Regional 1% Water Conservation Program

2004 Annual Report
June 2005

Saving Water Partnership

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Saving Water Partnership Regional 1% Water Conservation Program

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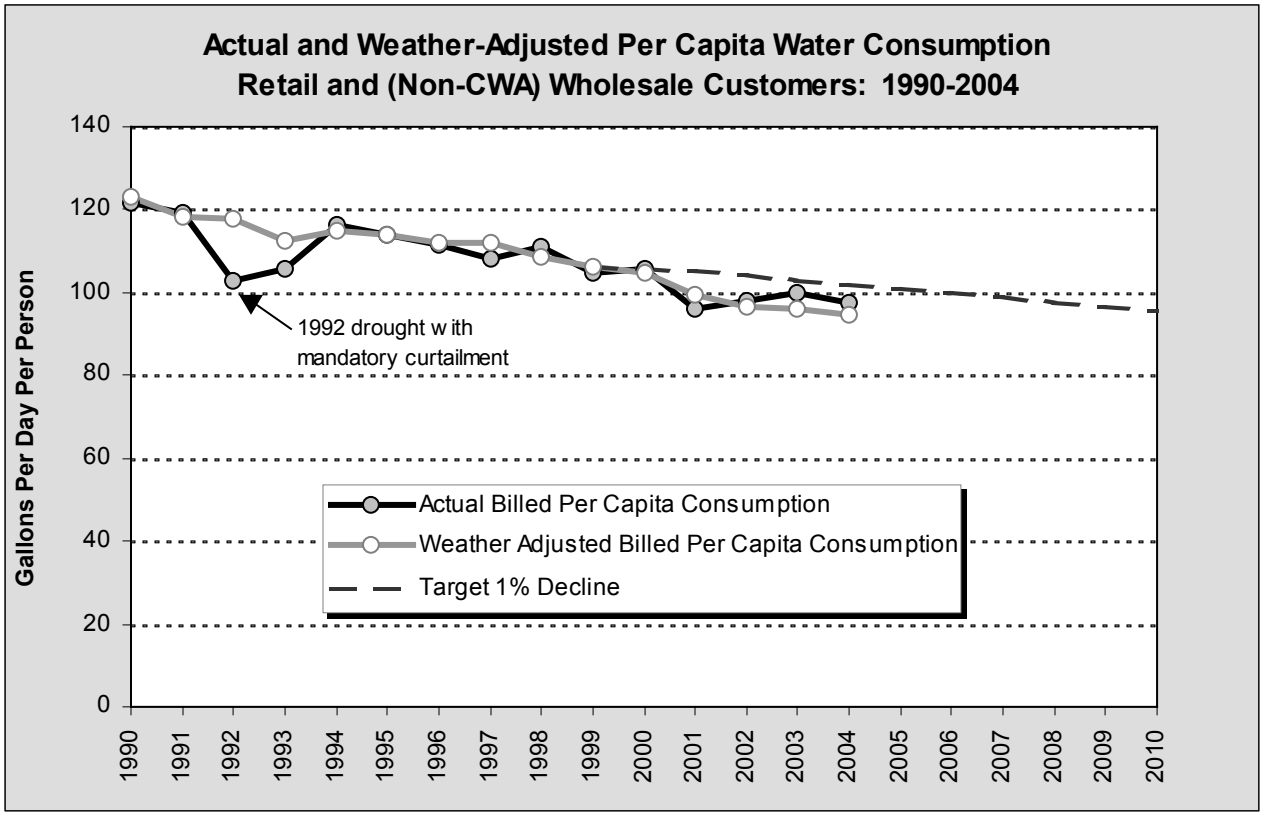
1. Summary of 2004

The decade-plus trend of excellent progress on regional water conservation continues. Regional per capita use is continuing to decline when normalized for variation in weather conditions. Chart 1 shows how a combination of factors, including the 1% Program, have affected per capita use since 1990. The strong dip seen in the chart in 1992 was due to a mandatory lawn watering ban in that drought year. Voluntary curtailment of water use associated with a second drought contributed to another notable decline in water use in 2001. More detail about Chart 1 is provided in Chapter 4.

