

BOARD OF WATER SUPPLY

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POWERS, DUTIES AND FUNCTIONS. The Board of Water Supply (BWS) manages O‘ahu’s municipal water resources and distribution system, providing residents with a reliable system and safe drinking water supply. While the Board’s mission and vision of “Water for Life – Ka Wai Ola” is a simple expression of this tremendous responsibility, the Board’s 500-plus employees fully understand and embrace their crucial roles as stewards of O‘ahu’s most precious resource. This includes repairing and replacing the aging infrastructure, nurturing O‘ahu’s watersheds, and preserving and protecting the island’s finite water supply.

The BWS is the largest municipal water utility in the state, serving roughly one million customers on O‘ahu with 54 billion gallons of water every year. To keep the water flowing, BWS must carefully and proactively manage and invest in its intricate system consisting of 93 active potable water sources, 90 booster pump stations, 172 reservoirs or water storage tanks, and more than 2,000 miles of pipeline servicing nearly every community on O‘ahu.

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, and do not rely upon monies from the City or State.

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 mission of the Board of Water Supply is to improve the quality of life in the community by providing world-class water services. The Board’s mission statement, “Water for Life – Ka Wai Ola,” addresses the need to ensure customers continued access to safe and dependable water supplies now and into the future.

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

- **Resource sustainability** ensures the protection and efficient management of O‘ahu’s natural groundwater supplies and the island’s watersheds.
- **Economic sustainability** calls for a sound financial strategy to support system operating and capital needs, while keeping water rates affordable.
- **Organizational sustainability** requires a well-structured, efficient organization with the tools and skills necessary to provide exceptional value to BWS customers and the community.

ORGANIZATION. The Department consists of 12 support offices and divisions that work together to implement the BWS’ mission and vision by effectively managing O‘ahu’s water resources and distribution system to ensure a sustainable supply that meets current and future water needs. They include:

- **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 repair, maintenance, and upgrade of aging water mains and facilities.
- **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** - ensures that all BWS customers are provided the best possible customer service in resolving their needs, including bill payments, delinquent bills, account inquiries, water service investigations, building permits, new water services, or meter reading.
- **Field Operations Division** - responsible for ensuring uninterrupted water flow to the Department’s customers, including line leak repairs; installing, replacing, and enlarging water service lines; maintaining fire hydrants, waterline valves, and BWS grounds and buildings; and 24-hour response to trouble calls and requests for leak investigations and closing and opening customers’ water services.
- **Finance Division** - ensures that BWS’ 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 and compensation, benefits administration, and contract negotiations.

- **Information Technology Division** - provides complete computer, telephone, and network related services to BWS employees.
- **Land Division** – acquires water rights, land, and land interests for the BWS by purchase, condemnation, lease, easement, and executive land order; and disposes surplus real property and manages more than 13,000 acres of land, which are under the control of the Department.
- **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.
- **Security Office** – develops, reviews, and implements plans, policies, and initiatives to: improve the protection of the BWS employees, water resources and distribution system; and provide a prompt and coordinated response, as part of an appropriate combination of City, State, and other agencies, to terrorist incidents and other 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; conducts water quality testing; maintains various water treatment facilities; and inventories, maintains and repairs the Department’s fleet of motor vehicles, construction equipment, and trailers.

ACCOMPLISHMENTS. The Department’s 524 full-time employees work diligently to provide safe and dependable water service to our customers. Employees concentrate their efforts and attention in support of the Department’s “Water for Life – Ka Wai Ola” mission, with a focus on the following 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, prime watersheds, and water sources by monitoring O‘ahu’s rainfall and aquifer water levels and salinity, taking appropriate precautions and actions to ensure the reliability of the island’s potable water supplies.

To ensure better management of its existing water resources, the **BWS upgraded its Supervisory Control and Data Acquisition (SCADA) computer system** to a Windows system. The upgrades improve processing speed and response time of the system, enhance computer graphics, and allow the BWS to collect data that will help it make better decisions on system adjustments and equipment needed to improve operational efficiency of the water system. It also improves the sustainability of the computer system for the future.



SCADA upgrade. *A BWS project team (back row) worked with consultants (seated, front) over several months this fiscal year to upgrade the computer equipment that monitors and controls Honolulu's municipal water system.*

The BWS **comprehensive water conservation program** continues to foster effective water management policies and practices that reduce per capita use of potable water to institute sustainable behavior and practices to all users across the island of O'ahu. 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.

