
WATER EFFICIENCY PROGRAM ANNUAL REPORT

PORTLAND WATER BUREAU

JULY 1, 2011 – JUNE 30, 2012



The Portland Water Bureau's Water-Efficiency Program offers technical resources and information about efficient water use to all City of Portland customers.

The Portland Water Bureau has implemented water conservation programs since 1990. The Bureau offers a wide variety of programs including:

- Conservation device distribution
- Education and outreach
- Technical assistance to residential, multifamily, business, institutional and commercial customers.

WHY CONSERVE IN PORTLAND?

- **CUSTOMER SERVICE** – Efficient water use is one of the best strategies for managing water and sewer costs. Technical assistance is designed to help customers identify opportunities to save water and money. Portland customers regularly express their desire for assistance in water use reduction in order to control costs and to lessen their impact on the environment.
- **REGULATORY** – Conservation is required by the State of Oregon to obtain new water rights and to maintain existing water rights.
- **LONG-TERM SUPPLY** – Conservation is a source of supply that helps defer the need to develop new water sources.
- **PEAK -SEASON MANAGEMENT** – During the summer when supply is limited, reducing the peak- season water demand reduces the amount of augmentation necessary from the Columbia South Shore Well Field (and associated electrical pumping costs and carbon emissions).
- **ENVIRONMENTAL** – Every gallon conserved is a gallon that remains in rivers, streams, and aquifers helping to maintain the natural systems necessary for life. Each gallon conserved also contributes to reductions in the carbon footprint of potable water production.

PROGRAM HIGHLIGHTS

In the 2011-2012 program year, the Portland Water Bureau efficiency program changed its name from the conservation program, shifted resources to maximize their effectiveness, and built partnerships to extend the program's limited resources. Major highlights include:

- Evaluations and cost analyses performed on four residential programs. Results showed the cost-effectiveness of each program and led to significant program adjustments. Resources were shifted away from widespread distribution of showerheads and aerators and invested in toilet rebate efforts instead.
- Development and implementation of the BIG Incentive Program - targeting small businesses performing water efficiency improvements. A well-known local restaurant became the first recipient of the BIG incentive, replacing a water-cooled ice machine with an air-cooled model which will save over 1,000 gallons of water a day.

- The Soil Moisture Sensor pilot study was completed and preliminary results show measurable water savings for most of the participants. A final report is expected soon.
- Participated in two national research studies including the Drainline Carry Study by the Plumbing Efficiency Research Coalition (PERC) and the Update of the 1999 Residential End Use Study by the Water Research Foundation.

CONSERVATION DEVICE DISTRIBUTION

Web-based orders, Conservation Hotline, and Customer Service Walk-in Center

The Portland Water Bureau distributes informative outreach materials and water conservation devices through their web site, conservation telephone hotline, and through the walk-in customer service center. Resources distributed include: 1.5 gallon-per-minute (gpm) showerheads, 5-minute shower timers, 1.5 gpm kitchen aerators, 1.0 gpm bathroom faucet aerators, toilet tank displacement bags, toilet fill-cycle diverters, and toilet leak detection tablets, and home water audit kits. In the 2011-12 fiscal year, **334** conservation kits were distributed through the customer service center and **1,461** requests for devices were made through the Water Bureau web site. As a result **12,956** devices were distributed as shown in the table below:

| Total Devices Distributed through Web Requests and Customer Service Walk-in Kits | |
|---|---------------|
| Shower timers | 1,763 |
| Showerheads | 1,810 |
| Kitchen Faucet Aerators | 1,245 |
| Bathroom Faucet Aerators | 1,937 |
| Fill-Cycle Diverter | 1,504 |
| Toilet Tank Banks | 1,234 |
| Toilet Leak Detection Tablet | 1,865 |
| Home Water Audit Kit | 802 |
| Watering Gauge | 338 |
| Hose Nozzle | 458 |
| Total Devices Distributed | 12,956 |



SmartDrips Water Conservation Distribution

The Portland Water Bureau successfully partnered with the Bureau of Transportation's - Transportation Options program for the seventh year to distribute water conservation kits to residents of close-in South East Portland. The program delivers kits by bicycle to different neighborhoods each year. This year the SmartDrips kit included toilet leak detection tablets, a 1.5 gallon-per-minute showerhead, a 1.0 gallon-per-minute bathroom faucet aerator, a 5-minute shower-timer, brochures and stickers. A total of **1359 SmartDrips Kits and 1255 Plant Guides** were ordered.



