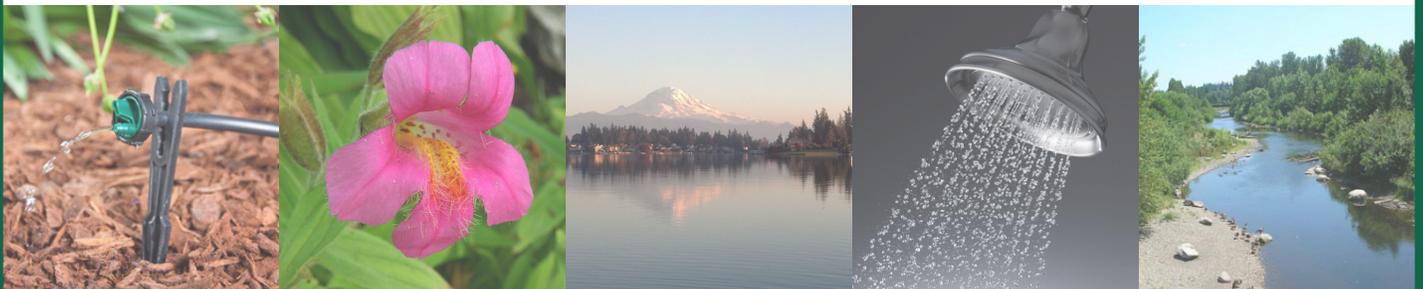




Cascade Water Efficiency Program 2016 Annual Report

Cascade provides safe, clean and reliable water to members in a cost-effective and environmentally responsible manner.



Summary

The 2016 Cascade Water Efficiency Program (program) saves approximately 94 million gallons of water, 10.3 million kilowatt hours of energy, and 6.2 million pounds of avoided greenhouse gas emissions per year. The program benefits thousands of residents, businesses, schools, and public agencies through a variety of education and outreach, training, and retrofit actions. The program continues to promote Cascade as a national leader in resource management. The program provides the requisite water efficiency measures and savings goals for Cascade members to meet their state-mandated water use efficiency requirements. Cascade employs 1.5 full-time employees to manage the program, and total program expenses in 2016 were \$655,973, including, including materials, services, and salaries.

Savings Goal

Cascade’s water efficiency goal is a cumulative savings of 0.6 million gallons (mg) per day on an annual basis and 1.0 mg per day on a peak season basis by 2020. In 2016, Cascade achieved an annual savings of 257,728 gallons per day or about 43% of its six-year cumulative savings goal. Along with savings from 2014-15, Cascade has achieved approximately 86% of its 6-year cumulative savings goal and 52% of its peak season goal.

Relationship to Long-Term Objectives

Cascade’s water efficiency program works to achieve its mission by lowering regional water demand so that Cascade may delay or defer development of the White River / Lake Tapps Project or other sources of additional water supply. By utilizing existing water supplies more efficiently, Cascade will save millions of dollars for its members and their ratepayers, leave more water in streams for fish, and reduce the region’s carbon footprint through decreased energy usage involved in the treatment, transmission, and heating of drinking water.

WaterSense Award

In October, Cascade received the US EPA’s WaterSense Excellence Award for Strategic Collaboration. The EPA noted Cascade’s broad portfolio of regional partners to create a variety of water efficiency programs and services. Among Cascade’s partners are Built Green, Puget Sound Energy, Seattle Tilth, Sustainability Ambassadors, King County Housing Authority, and Lake Washington Institute of Technology.