Chart 1: Billed Per Capita Water Use — 1% Program Utilities

Annual Average



This report reviews annual progress of the regional 1% Water Conservation Program (1% Program). This document is the fourth of an annual series of reports designed to inform and guide the program toward its objectives. The regional 1% Water Conservation Program (1% Program) was initiated in 2000 and is sponsored by the Saving Water Partnership (SWP). This Partnership includes the City of Seattle and a group of 17 utilities purchasing wholesale water from the City of Seattle. The City of Seattle administers the 1% Program in collaboration with these utilities, under terms of long-term water supply contracts.

For this review, the 'region' refers to all customers served by the Seattle Public Utilities (SPU) water supply system who participated in the 1% Program in 2004. Cascade Water Alliance (CWA) utilities who were part of the program from 2000-2003, left the 1% Program in 2004 and 1% Program savings targets were reduced accordingly.

The long-term goal of the 1% Program is to keep water demand by the end of 2010 at the same level as it was in 1999, despite growth in population and economic activity. To achieve this goal, based on the forecasted growth rates at the time of Program initiation, three specific target objectives were developed to monitor progress:

- Reduce annual per capita consumption 1% per year from 2000 to 2010;
- Achieve a total programmatic conservation savings as adjusted following the departure of CWA utilities of 14.5 million gallons per day (MGD) peak season savings (11.0 MGD annual average) in the ten years from 2000 to 2010;
- Achieve annual programmatic conservation savings targets. The target was 1.2 MGD peak season savings (0.9 MGD annual average) in 2004.

Since ramp-up of the program in year 2000, savings goals and accomplishments have been expressed as gallons per day of peak season water reductions. Peak season savings have the greatest value to the program sponsors in deferring expensive new capital projects. However, water demand forecasting and long-range supply planning are done using annual average units of water consumption. As a result, reporting conservation savings as peak savings has often been confusing and difficult to compare to the more traditional average annual numbers. To avoid confusion, “ballpark” conversions between peak and annual average savings are shown in parentheses in this report. These conversions reflect the fact that the various types of programs produce savings that are distributed throughout the year in different patterns (e.g., only in peak season, uniformly throughout the year, or in another pattern).

In 2004, the region continued to make good cumulative progress in reducing per capita water demands. Total cumulative regional water savings of the 1% Program since its inception is very close to target. Per capita demands continue to track lower than target, due to a combination of 1% Program savings, changing demographics and economy, and other long-term water savings produced from rates, codes, water system efficiencies, and Seattle’s low-income water conservation programs.

In 2004 the 1% Program achieved savings somewhat below target because savings from behavior message campaigns fell below expectations. Hardware replacement savings were close to but slightly below target. However, weather-adjusted peak season consumption for customers continued to decline, consistent with the expectations of the 1% Program.

The year 2004 experienced an early, exceptionally warm and dry spring and summer with high peak season irrigation water demands. A pattern of warm dry weather began in April and continued through most of the summer before ending abruptly on August 21. The result has been peak season consumption looking much like 2003, except that it was not as high and it began earlier and ended earlier. As in 2003, a strong summer water supply reduced the need for an expensive, highly visible summer education message, possibly resulting in a lapse of customer attention to conservation. Public awareness of the need for conservation was not emphasized in 2004, however, a highly visible campaign about the negative impacts of overwatering lawns did take place, with an emphasis on both summer watering and recruitment of residential customers to make changes to their in-ground irrigation systems.

While the focus of this report is the 1% Program, efforts other than 1% will be discussed in order to describe total savings in the water system. Based on consumption analysis, 1% Program efforts helped customers implement equipment replacement and conservation behaviors that produced 0.9 million gallons per day (MGD) in new long-term peak season savings (0.7 MGD in annual average savings) in 2004, 76% of the 1% Program target of 1.2 million gallons of peak savings per day (78% of the target annual average savings):

- The cumulative 1% Program (years 2000 to 2004) has now achieved 40% (or 5.8 MGD) of the 2010 peak season savings target of 14.5 MGD (or 4.4 MGD of the 2010 annual average savings target of 11.0 MGD), very close to the revised cumulative five-year target;
- Cumulative cost of the Program to date is $17.6 million, or $3.02 million per MGD of peak season savings;
- 0.76 MGD of the 2004 1% peak season savings (0.65 MGD of annual average savings) was from new fixtures and equipment;
- The remaining 0.15 MGD of peak season savings (0.05 MGD of annual average savings) was generated by new permanent conservation behaviors

