



CHAPTER 25

Honolulu Board of Water Supply

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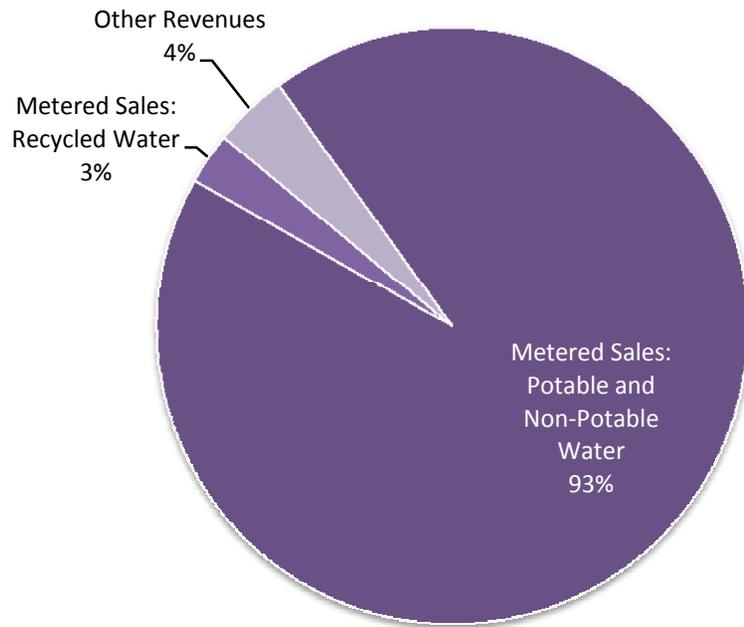
By city charter, the Honolulu Board of Water Supply (BWS) has full and complete authority to manage, control, and operate all city water systems on O`ahu. Its mission, *Water for Life*, is to provide a safe and dependable water supply that is affordable to its customers, now and into the future. BWS focuses its efforts on the following strategic objectives: Resource Sustainability, Economic Sustainability and Organizational Sustainability.

In FY 2013, the BWS supported the mayor's priorities to focus on infrastructure repair and maintenance, invest in new technology and personnel, and improve transparency. The BWS initiated a 30-year Water Master Plan to identify problems and develop solutions to ensure a safe, reliable and affordable water supply. It will prioritize system infrastructure repairs, replacements and upgrades; recommend changes in engineering design, maintenance and operations; and develop a long-term financing plan and rate study.

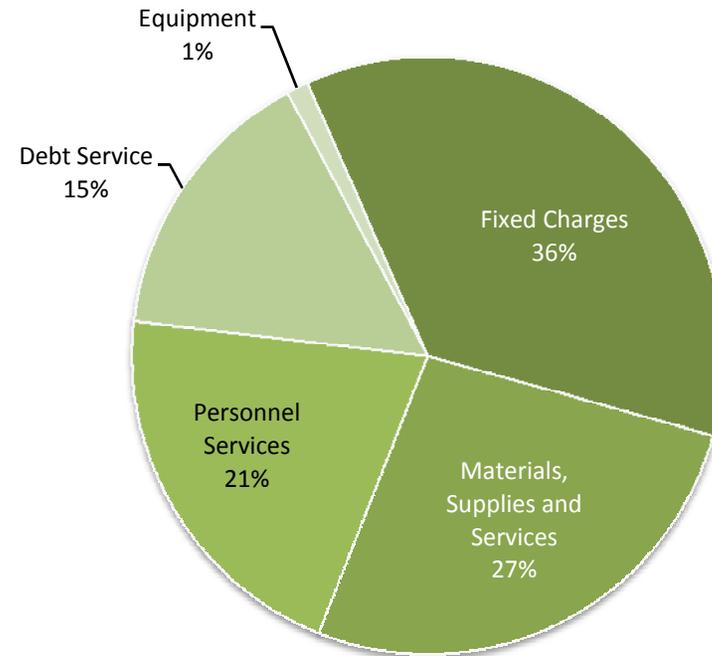
To provide a safe and dependable water supply that is affordable to its customers, now and into the future.