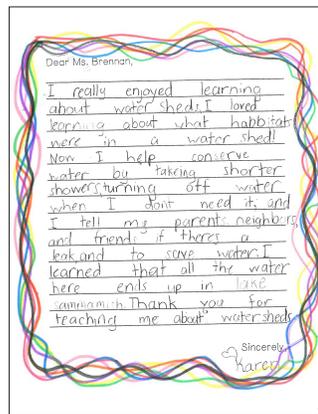
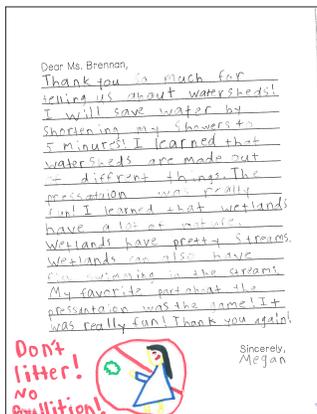
Watersense Excellence Award

2016 Cascade Water Efficiency Program		
Community Engagement		Completed
Classroom Presentations		389
Students Reached		9,240
Teacher Fellows Units Completed		7
Road Shows		11
Road Show Customer Interactions		~5,000
Water Wall Uses		9
Water Wall Customer Interactions		~2,500
Cascade Gardener Classes		29
Cascade Gardener Attendees		544
Garden Hotline Calls		288
WaterSmart Trainings		6
WaterSmart Training Attendees		120
Real Estate Conservation Trainings		3
Real Estate Conservation Attendees		41
King County Housing Staff Irrigation Trainings		5
King County Housing Staff Irrigation Training Attendees		~100
Single Family Water Audits		14
Multifamily Water Audits		2
Drip Irrigation Projects		4
Savings Generating	Savings (Gallons Per Day)	Completed
Residential Clothes Washers	16,380	1,092
Residential Showerheads	164,294	12,736
Residential Aerators	35,689	3,605
Multifamily Showerheads	781	93
Multifamily Kitchen Aerators	902	347
Multifamily Bathroom Aerators	429	66
Multifamily Toilets	5,687	235
Comm Laminar Flow Restrictors	10,320	240
Comm Aerators	3,225	75
Comm Spray Valves	411	3
Irrigation Projects	200	1
Web Page Cons. Items	1,510	1,510
Event Distributed Cons. Items	17,500	17,500
Member-Provided Items	400	400
Total	257,728	

Youth Education

In 2016, Cascade provided 389 water education programs to 9,240 students at schools within all Cascade member service areas. Cascade offers 15 programs designed to help schools meet state Science, Technology, Engineering and Mathematics (S.T.E.M.) requirements. All programs include water efficiency concepts and discuss Cascade and its members. Program evaluations provided by teachers are very positive, and many schools register for programs months in advance.

“The aquatic insect dip was an excellent opportunity for students to study our pond. They understand the importance of keeping our pond clean and where the water goes after it leaves the pond. Looking at the creatures in the pond was awesome! Thank you!” – Marcy Rice, Tukwila Elementary



Thank You letters from students

Community Gardens

Cascade partnered with Seattle Tilth to create drip irrigation in community gardens at the International Community School (Kirkland), a Hopelink property in Bellevue, and the McAuliffe Learning Garden (Kirkland). Seattle Tilth and Cascade also created the WaterSmart workshop to teach residents about water conserving strategies inside the home

and in the landscape. The workshop was presented six times.

- McAuliffe Park, Kirkland – July
- Confluence Park, Issaquah – August
- Skyway Water and Sewer – September
- Sammamish Plateau Water – October
- McAuliffe Park, Kirkland – October
- Bellfield Office Park, Bellevue – November



Skyway residents learn how to make rain barrels



Designing drip irrigation

Teacher Fellows

The Teacher Fellows program recruits master teachers from Bellevue, Issaquah, Lake Washington, and Tukwila school districts to design water-based curricula for inclusion into their respective districts. Teachers are supported by Cascade through a stipend and through materials and resources relating to water systems and water resources.

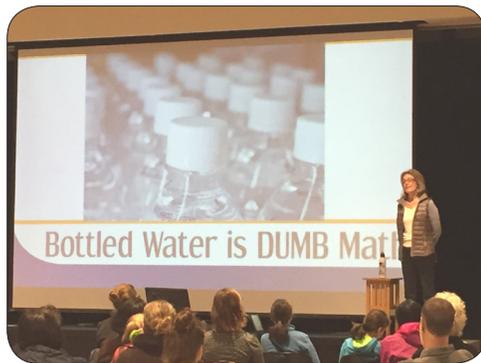
This program allows Cascade to target its resources to have a broader and more lasting impact within school districts.

