booster, HECO Waiiau Wells, Hoaeae Wells, Honouliuli Wells I, Kaamilo Wells, Kahuku Wells, Kalauao Wells, Kalihi Uka Booster, Kaluanui Wells, Kunia Wells II, Moanalua Wells, Palolo Wells, Punaluu Wells, Wahiawa Wells II and Wilder Wells.
- While the proactive 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 2008, BWS employees responded to a total of 319 main breaks or about 16 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. In fact, the BWS has seen a continual decrease in the number of main breaks since the 1990s, and the BWS remains committed to continuing this positive trend. 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 Board's objective to optimize work efficiency, the department continues to roll out its Computerized Maintenance Management System (CMMS) to supervisors in its Water Systems Operations Division. On September 15, 2008, CMMS was launched for the Field Operation's Grounds Maintenance Section at the BWS's Kalihi, Manana and Hee'ia base yards. 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.



Contractor's help map BWS assets using Global Positioning System technology

- The Board continues to pursue its wireless initiative, which will result in the BWS having an island-wide, secure, broadband, disaster-hardened communications network. Phase I is almost complete, and the network now connects the BWS Public Service Building on Beretania Street with the main corporation yard in Kalihi. The BWS anticipates connecting this initiative at its Manana base yard before the end of calendar year 2009.

Organizational Sustainability

The Board's third objective calls for a sound, well structured, efficient organization with the tools and skills necessary to provide exceptional value to customers, the community and watersheds.

- The Board successfully processed more than 180,000 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 continues to update its emergency response plan so it can effectively respond to an emergency and minimize customer impact. The BWS coordinated two emergency response exercises to test its plan.

Asset Management

- The Board's HONU GIS (Honolulu ONline Utilities Geographic Information System) application upgrade has been taking precise Global Positioning System (GPS) fixes on BWS assets in the field so they can be scheduled for maintenance, located by crews and used in hydraulic modeling. The GPS project started in Halawa and has progressed clockwise around the island, with Geographic Information System (GIS) crews gathering asset locations in Kahala as of the end of Fiscal Year 2009. To date 176,747 BWS assets have been located and mapped, and more than 34,154 missing meters, valves, hydrants and manholes added. Many of these assets had been asphalted over, buried, been overgrown or had never been included as BWS equipment.
- 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 first exercise tested the BWS's capability to prepare, transport, install and run mobile generators at some of its key facilities in the event of a large-scale blackout. This exercise proved timely and useful on December 26, 2008, when Oahu was faced with an island-wide blackout that lasted more than 24 hours in some parts of the island. The BWS needs electricity to power pumps that transport water from underground aquifers up to its reservoir. Thanks to the training exercise, the BWS was able to mobilize its emergency generators to help minimize water loss in some areas.
- The second exercise was held in coordination with the Honolulu Fire Department, Honolulu Police Department, the Department of Homeland Security and the State Department of Health to review procedures during a contamination event. This exercise helped to insure that the various agencies understood their roles if a contamination occurred.
- Employee development continues to be a top priority for the BWS, so staff focused on providing in-house training opportunities to meet the specific needs of front-line supervisors. Human Resources staff developed three workshops that became part of the BWS curriculum for supervisors:
 - Your Role, Your Responsibility, Your Success for supervisors provided practical information and exercises on the role as a supervisor; supervisory myths; leadership skills and abilities; core skills; coaching; and disciplining.
 - Handling Conflict for Supervisors is a practical workshop to help determine one's personal conflict management style; when each style is appropriate; communication basics; identifying escalating anger in others and techniques to de-escalate situations; and active listening techniques.
 - Performance Evaluation for supervisors and employees presented the new BWS performance evaluation system implemented in January 2009. The supervisors' workshop focused on developing expectations and goals for their direct reports and handling substandard performance issues. This new performance evaluation program resulted in an increase in the number of supervisors
- Recruitment outreach continues to be important to the viability of our organizational sustainability even during an economic downturn.
 - The BWS participated in three community fairs: the Hawaii Construction Career Day at the Honolulu Community College; the University of Hawaii Job Fair; and the 12th Annual Workforce Job Fair at the NBC Exhibition Hall.
 - 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.
- Management-Labor Relations is a key factor to the success of efficient operations. During the past fiscal year, a number of management employees participated with BWS shop stewards in the United Public Workers (UPW) and Hawaii Government Employees Association (HGEA) Joint Labor Management Seminars. These seminars are designed to help labor and management work together better. The BWS Human Resources Office continues to have quarterly meetings with HGEA and UPW shop stewards to promote open communication. This forum allows shop stewards to express concerns or seek clarification of BWS policies and operations. As the on-site Union representatives, keeping shop stewards informed helps BWS with keeping misinformation to a minimum.
- Employee recognition programs are a key element to foster employee morale and encourage continual excellence. These programs are an important part of the Board's human resources development:
 - In September 2008, the BWS's Chief of Automotive Equipment Services Warren Young was chosen as the City's Manager of the Year. Young was honored for his strong leadership skills and creative management style that has improved the BWS' automotive service's effectiveness and efficiency through innovative programs and earth-friendly initiatives.
 - In July 2009, the Board selected Allan Kaneshiro, Water Service Supervisor IV, and Amy Tsuneyoshi, Watershed Resource Specialist III, as the Department's Employees of the Year. Both Allan and Amy represent the high caliber of the BWS workforce in their initiative and dedication to serving the communities of Oahu. Both will compete for the overall city award at the city's recognition and awards ceremony in November 2009.



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