TECHNICAL ASSISTANCE

Home Water Assessments

The Portland Water Bureau partners with the Energy Trust of Oregon (Energy Trust), Rockwood Water People’s Utility District and Tualatin Valley Water District to provide free home water assessments to single-family residential customers. The home water assessment occurs in conjunction with a home energy review (sponsored by the Energy Trust). A home water assessment includes a visit from an Energy Trust auditor who measures existing conditions and flows from fixtures around the home and installs water conservation devices as needed.

In fiscal year 2011-12 **one hundred and fifty-five** Portland Water Bureau customers received a home water assessment.



Multifamily Toilet Replacement Grant Program

FY 2011-2012 was the third and final year of the toilet replacement grant program. The grant opportunity was offered to non-profit organizations with a stated mission of providing housing for low-income residents. Each year the grant program had \$40,000 available to subsidize the replacement of older inefficient toilets with new WaterSense labeled toilets. Below is a table of grants distributed. A preliminary analysis of water savings from this recent effort is underway.



| Location | # of toilets replaced | Grant amount |
|--|-----------------------|--------------------|
| Cascadia Behavioral Healthcare –various properties | 29 | \$8,540.50 |
| Central City Concern – Letty Owing Apartments | 32 | \$9,600 |
| Central City Concern – Medford Apartments | 10 | \$3,000 |
| Human Solutions – Briarwood Apartments | 35 | \$7,926.45 |
| ROSE – Firland Apartments | 8 | \$2352.50 |
| Portland Habilitation Center – 13130 SW Powell Blvd. | 20 | 4,599.80 |
| TOTAL | 134 | \$36,019.25 |

BIG Facility Surveys, High-Water-Use Evaluations, and Consumption Histories



The Water Bureau’s Business, Industry, and Government (BIG) program has provided technical assistance for commercial and multi-family customers since 1993. BIG staff provides direct one-on-one assistance over the phone, through e-mail, and onsite visits. The BIG program services include:

- Onsite water use evaluations that include written reports highlighting cost-effective solutions to water-use inefficiencies.
- Irrigation audits of large-scale landscaping that result in system improvements and optimal irrigation scheduling.
- Workshops tailored to the needs and interests of BIG customers including subjects such as cooling towers, food-service operations and multi-family efficiency improvements.
- Flow measurements of various processes at the request of customers.
- Meter recordings to detect unusual use patterns, leaks and confirm usage of certain equipment.
- Presentations to various businesses, governments, colleges, and community groups.
- The development of valuable relationships between the Portland Water Bureau and the business community.
- Pilot projects that evaluate the usefulness of conservation products and procedures.
- A commercial water efficiency improvement incentive of up to \$5,000 targeted to small businesses and non-profits.
- Problem-solving of a variety of water related issues for our customers.

BIG supports a wide variety of customers ranging from businesses wanting to reduce costs or find the reason for a sudden increase in water use, to customers looking for ways to make their buildings “greener”. Customers are often referred to BIG by the Water Bureau’s customer service representatives, the Sustainability at Work program, Bureau of Environmental Services Fats, Oils, and Grease (FOG) program, the water-efficiency program website, or word of mouth.

This year, the BIG program started **56** onsite surveys, an increase of 24% from the prior year. Survey’s were completed at locations such as Helen Bernhard Bakery, Abitare Condominiums, Jim Fisher Volvo, O’Conner’s Café, University Park Community Center, Paramount Hotel, Concordia University and others. **Ninety seven** new contacts, a 20% increase over last year, were made with businesses in which assistance was provided over the phone, onsite, or through e-mail.

Total quantifiable savings for the fiscal year was about 2 million gallons. Customers that participate in an onsite survey or request consumption histories typically receive written reports with graphs and

sometimes receive conservation devices such as showerheads, faucet aerators or kitchen pre-rinse sprayers, if needed.