- Mission Statement

Funding Sources



Funding Uses



	Total Operating Expenditures (\$ million)	Total Revenues (\$ million)	Debt Service (\$ million)	Staffing			Total Overtime Expenditures (\$ million)
				Total Authorized FTE	Total Vacant FTE	Cost Per FTE ¹	
FY 2009	\$122.9	\$143.1	\$20.9	711	182	\$172,787	\$1.7
FY 2010	\$120.8	\$156.2	\$20.9	714	227	\$169,127	\$2.0
FY 2011	\$124.6	\$155.1	\$20.9	714	204	\$174,454	\$1.8
FY 2012	\$131.0	\$158.6	\$20.7	714	207	\$183,455	\$2.0
FY 2013	\$145.2	\$186.8	\$22.2	714	187	\$203,291	\$2.3
Change over last year	11%	18%	7%	0%	-10%	11%	15%
Change over 5 years	18%	31%	6%	0%	3%	18%	39%

Source: Honolulu Board of Water Supply. ¹Cost per FTE= Operating Expenditures / Total Authorized FTE.

Highlights

Over the last five years, total operating expenditures increased 18% from \$122.9 million in FY 2009 to \$145.2 million in FY 2013. According to BWS, this is mainly due to the increase in project costs, expenses, other contractual services, and electricity costs. During this same time period, revenues increased 31%, from \$143.1 million in FY 2009 to \$186.8 in FY 2013. The BWS notes that revenues increased partially due to a rate increase and increased billable sales.

In January 2012, BWS approved a water rate increase of 9.65% annually, to July 1, 2015, to fund the operation, maintenance, and replacement of O`ahu's aging water infrastructure (see revised water rate schedule on the next page). Honolulu's typical monthly residential water bill was \$50.57 in FY 2013.

The latter half of FY 2013 brought fresh challenges for the BWS and its customers. In January 2013, the BWS completed the installation of a new Customer Care & Billing System and converted to monthly billing. Conversion to the new system and an error that led to large numbers of estimated bills, some for consecutive months, were challenges that BWS worked to resolve to the end of FY 2013. BWS hired additional staff for customer service, meter reading, and billing to address high call volumes, improve customer service, and reduce the number of estimated billings.

Typical Monthly Water Bill



Source: Honolulu Board of Water Supply

In FY 2013, BWS worked to improve transparency in its operations through regular participation in neighborhood board and mayor's town hall meetings, as well as meetings to update city administration and city council members.

	Construction Contracts (\$ million)	Professional Services Contracts (\$ million)	Typical Monthly Water Bill ¹
FY 2009	\$18.4	\$1.0	\$35.78
FY 2010	\$9.1	\$2.5	\$38.11
FY 2011	\$26.3	\$4.3	\$39.55
FY 2012	\$21.5	\$3.0	\$46.18
FY 2013	\$29.8	\$14.6	\$50.57
Change over last year	39%	387%	10%
Change over 5 years	62%	1360%	41%

Source: Honolulu Board of Water Supply. ¹Typical monthly residential water bill: Billing Charge (\$7.02) + Monthly Charge (\$43.55) = \$50.57.

The BWS’ strategic objective for resource sustainability is to ensure that natural groundwater supplies are protected and managed efficiently. BWS’ comprehensive water conservation program fosters effective water management policies, consists of practices that reduce per capita use of potable water, and encourages sustainable behavior and practices by residential, commercial, and industrial users across the island of O`ahu.

The BWS supplies approximately 145 million gallons of potable water daily to roughly one million customers through an integrated system of 94 potable water sources, 172 reservoirs, and nearly 2,100 miles of pipeline distributing water island wide. There are 13 Granular Activated Carbon (GAC) treatment facilities which filter more than 20 million gallons of potable water every day.

O`ahu Development Plan Areas



Source: Honolulu Board of Water Supply

	Total Water Consumption	
	Residential (billion-gallons)	Commercial (billion-gallons)
FY 2009	28.9	20.3
FY 2010	29.5	21.3
FY 2011	29.0	20.8
FY 2012	28.0	19.0
FY 2013	28.8	19.7
Change from last year	3%	4%
Change over last 5 years	<-1%	-3%

Source: Honolulu Board of Water Supply.