Cascade’s first group of Teacher Fellows completed the program in 2016. Nine teachers created 7 units that are being incorporated into their respective district’s standard curriculum. The work included studies into the world water crisis, wastewater engineering, and surface water management. The program included students taking specific actions to improve the conditions of their local environment such as replacing old showerheads, checking their cars for oil leaks, and monitoring their neighborhoods for pet waste. Hundreds of students participated in the first year of the Teacher Fellows program.

“Aside from learning about Flint, we also looked at water more generally... we all need water, but we don’t have an unlimited amount, especially drinkable water... saving water now is the best way to help ensure that everyone in the future has some to drink...” – Foster High School student (Tukwila)

Water Systems Symposium

In November, Cascade held the second annual Water Systems Symposium at the International Community School in Kirkland. The symposium is an opportunity for educators to spend a day learning about many water issues from local and regional experts. The symposium also included workshops from Cascade’s Teacher Fellows who used their projects to facilitate understanding of problem-based learning. Cascade representatives Penny Sweet, Vondana Slatter, and Angela Birney completed the day with a panel discussion to help symposium attendees better understand the governing process relating to water protection. Local



Symposium presentation

students also play a prominent role in the symposium.

Sustainable Landscape Technologies

In partnership with Cascade, Lake Washington Institute of Technology (LW Tech) developed the first landscape and horticulture course series in the country with sustainability and water conservation as core objectives. The new course series is entitled “Sustainable Landscape Technologies.”

The goals of the Sustainable Landscape Technologies program are to:

- Meet the needs of students interested in a career in sustainable landscape management;
- Meet the needs of individuals already in the industry;
- Meet the needs of the industries (landscape, irrigation, horticulture);
- Allow for a professional certificate program
- Prepare students and professionals to achieve certifications such as IA, ecoPRO, CPH, LIC, and PLANET.

The initial course, Sustainable Irrigation I, debuted in the fall in 2016 and was very well received. Based on feedback from that course it was determined a second irrigation course was needed to cover additional material. Sustainable



LW Tech students in the Irrigation Learning Lab

Irrigation II was attended by numerous irrigation specialists from local city parks departments within Cascade’s jurisdiction.

LW Tech and Cascade Water Alliance have worked together for years to promote water efficiency and sustainability in horticulture. The partnership culminated in the creation of the Irrigation Learning Lab in 2015. The Learning Lab serves as a hands-on training tool for students to learn the fundamentals of smart irrigation techniques. The Learning Lab is a regional asset that is used not only for LW Tech programs, but also by the ecoPro program and other landscape and irrigation professionals in the area.

Cascade Road Shows

Cascade participated in 11 community events and festivals in 2016. All members were represented, and Cascade engaged with approximately 5,000 residents distributing 17,500 conservation items and answering questions about water supply and water efficiency. The following events were attended:

- Tukwila Backyard Wildlife
- Bellevue Strawberry Festival
- Bellevue Farmer’s Market
- Skyway Community Event
- Issaquah Salmon Days
- Kirkland Farmers Market (twice)
- Redmond Derby Days
- Sammamish Days
- NW Flower and Garden Show
- Trends Conference

Garden Hotline

Cascade supports the regional Garden Hotline, a service provided by Seattle Tilth. Homeowners can call the Garden Hotline Monday through Saturday and receive expert advice on sustainable gardening techniques and conserving water in their landscapes.

Real Estate Professionals Training

Cascade provided training to members of the real estate industry on aspects of water efficiency and management, water rights, stormwater, and water pollution.

The training covered a variety of topics designed to help real estate appraisers and brokers better understand the complexities of developing and providing municipal drinking water services and the importance of water efficiency. Representatives from the Washington departments of health and ecology discussed water rights issues, US EPA staff covered the WaterSense program. Seattle Tilth provided a hands-on drip irrigation activity and Nature Vision used the enviroscape model to demonstrate problems caused by non-point source pollution.