The Regional 1% Program

The 1% Program was created in 1999 and expanded to include the entire Seattle service region in 2000. The 1% Program is based on conservation measures identified in the *Conservation Potential Assessment* (CPA, Seattle Public Utilities, 1998) as cost effective (i.e., less than or equal to Seattle's avoided cost of new supply). These measures have been incorporated into the 1% Program and are designed to reduce personal and business water consumption in the regional service area by 1% each year through 2010. When the program was conceived a total peak season savings target of 18 MGD (13.6 MGD annual average) was set that included Cascade Water Alliance utilities. This savings target roughly corresponded to the forecasted growth in water demand in the service region over this same time period. Achieving the 1% target was intended to hold water demand in the Seattle service region at the end of 2010 to approximately the same level as in 1999. Since the departure of the five Cascade Water Alliance (CWA) utilities at the end of 2003, the total savings target has been adjusted to 14.5 MGD of peak season savings (11.0 MGD annual average savings). CWA's block contract with Seattle takes into account conservation savings for CWA, so the reduction would produce the same net savings target of 18 MGD peak season savings by the end of 2010.

The 1% target was selected to achieve a number of objectives, including:

- *Keeping up with demand.* If each person and business in the region became 10% more water efficient over the next ten years, the region will save approximately 14.5 million gallons of drinking water per day in the peak season (11.0 MGD of annual average gallons).
- *Resource stewardship and endangered species protection.* Leveling out the impact of growth on the region's water supplies means there is less need for additional river diversions, preserving more water for salmon, other aquatic life, recreation, water quality, and other important purposes. The federal Endangered Species Act (ESA) listing of the Chinook salmon has added emphasis to these goals for governmental agencies whose operations may have impacts on the Chinook.
- *Cost-effective extension of existing supplies.* The measures identified in the 1% Program are less costly on a per unit basis than developing most traditional new sources of water supply. This benefits customers by keeping rates lower than they would be if a new source of supply were added to the system to meet demand in lieu of reducing demand through conservation.

- *Customer service.* Conservation provides a direct benefit to participating customers by giving them more control over their individual water bills. Participation in conservation measures has other benefits including lower wastewater, electric, and gas utility bills, convenience, labor savings, and in some cases like clothes washing, improved performance.
- *Reliability.* Developing traditional new water supply sources has lengthy regulatory approval processes. Conservation programs can be implemented quickly by utilities without permits, approvals, or revisions to comprehensive plans. Furthermore, because these programmatic savings are largely technology based, savings can be obtained with certainty.

A *Ten Year Water Conservation Program Plan* (Seattle Public Utilities, 2002) was completed in 2002, detailing program budgets, savings targets and implementation strategies through 2010. The regional program began in 2000. The first two years were ramp-up years for program measures, staffing, and funding. Accordingly, the savings targets for 2000 and 2001 were lower than 2002-2010.

2004 Goals and Strategies

The 1.71 MGD target shown in the *Ten Year Water Conservation Program Plan* (Seattle Public Utilities, 2002) was adjusted to 1.2 MGD peak season savings (0.9 MGD annual average), in early 2004 to reflect budget availability and the departure of Cascade Water Alliance utilities from the 1% Program. The targets for subsequent years identified in the *Ten Year Water Conservation Program Plan* have also been adjusted. The adjusted targets are shown in Table 3 (page 9).

The 1% Program fixture and equipment rebate programs for residential and commercial customers expanded upon 2003 efforts and customer contacts. Rebates were re-tooled in some instances, new incentives were introduced, and new utility partnerships were formed to leverage resources and increase services to customers. 1% Program outreach and technical assistance was expanded for large and small commercial customers, and for vendors and contractors.

Marketing strategies to increase rebates and long-term conservation behaviors focused on target recruitment of different types of customers for specific conservation programs. These strategies employed mass media, direct mailings, new program materials, new web and hotline resources, seminars and workshops, agency and trade association partnerships and a host of targeted promotions.