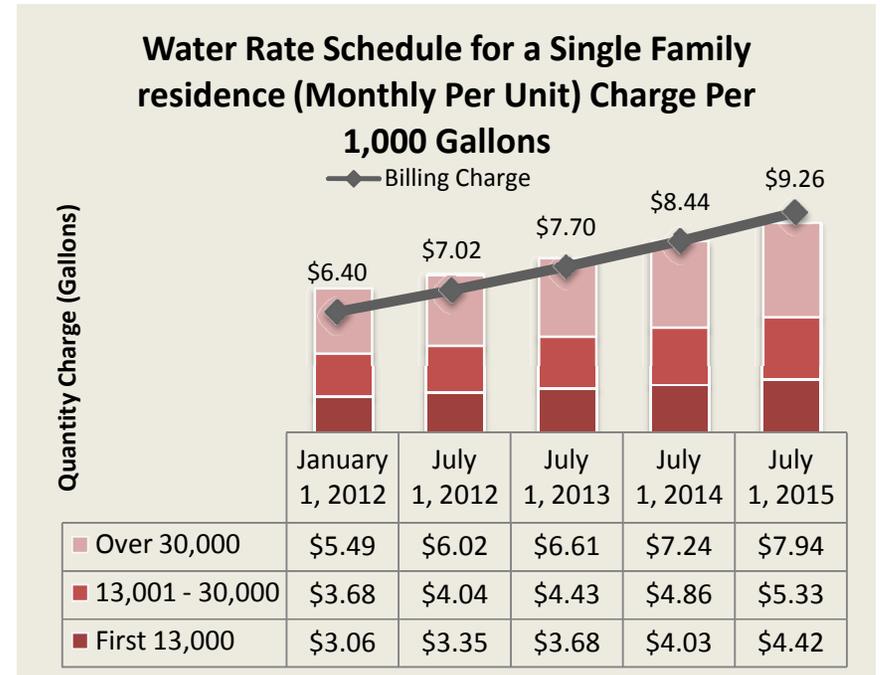
Over the past five years, residential and commercial consumption have been fairly consistent. Metered consumption has not significantly changed from the previous year. The areas with measurable water demand growth over the past five years have been in Ewa, the secondary urban center. The BWS notes that other changes reflect fluctuating demand.

Economic incentives from water and sewer rates and low flow fixtures are the primary reasons for moderating changes in water use for most areas. Over the past five years, the number of new metered connections has declined 18%, from 1,262 in FY 2009 to 1,035 in FY 2013. According to BWS, the decline reflects fluctuations in new meter connections and is dependent upon the timing of new development approvals and market sales.

Water Consumption

In FY 2013, BWS' strategic objective for water consumption was to ensure that natural groundwater supplies are protected and managed efficiently. The BWS' comprehensive water conservation program is comprised of effective water management policies, practices that reduce per capita use of potable water and encouraging sustainable practices by residential, commercial and industrial users.

In the 2013 National Citizen Survey, 87% of Honolulu residents reported making efforts to conserve water at home; these results were *similar* to national benchmarks and cities with over 300,000 residents.



Source: Honolulu Board of Water Supply website: <http://hbws.org/cssweb/display.cfm?sid=1175>

Average Day Metered Consumption (mgd)¹ by Development Plan Area

	East Honolulu	`Ewa	Wai`anae	Central O`ahu	Ko`olau Poko	Ko`olau Loa	North Shore	Primary Urban Core	New Connections
FY 2009	8.207	15.043	8.501	16.948	14.159	1.337	2.616	63.162	1,262
FY 2010	8.417	15.020	8.544	16.110	14.983	1.383	2.532	62.521	1,075
FY 2011	7.429	14.276	7.850	14.216	14.480	1.262	2.954	60.413	962
FY 2012	8.268	15.561	8.457	15.95	14.429	1.309	2.997	62.002	1,069
FY 2013	8.003	16.353	8.001	15.743	14.272	1.398	2.580	60.625	1,035
Change from last year	-3%	5%	-5%	-1%	-1%	7%	-14%	-2%	-3%
Change over last 5 years	-2%	9%	-6%	-7%	1%	5%	-1%	-4%	-18%

Source: Honolulu Board of Water Supply. ¹(mgd) = million gallons per day.