Real estate professionals are an important stakeholder, and it is advantageous for Cascade to have members of this industry promoting water efficiency.



Learning about water rights

School Gardening Network

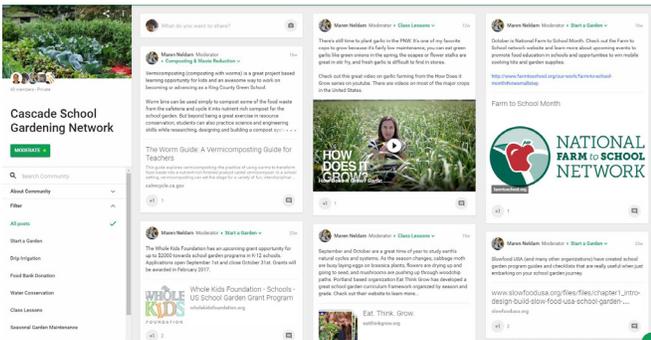
Cascade established the School Gardening Network, an online resource for teachers interested in gardening to learn about the

resources available from Cascade and Seattle Tilth and receive expert gardening and irrigation advice.

This program leverages resources to help teachers plan and create waterwise gardens, grow food for their schools and food banks, and communicate with experts and other teachers.

Cascade Gardener

This program uses expert instructors to teach gardeners how to have beautiful landscapes without excessive water and chemicals. Cascade provided 26 classes for approximately 544 residents at venues in all member areas.



We Need Water Because...

Cascade’s public education campaign challenged residents to consider the value of water by answering the question, “We need water because....” Residents wrote their responses on a portable, modular Water Wall.

This campaign provided a unique way to engage the public on the importance of water and demonstrated Cascade’s leadership in resource conservation.

The Water Wall appeared in all Cascade member jurisdictions in 2016.



Skyway Health and Wellness Fair

Clothes Washer / Showerheads

Cascade partners with Puget Sound Energy to provide point-of-purchase rebates for EnergyStar certified residential clothes washers and WaterSense labeled showerheads.

Puget Sound Energy provides the administration of these programs with Cascade sharing in only the direct rebate costs making these measures very cost-effective. Cascade shared in 1,092 clothes washer rebates and 12,736 showerhead rebates to customers in 2016.



King County Housing Authority Water Audits and Retrofits

Cascade provides free water audits and high efficiency fixtures for properties owned and managed by the King County Housing Authority (KCHA).

Subsidized housing often contains old, inefficient fixtures, which waste water and drive up KCHA utility costs. Cascade's relationship with KCHA results in cost-effective savings and support of a public agency.

Laminar Flow Restrictor Pilot

Cascade piloted a new type of fixture called a laminar flow restrictor (LFR) in two assisted living facilities. The LFR is a substitute for the faucet aerator that can be used in healthcare facilities. The standard aerator, by mixing air with the water stream, allows the growth of a bacteria film. The does not mix air into the stream, and keeps air out of the stream by avoiding turbulence in the flow. Cascade installed 240 LFRs and will monitor the water usage of the facilities in 2017 to see if there is a measurable reduction in water usage.

Multifamily Retrofits

Cascade partners with Puget Sound Energy to provide direct installation of showerheads and faucet aerators in apartment complexes at no charge to the tenant or property owner. In 2016, there were 93 showerhead installations and 413 aerator installations in apartments in condominiums, such as Mondrian (Bellevue), Avondale Park.

Website Ordering

Cascade offers free water efficiency items, such as showerheads, shower timers, and rain gauges, to homeowners in its member service areas through its website. The ordering process is easy, and the items are shipped to the customer's door. Cascade provided 1,510 items to residents, apartment complexes, and Cascade members for distribution to customers in 2016.

Skyway Audits

In 2016 Cascade performed an additional 14 water audits for customers in Skyway's discounted rate program. Combined with the audits from 2015, a total of 38 audits were completed. Many old fixtures were replaced and leaks repaired. Cascade's preliminary analysis of the participants' water bills indicates a significant water savings resulting from the program.