2004 Program Performance

Total 1% Program long-term savings remain very close to target in relation to the *Ten Year Water Conservation Program Plan* (Seattle Public Utilities, 2002). Table 1 shows estimated long-term savings in 2004, with more detailed analysis provided in Chapter 4. New water savings achieved in 2004 include both long-term savings and transitory, or temporary savings. **Long-term** savings include both the direct and indirect impacts from implementation of the 1% Program – these savings are the focus of this report. Long-term savings in addition to 1% Program savings also come from higher water rates and plumbing fixture codes. **Transitory** savings are short-term in duration and come from above-normal utility system savings (non-revenue water reductions), from temporary drought curtailment actions and the residual effects of these actions, and from changes in economic

activity in the regional service area. All long-term savings are included in Seattle Public Utilities' demand forecast, whereas transitory savings are not.

Table 1: New Water Savings Achieved in 2004 (in MGD)

	New Long-Term Customer Savings						Other Savings		Total
	1% Conservation Program		1% Program Total	Rates	Code	Seattle Low Income	Economy	System	
	Hardware	Behavior							
Residential Indoor	**0.27**[1]		**0.27**	0.1	0.5	0.03			
Residential Landscape	**0.01**	**0.15**	**0.16**	0.1					
Commercial Non-Landscape	**0.48**		**0.48**	0.1	0.3				
Commercial Landscape	**<0.1**	**<0.1**	**<0.1**	0.1					
Other Savings								-4.6[3]	**-4.6**
2004 Total 1% Program Peak Season Savings	**0.76**	**0.15**	**0.91**						**0.91**
2004 Total Annual Avg Savings[2]	**0.65**	**0.05**	**0.70**	**0.4**	**0.8**	**0.03**	**0.0**	**-4.6**	**-2.67**

[1] 1% Program sector savings are reported as peak season savings.
[2] See text on page 2, and in Chapter 2, page 13 for conversion of peak season savings into annual average numbers.
[3] Much of the higher than usual non-revenue water use was believed to be due to reservoir overflowing for water quality purposes.

Also shown in Table 1, but not part of the 1% Program, are savings for rates, codes, Seattle low-income projects, transitory economy-related savings, and system non-revenue water savings. Table 2 shows 1% Program performance relative to expenditures, savings goals and targets for each customer sector, by hardware (equipment), and by behavioral incentives and outreach efforts.

Hardware Incentive Savings include new fixtures and equipment upgrades that were supported with program incentives, as well as accelerated fixtures (beyond rates and code) that were upgraded without rebates. Based on program records, these savings are estimated to be .76 MGD peak season, (or 0.65 MGD annual average) in 2004.

Behavioral Incentives and Outreach Savings include permanent conservation achieved with and without incentives from changes in customer water-using behaviors. These savings are estimated to be 0.15 peak season (or 0.05 MGD annual average) in 2004. These estimates are explained in greater detail in Chapter 4.

Table 2: 2004 Performance

PROGRAM SECTOR	EXPENDITURES ($1,000)	2004 WATER SAVINGS Peak Season[1] (1,000 GPD)	
		Goal	Conservation Achieved
Residential Indoor	**$1,258**	**520**	**271**
Behavioral & Outreach	130		0
Hardware Incentives	1,128		271
Res. Landscape	**$442**	**290**	**156**
Behavioral & Outreach	232		150
Hardware Incentives	210		6
Comm Process & Domestic	**$1,298**	**340**	**484**
Hardware Incentives	1,298		484
Comm Landscape	**$249**	**50**	**0.5**
Behavioral & Outreach			<1
Hardware Incentives	249		0.5
CPA and Research	**$172**		
Youth Education, Annual Report, 684-SAVE, Savingwater.org, Administration	**$182**		
Totals	**$3,601**	**1,200**	**912**
Behavioral & Outreach	544		150
Hardware Incentives and CPA	3,057		762

[1]For annual average savings see description in text above.

Sector Highlights

Residential indoor

- The residential indoor sector achieved strong water savings in 2004. The WashWise program continued at a brisk pace, processing nearly 6,400 rebates for efficient clothes washers.
- The Multifamily Toilet program served 143 buildings, replacing more than 4,000 inefficient fixtures. Staff designed a new incentive for the Multifamily Toilet program that will offer customers a choice of a higher rebate or free toilet in 2005.
- Evaluation of toilet flapper replacement incentives was also completed in 2004, documenting savings from 2003 pilot program efforts and providing valuable information for future program design.