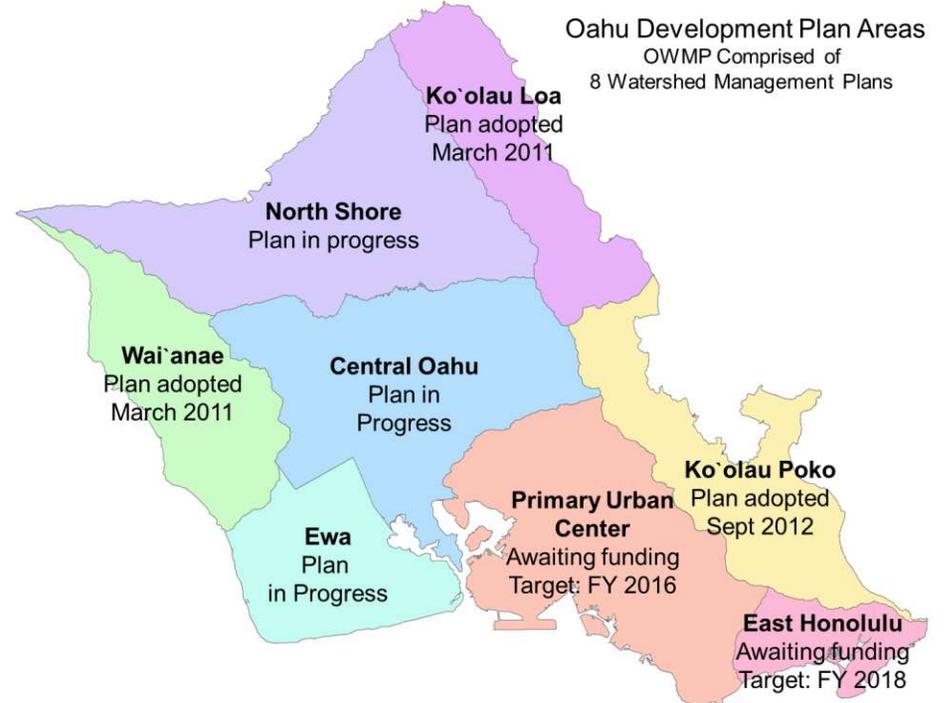
On O`ahu, drinking water begins as rain falling over the Ko`olau and Wai`anae mountain ranges. Much of this rain is naturally filtered through porous volcanic rock on its way to large underground aquifers. All water served by BWS is monitored and tested by the state Department of Health, pursuant to federal primary drinking water regulations. BWS also performs salt water intrusion monitoring, treatment plant operations, and distribution system testing.

Watershed Management Plans (WMP) provide long range strategic water resource plans for watershed protection, water use and development for municipal, agriculture, military and private water supply. The eight WMPs correspond with O`ahu's Development Plan Areas. In September 2012, the Ko`olau Poko WMP was adopted.

BWS efforts to address aging infrastructure included initiating work on a Comprehensive Water Master Plan to provide a 30-year capital improvement program for repair, replacement, and capacity expansion of potable, nonpotable, and recycled water infrastructure. The BWS notes that accurate, timely, and sustained infrastructure replacement planning will ensure adequate levels of water service.

O`ahu Watershed Management Plan Status

FY 2013



Source: Honolulu Board of Water Supply

Potable Water

Non-Potable Water

	Miles of Water		Total Water Main Breaks	Total Breaks Per 100 Miles of Pipeline		Annual Water Savings Leak Recovery ¹ (MG/Year)	Total Recycled Water Pipeline-Miles	Total Recycled Water Pipeline Added (Miles)
	Mains	Pipeline Replaced (Miles)		Total Leaks Recovered	Total Leaks Recovered			
FY 2009	2,077	4.5	325	16	115	586	31.5	2.6
FY 2010	2,079	1.1	399	19	665	838	35.2	3.7
FY 2011	2,095	1.0	333	16	174	1,086	36.0	0.9
FY 2012	2,101	5.0	312	15	209	1,206	38.0	1.5
FY 2013	2,106	5.9	331	16	532	1,394	38.0	0
Change from last year	0%	18%	6%	7%	155%	16%	0%	-
Change over last 5 years	1%	18%	2%	0%	363%	138%	19%	-

Source: Honolulu Board of Water Supply and 2013 National Citizen Survey (Honolulu). MG/Year (millions of gallons per year). ¹The water flow from each leak is estimated and totaled with the assumption that the leak duration is over a one year period.