- Over the years, internal conservation programs such as leak detection and corrosion control have decreased water loss within the BWS water system from 13.5% in 2004 to 10% in 2007.
- External conservation efforts were strengthened when the BWS entered into a partnership with the U.S. Environmental Protection Agency to promote the use of WaterSense-labeled products. WaterSense labels identify water-using products or program as high quality and water-efficient.
- **Recycled water** is an important component of the Capital Program and is being integrated into the Conservation Section as one of a host of conservation strategies to reduce potable water consumption. The use of recycled water, as an appropriate and more efficient source of water for irrigation and industrial purposes, continues to be pursued by the Department.
 - Recycled water use from the Honouliuli water recycling facility continues to expand in 'Ewa for irrigation and industrial purposes. Production has increased to approximately 9.5 million gallons per day (mgd). Users find that the quality and cost of recycled water are preferable to other alternative supplies. The Hoakalei golf course in Ocean Pointe was recently added to the system for a total of eight golf courses that use recycled water; and various construction projects such as North-South Road and the Mehana Development are using recycled water for dust control.
 - The State Department of Hawaiian Home Lands' administrative complex along Kapolei Parkway, the City of Kapolei, and two parks are planned for recycled water connection shortly. HECO is completing plans to connect and use demineralized recycled water for the

Kahe Power Plant and the new Campbell peaking power plant and BWS is working with the City Department of Environmental Services to plan for recycled water at the expanded H-Power plant.

Initial work has begun on the Koolauapoko **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 plans follow 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 the BWS long-range capital program, ensuring that adequate water supplies and water system infrastructure will meet O‘ahu’s future water demands.

The BWS also continued to implement a wide array of activities supporting and reinforcing efforts to educate customers about BWS and its programs while continuing to stress the importance of conserving water throughout the year. Key **public education and outreach activities and projects** include:

- The new online O‘ahu Planting Guide resource on the BWS website helps residents to incorporate native Hawaiian grass, groundcovers, shrubs, and trees in their landscapes, based on the appropriate climate zone. The 19th Annual Hālawā Xeriscape Garden (HXG) Open House and Unthirsty Plant Sale featured the debut of the online guide that helps residents conserve water.



Online plant guide. *The O‘ahu Plant guide allows users to find native Hawaiian plants to use, according to a specific climate zone on the island. By matching plants to their natural climate zones, residents can reduce landscape irrigation needs.*

- The BWS expanded its public education program significantly by partnering with other eco-friendly organizations to offer more weekend classes at the HXG. Over the past fiscal year, interested participants filled up classes about composting earthworms, organic insecticides and fertilizers, spiral gardens, rain barrels, xeriscape plant crafts, and various holiday-themed *keiki* activities.

- During summer months, television and radio public service announcements (PSAs) and posters in shopping malls all urge consumers to use the water they need, but not waste it. The water conservation media campaign helped customers understand the limits of O‘ahu’s groundwater resources and provided easy tips for the average resident to reduce daily personal water use.
- Each year, the Board’s public education programs such as the annual Water Conservation Week poster contest, Detect-A-Leak Week, and the HXG Open House and Unthirsty Plant Sale, teach thousands of O‘ahu’s youth and the general public about the island’s finite water supply. The programs also include the year-round facility tours program, and presentations at schools and other public outreach venues.

The BWS understands that its responsibility extends beyond protecting and preserving the quantity of O‘ahu’s water to ensuring the quality of the island’s drinking water supplies. The Board continues to make sure the community’s **water supply is safe** by complying with all Federal and State safe drinking water regulations; monitoring changes in safe drinking water regulations; reviewing and commenting on new and replacement water treatment and system projects; and overseeing special water quality studies and research projects.



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

- The Board conducted more than 18,300 water quality tests this past fiscal year, collecting and analyzing water samples from BWS’ water sources, distribution system, including well stations and reservoirs, and water treatment facilities. The BWS laboratories continue to maintain their State Department of Health and Federal Environmental Protection Agency certifications.
- 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. This year marks the 10th anniversary of the CCR program. Containing source, contents of water and its treatment, and information about the

quality of water for address-specific services within the BWS system, the 2008 CCR was mailed to all customers in June 2008. The reports were also made available on the BWS website, www.boardofwatersupply.com. Prior to the mailing, the Department placed ads in Honolulu newspapers, including various ethnic language publications, to inform community members of its distribution.