BIG Incentive Program

A small pilot project started this year to provide a financial incentive targeted to help small businesses and non-profits improve water efficiency by replacing older, high water using equipment with high efficiency models. The first incentive helped Paddy’s Bar and Grill replace a water cooled ice machine with an EnergyStar rated air cooled model. Water use reduction is projected at about 700,000 gallons per year.

| Location | Project Summary | Grant amount |
|---------------------|---|--------------|
| Paddy’s Bar & Grill | Replace a water cooled ice machine with an air cooled model | \$5,000 |

Soil Moisture Pilot Project

At this end of this fiscal year, the Water Efficiency workgroup completed a 2-year pilot project, testing out the efficiency of soil moisture sensors. Seven commercial customers participated (one for only one season). Each participant received a landscape survey to see if their irrigation systems met minimum performance requirements to participate. All agreed to upgrade their systems to meet those requirements. Participants received a Baseline 5200 controller (or two) and two moisture sensors, called biSensors, for each controller. One of the sites was small enough that a Baseline S100 residential controller was used. Most were irrigating lawns, but there were some that were watering shrub and perennial beds. After two seasons, historical data was used to develop a baseline for pre-test to try to account for weather variations. The final report has not been completed as of yet, but initial results for most of the participants are quite favorable, with savings 17 to 82% in one season, with an average savings of approximately 27%. These findings cannot be applied to all who use soil moisture sensors, but for the sites that did participate, the use of these sensors to enable irrigation appears to save quite a bit of water.

OUTREACH & EDUCATION



School Assembly Programs

The Portland Water Bureau hired Tears of Joy Theatre to develop a new youth education show for kindergarten through second grades. The “Water-wise Adventures of Super Dog” is a water efficiency adventure story told by friendly and foolish puppets. A young dog encounters a magical fish who grants the puppy the ability to talk. Super Dog must help teach people about how to use water wisely. The show launched in the winter of 2012 and nine free shows, reaching approximately 1,650 students were presented to schools within the Portland Water Bureau service area. Participating teachers received resource bags that included a class set of activity booklets, pencils, and conservation kit coupons.



Children’s Clean Water Festival



The Portland Water Bureau is a sponsor of the Children’s Clean Water Festival, and staff serves on the planning committee to help organize the event every year. This year’s festival was held on April 24th at Portland Community College’s Rock Creek campus. Over 1000 4th- and 5th- grade students attended the event including classes from 4 schools within the Portland Water Bureau service area.

Media Campaign

The Portland Water Bureau is a member of the Regional Water Providers Consortium (Consortium). Each year the Consortium puts together a media campaign to provide water efficiency messages through out the region. Portland staff participated in message development and provides technical expertise for radio, television and print media.

The Consortium ran an indoor water efficiency campaign in February and March, and an outdoor campaign from April through September. A complete summary of the media campaign can be found here:

http://www.conserveh2o.org/sites/default/files/resources/rwpc_resources/11-12_AnnualReport.pdf

Community Events

The Portland Water Bureau’s efficiency program attended **15** community events this year, providing indoor- and outdoor-focused water conservation information and devices to customers. These events provide excellent opportunities for one-on-one outreach and education on the methods and benefits of water conservation. The efficiency program also provided materials and information for customers hosting their own events.

In addition to conservation-specific outreach, the Water Bureau collaborated with several other City bureaus in an outreach effort called, “Your Sustainable City”. The Your Sustainable City project pulls together important sustainability-focused resources from across multiple City bureaus and presents

them in one booth at events. Citizens are able to visit the Your Sustainable City booth and get information on recycling, green building, bike commuting, and water efficiency all in one place.