Residential landscape

- This sector developed a new message campaign and expanded on existing messages and promotions. The residential landscape sector developed new supporting materials with specific and highly relevant information to enable customers to make wise choices to save water. The new 'Overwatering' message campaign was highly visible, appearing on buses and airing on the radio during the summer.
- Staff combined partnerships with nine area nurseries, five widely known garden writers, and newspaper and radio advertising to create a 'Plant Right For Your Site' campaign. This campaign focused on plant selection and reinforced the *Better Way to Beautiful* campaign from last year and introduced a new brochure, *The Plant List*, to an enthusiastic audience.
- Another milestone for the landscape sector was development of an agreement with the non-profit Irrigation Water Management Society, which set the stage for development of a web site with real-time evapotranspiration rate data and an irrigation calculator, which customers can use to determine how to set their irrigation systems to deliver the right amount of water for current weather conditions.
- In addition, the Northwest Natural Yard Days promotion was expanded to include a month of compost sales at discounted prices in September. Retailers offered discounted prices on compost, and the SWP promoted the sales.

Commercial, industrial and institutional

- Facilities implemented more than 70 financial incentive projects in 2004. A focus on medical sterilizers contributed to this success, as did a commercial sprayhead retrofit program. Significant incentive projects included the University of Washington (campus toilet retrofit, laundry water recycling system and cooling tower study), King County Metro Bus Maintenance Facility (water-cooled air compressors), Seattle Police Department (water reuse) and two car wash water reclaim systems in wholesale service areas.
- Significant outreach and technical assistance to the business community included a direct mailing to 800 small businesses and completion of more than 20 facility audits and assistance visits at commercial facilities such as Bunge Foods, Trident Seafoods, Fairmont Olympic Hotel, Alaska Airlines, Cabrini Medical Tower, King County South Transit Base, and the Washington State Trade and Convention Center.
- Promotional and workshop presentations were made to facilities managers and targeted trade group audiences.
- Articles were published in several newsletters, and water conservation remained a main feature on the Resource Venture's website. The SWP collaborates with the Resource Venture, a non-profit affiliate of the Greater Seattle Chamber of Commerce, to conduct outreach to businesses.
- A small number of conservation projects were completed by facilities without financial incentives as a direct result of the 1% Program's information and outreach to businesses.

Commercial landscape

- This sector emphasized customer irrigation efficiency audits and customized rebate projects for large commercial landscapes.
- In 2004 workshops were conducted for landscape and irrigation professionals, property managers and other irrigation customers to educate them about the costs of poorly managed systems, efficiency opportunities, and how to qualify for financial incentives. Low customer recruitment resulted in low program participation and low water savings achieved. At year's end, the program was assessed to determine a more cost-effective approach for achieving savings in this sector. The new approach will encourage and enable contractors

to provide auditing services and to pursue the Irrigation Association Auditor certification, thereby improving professional irrigation skills.

Youth education activities provided education and customer recruitment support for measurable savings achieved by the residential indoor and landscape conservation programs. Accomplishments included:

- Development of a revised home water savings kit.
- Creation of a TV advertisement for the interactive 'Waterbusters' on-line educational tool.
- Revised web page.
- Distribution of materials to school groups.
- Water education event sponsorship.

The Seattle Water System Wholesale Customer Conservation Technical Forum met throughout the year to discuss the implementation of Residential Indoor, Landscape, Marketing, Commercial/Industrial/Institutional, and Education programs.

1% Program Total Savings to Date

The *Ten Year Water Conservation Program Plan* (Seattle Public Utilities, 2002) savings goal is to save 18 million gallons per day of peak season demand (13.6 MGD of annual average) by the end of 2010. The savings is to come from both the City of Seattle and the wholesale customers of Seattle who participate in the regional Saving Water Partnership (SWP). On January 1, 2004, five Seattle wholesale water utilities left the SWP as part of Seattle's new contract with the Cascade Water Alliance (CWA). Program savings from these CWA utilities prior to January 1, 2004, were counted in the 2003 Annual Report. The savings yet to be obtained from the remaining SWP Utilities has been adjusted, resulting in a savings goal of 14.5 million gallons per day (11.0 MGD annual average) for the regional 1% Program by the end of 2010. Table 3 on the next page shows the cumulative 1% Program savings to date, and the savings targets for years 2005-2010. This table is laid out similarly to the long-term savings table presented in the *Ten Year Water Conservation Program Plan* (Seattle Public Utilities, 2002).