Water Quality and Infrastructure

Over the past five years, the number of water main breaks remained about the same, from 325 in FY 2009 to 331 in FY 2013. BWS reports there were about 16 breaks per 100 miles of pipeline. According to the American Water Works Association, water utilities nationwide should strive for no more than 25-30 breaks per 100 miles of pipeline. Honolulu's rating was better than the national benchmark. According to BWS, conservation adjustments to pumping operations that reduce pressure spikes in the water system and the Quality Infrastructure Conservation Initiative program to control preventable water loss within the system, including leak analysis and corrosion control systems, are reducing the number of water main breaks.

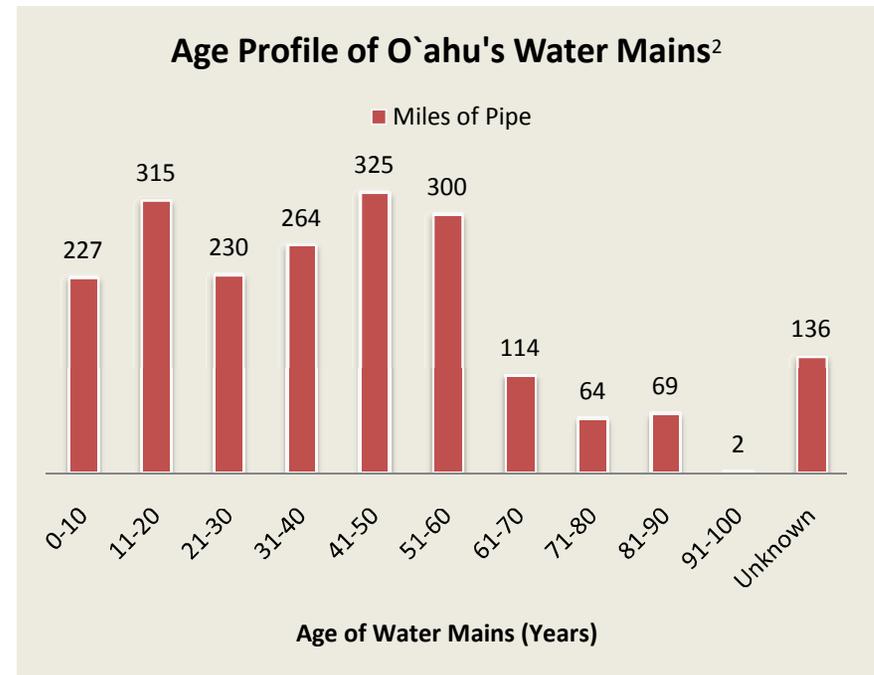
The total number of leaks recovered increased from 209 in FY 2012 to 532 in FY 2013. BWS estimates the annual water savings due to leak recovery totaled 1.394 billion gallons.¹

The BWS also completed a pilot Project Information Management System. This information will be used to create a system to track the entire life cycle of BWS capital projects and replacement and facilities improvement projects.

The BWS continued work throughout FY 2013 to comply with federal and state drinking water regulations.

Over the past four years, most residents rate the quality of Honolulu's water favorably. In the 2013 National Citizen Survey, 74% of residents rated Honolulu's drinking water quality as *excellent* or *good* and these ratings were *similar* to national benchmarks and cities with over 300,000 residents.

¹The water flow from each leak is estimated and totaled with the assumption that the leak duration is over a one year period.



Source: Honolulu Board of Water Supply

²As of July 1, 2012.

The National Citizen Survey (% <i>Excellent</i> or <i>Good</i>)				
	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
Quality of Drinking Water Services	75%	74%	72%	74%
Comparison to National Benchmark	↑↑	↑↑	↑	↔

Source: The National Citizen Survey, Trends over Time, Honolulu, HI, 2013

Legend:

- ↑↑ Much higher than national benchmark
- ↑ Higher than national benchmark
- ↔ Similar to national benchmark
- ↓ Lower than national benchmark
- ↓↓ Much lower than national benchmark