Some of the events attended this past year include:

- Fix-It Fairs (3)
- Latino Home Buyers Fair
- African American Home Buyers Fair
- NAYA Housing to Homeownership Fair
- Martin Luther King Day Celebration
- St. John's Bizarre
- Multnomah Days
- Good in the Hood
- Sunday Parkways (4)



Presentations and Workshops

An important part of the conservation outreach strategy includes presentations and workshops. In the 2011-2012 fiscal year, presentations were given to a wide variety of audiences including interested civic groups, college students, commercial property managers, landscape professionals, gardeners, students, and others included:

- Saving Water Makes Cents - Fix-It Fairs (3)
- Internal Water Bureau training - SOAKED, and customer service rep training
- Habitat for Humanity New Homeowners Orientation
- Community presentation for a Hacienda multifamily property
- Woodland Park Condo Association
- International School 4th Grade class
- Community presentation for Jantzen Beach HOA
- Office Building Water Efficiency – AWWA Water Sustainability Conference
- Mt. Hood Community College – Sustainable Advisor Program
- Regional Water Providers Consortium's "Water Lean Grow Green" Workshop

Demonstration Garden

The Hazelwood water-wise demonstration garden established in 2007 at Southeast 117th and Holladay Streets continues to thrive. The garden showcases a variety of water efficient plants, different types of mulch, and an in-line drip emitter system with soil moisture sensor control. The site continues to be maintained and serves as a resource for the neighborhood.



PARTNERSHIPS

Energy Trust of Oregon

The Portland Water Bureau began partnering with the Energy Trust of Oregon to distribute high efficiency showerheads to Portland customers in August of 2010. The Energy Trust provides chrome showerheads to the efficiency program for distribution to all types of customers via web and phone requests, SmartDrips kits, and Customer Service Walk-in Kits. The Water Efficiency program also partners with the Energy Trust on the Home Water Assessment program.



Regional Water Providers Consortium

The Portland Water Bureau is one of 23 water providers in the Portland metropolitan area that participate in the Consortium to collaboratively discuss, study, and adopt policy, and facilitate partnerships to improve the planning and management of municipal drinking water supplies. Water Efficiency program staff participates in the Consortium's Conservation Committee by attending monthly meetings, participating in education and outreach projects, and volunteering at Consortium events.



Sustainability at Work Center (formerly BEST Business Center)

The Sustainability at Work program provides education and free evaluations of local business operations in the areas of energy, water, waste and recycling, purchasing, green building, and transportation. The Portland Water Bureau efficiency program provides conservation devices, technical advice, and onsite water efficiency surveys for customers when needed.



Small Business Advisory Council

The Small Business Advisory Council (SBAC) provides an organized voice to communicate directly with the Portland City Council on policies that affect small business. The goal of the SBAC is to advocate that the City provide a customer-centered business climate as well as review and bring forward regulations, policies, and issues that support small business formation, growth, and prosperity. As the Water Bureau's liaison to the SBAC since 2005, water efficiency staff attends monthly and quarterly SBAC meetings.



The Alliance for Water Efficiency

The Alliance for Water Efficiency (AWE) serves as a North American advocate for water efficient products and programs, and provides information and assistance on water conservation efforts. The Water Bureau is a Bronze Charter Sponsor. This past year, the Water Efficiency work group joined up with others through the Alliance for Water Efficiency to help fund a national drainline carry study being conducted by the Plumbing Efficiency Research Coalition (members include the Alliance, IAPMO, ICC and others). With decreasing flows in plumbing fixtures, information was needed to see how low flows could go before drainlines would not be able to carry the solid waste to the sewer system. As was anticipated, slope and volume were important factors. But the toilet paper characteristics also had a significant impact on drainline transport. High tensile paper reduced drainline carry significantly. Results of this study were introduced at the annual WaterSmart Innovations Conference in Las Vegas



in the fall of 2012. AWE provides many opportunities for the Water Efficiency group, and others around the nation, to partner together to sponsor and fund much-needed research in the water efficiency arena.

EPA's WaterSense Program

WaterSense is a national program sponsored by the U.S. Environmental Protection Agency to build partnerships for water conservation. WaterSense develops testing specifications for performance, solicits testers and devices to be tested and labels them if the products/services meet the criteria for performance. WaterSense labels help customers identify proven water-efficient products and services. The Portland Water Bureau is a promotional partner.



BES Cut through the FOG (Fat, Oils, Grease) Program

A new Bureau of Environmental Services program starting January 2012 increased sewer costs to Food Service Establishments from 30% to over 100% by adding Extra Strength Sewer charges. The water efficiency program is working with the FOG program to assist in providing high efficiency pre-rinse sprayers where needed, and encouraging referrals for follow-up efficiency surveys to assist with reducing costs.



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