- During the fiscal year, Granular Activated Carbon (GAC) plants that remove chemical compounds from drinking water were placed into service at both Waipahu Wells III and Hale'iwa Wells. Waipahu Wells III provides system flexibility, as it is an additional source for the area and its water can be directed to the Honolulu area if needed. The completion of the Hale'iwa GAC plant allowed the BWS to place that station back into service, providing another source for the North Shore area.

As managers of O'ahu's potable water resources, the BWS also understands the need to incorporate earth-friendly technologies in its operations whenever possible to **protect the quality of O'ahu's environment**.

- A diesel retrofit project was begun to reduce particulate matter emissions from several of the Automotive fleet's medium and heavy-duty trucks. BWS does not bear any costs for this effort, as it is 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 keeping water rates affordable. While operating and construction costs steadily increase, the BWS continues to focus its efforts on improving its 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 12 percent water rate increase on July 1, 2007. 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 three years on July 1 of each year. Despite these increases, BWS rates continue to remain among the nations lowest for communities of similar size.

A total of \$14.3 million in construction contracts and \$1.4 million in professional services contracts (infrastructure design, archaeological and environmental assessment services) were awarded as of June 30, 2008. The repair and replacement projects aim to **proactively address the needs of our aging water delivery system**, while maximizing investments. These programs include:

- ⊖ Aging and corroding water mains are systematically replaced throughout the municipal water system to improve system reliability, reduce main breaks, and to insure sufficient pressure during periods of peak demand. Fire hydrants are also installed to improve fire protection to meet current standards.



Corrosion control testing *BWS engineering staff learn how to collect information from corrosion control equipment to test and determine the most effective methods available to extend pipeline life expectancies.*

- ⊖ Water main installation projects were recently completed in the ‘Aiea, ‘Ālewa, Diamond Head, Kaka‘ako, Kalihi, Liliha, Mākaha, Pālolo, University, and Wai‘anae areas. Construction is nearing completion on installing a water line along Kapi‘olani Boulevard in conjunction with the City’s Sewer Main Rehabilitation Project. Nearly \$4 million was awarded by the BWS in new water main construction projects in Kaimukī and Tantalus.
- BWS continued to identify and improve the integrity of aging water facilities, including water reservoirs, well and booster stations, and other Board structures. Among the improvement work that was completed this fiscal year included the reroofing of the Beretania Public Service Building, installation of air conditioning at the Beretania Engineering Building, irrigation systems at Ka‘ōnohi 550’ and ‘Aiea 762’ Reservoirs, repainting and fencing at Kamehame 500’ Reservoir, renovation work at Kamilo‘iki 170’ Reservoir and Pearl City Well I, repair of bridges and abandoned structure demolitions within the Mānoa watershed area, and demolition of the abandoned Kailua 275’ Reservoir. During this next fiscal year, work will begin in the ‘Āina Haina, Diamond Head, Downtown, Kaimukī, Kāne‘ohe, Makiki, Mānoa, Mariner’s Ridge, Nu‘uanu, Wai‘alae Iki and Waimānalo communities.
- Renovation projects ensure the dependable service and operational efficiency of the Department’s pump and booster stations throughout the system. This year, construction contracts were awarded for the renovation of the mechanical and/or electrical systems at Hālawa Shaft, Honouliuli Line Booster, Kalihi Corporation Yard, Mililani Wells I & IV, Newtown Wells & Booster, Wahiawā Wells I, Wai‘anae Wells III, and Wai‘au Wells. Renovation projects were completed for Kaimukī Pump Station, Kalauao Wells, Kalihi Corporation Yard, Ka‘ōnohi Booster No. 1, Mānoa 405 Reservoir and Booster, Punanani Wells, Wahiawā Wells II, Wai‘anae Wells III, and Wilhelmina Booster No. 3.

BWS crews respond 24 hours a day, seven days a week to water emergencies. From traffic impacts to loss in water service, main breaks have a tremendous impact on the public. BWS employees were

consistently commended for their efforts to quickly and, often under difficult conditions, repair and restore water service to customers in a timely manner. 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 to allow normal traffic to resume.



September 2007 Keolu Drive main break. *BWS crews often work in muddy trenches under incredibly challenging conditions, day and night, to quickly restore water service to customers.*

As part of the Board's objective to **optimize work efficiency**, the BWS rolled out its Computerized Maintenance Management System (CMMS) to its supervisors in the Field Operations grounds keeping section at all corporation 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 BWS has also started laying the groundwork for a CMMS system rollout to the supervisors in its Water Systems Operations Division that is anticipated to take place within the upcoming fiscal year.

The Board's **award winning HONU GIS (Honolulu Online Utilities Geographic Information System) application upgrade** has been taking precise Global Positioning System (GPS) fixes on BWS assets out in the field so they can be scheduled for maintenance, located by crews, and used in hydraulic modeling. The GPS project started in Hālawā and has progressed clockwise around the island, with Geographic Information System (GIS) crews gathering asset locations in Waimānalo as of the end of Fiscal Year 2008. To date 140,985 BWS assets have been located and mapped, and over 28,000 missing meters, valves, hydrants and manholes added. Many of these assets had been asphalted over, buried, overgrown, or had never been included as BWS equipment.

The Board has embarked upon a **wireless initiative** that will ultimately result in the BWS having an island-wide, secure, broadband, disaster hardened communications network. Phase I of that network will be complete by the end of the 2008 calendar year and will provide voice, data and security camera imaging from the Waiʻanae Corporation Yard to East and Central Honolulu.

- **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 BWS continues to develop innovative methods and programs to recruit and retain its workforce.

- To maintain the viability of its workforce, the BWS participated in three career job fairs for workers displaced from Aloha Airlines, ATA, and Weyerhaeuser, to educate the community on BWS employment opportunities and recruit for various contract positions within the Department. BWS was successful in hiring fourteen displaced Aloha Airlines employees for these contract positions.
- Offering employees work schedule options to better meet their personal needs, is the goal of the Alternative Work Schedule program. Office employees now have a choice of working five eight-hour days or four ten-hour days, as long as BWS operations are not severely impacted by the schedule.

BWS continues to emphasize the importance of fostering a work environment that encourages open communication and collaborative problem solving – key components to building an efficient and healthy workforce. **Employee communications programs** include:

- BWS holds regular employee meetings, which provide a forum for the Manager and Deputy Manager to discuss issues impacting the organization and its employees.
- The Manager continued to hold monthly “Brown Bag with the Manager” informal meetings at the Beretania headquarters. The program promotes unstructured dialogue between the employees and Manager Clifford Lum during the informal lunchtime setting. The Manager also continued his quarterly Field Office Hours program that provides the same opportunity for employees based at the various corporation yards (Mānana, Kalihi, Wahiawā, Wai‘anae, and He‘eia) who cannot attend the Brown Bags sessions because of their work requirements.

Employee recognition programs help to foster employee morale and further encourages employees to strive for excellence. These programs are an important part of the Board's human resources development:

- During this fiscal year, the Department recognized its outstanding manager and employees for the calendar year 2008. All three employees represent the high caliber of the BWS workforce.

In May 2008, the Board selected Warren Young, Chief of Automotive Equipment Services I as the Department's Manager of the Year. Finance Division Accountant VI, Marlene Komori, and Information Technology Division Data Processing systems Analyst IV, Alan Sugahara, were recognized as the Department's Employees of the Year. All three will compete in their respective categories for the overall City award at the City's Recognition and Awards Ceremony in September 2008.



Top BWS Manager and Employees. *(Left to right) In a process involving their peers and the BWS Administration, the BWS selected 2008 Employees of the Year Alan Sugahara and Marlene Komori, and 2008 Manager of the Year Warren Young.*

- The Department and the City also recognized employees who have dedicated many years to public service. Seven BWS employees received 35-year service awards, and 20 employees received 25-year service awards. A total of 146 BWS employees had acquired 25 or more years of government service by the end of the year.

The BWS continues to **encourage professional development** among its employees by conducting and coordinating classes, workshops, conferences, seminars, and career development training sessions. Spanning a wide range of informational and developmental subjects, these classes cover job-related skills and supervisory management, retirement and financial planning, drug abuse, workplace violence and sexual harassment prevention, employee assistance programs, and orientation sessions on new collective bargaining agreements.