Table 3: 1% Conservation Program Savings to Date (1,000 GPD peak)

	2000-01 "Ramp-Up" 2-Year Total	2002	2003	2004	2005	2006	2007	2008	2009	2010
Residential Indoor	1,150	386	349	272						
Residential Landscape	400	304	103	157						
Commercial Domestic, Process, Landscape	1,250	525	452	474						
Actual Annual Savings	***2,800***	***1,215***	***904***	***912***						
Target Annual Savings*	2,100	1,120	1,500	1,200*	1,200	1,500	1,500	1,500	1,480	1,434
Actual Savings Cumulative	***2,800***	***4,015***	***4,919***	***5,831***						
Target Savings Cumulative	2,100	3,220	4,720	5,920*	7,120	8,620	10,120	11,620	13,100	14,534

*2004 target and years thereafter adjusted 27% to reflect withdrawal of Cascade Water Alliance utilities from 1% Program. See text for description of conversion to annual average savings.

Looking Ahead

In March of 2005, Seattle Mayor Greg Nickels declared a water shortage advisory, activating the first stage of Seattle Public Utilities' Water Shortage Contingency Plan. Water shortage conditions may create challenges for program implementation such as staff reassignments to shortage-related priorities and may add a level of difficulty to determining 1% Program savings for 2005. Analysis of 2005 water consumption may need to distinguish long-term savings attributable to the 1% Program from transitory savings that were brought about by the shortage but that will erode over time, similar to the situation in 2001. Also in 2005, the regional Conservation Potential Assessment update will be finalized, assisting the 1% Program with program targeting and design.

The 2005 1% Program will continue to build on the success of ongoing program implementation and will try new approaches in several programs:

- National research results about toilet performance will enable a narrowing of rebate eligibility for both the Multifamily Toilet Rebate Program and the Water Smart Technology program, and establish a foundation for the launch of a single family toilet replacement program.
- Limited customer testing of residential showerhead replacement will take place.
- A messaging campaign encouraging residents to wash full loads of clothes will be developed.

- Experience with residential irrigation system rebates will lead to expansion of this effort in 2005 with an increased focus on landscape contractors and equipment vendors.
- Launch of a web site that contains real-time evapotranspiration data and an irrigation calculator will support residential irrigation system rebates.
- The commercial program will continue to focus on targeted savings where there is readily available cost-effective technology and a significant customer base, such as dental vacuum pumps. This targeted approach proved very successful with the pre-rinse sprayhead and the medical sterilizer programs in 2004.
- The program will continue to emphasize assistance to both small businesses and the largest commercial customers who made important conservation progress in 2004.

Although not part of or funded by the 1% Program, Seattle Public Utilities continues to implement a Seattle Direct Service Water Conservation Program to accelerate water savings and assist low income residents inside the city limits. In many ways this Program complements the 1% Program, since greater incentives and more community based marketing can be accomplished, resulting in greater savings. During Phase One 11,027 low-income housing units in Seattle were upgraded with efficient plumbing products. Phase Two will begin in 2005 and target approximately 18,000 additional low-income units through 2010. The goal in 2005 is to reach nearly 8,000 homeowner/utility assistance recipient households with details of free or reduced cost conservation assistance. Program partners currently include community based non-profit Senior Services of Seattle King County, Seattle Human Services Department, and other local community based organizations.

Ongoing Performance Monitoring

The 1% Program regional ten-year conservation goal requires significant conservation investments through the year 2010. Carefully tracking and evaluating program performance through efforts such as those included in this report will help meet the 1% goal in a timely and cost-effective manner. Monitoring program performance will ensure that resources are put to their best use and that the programs are managed for highest efficiency. This information will also help identify the need for mid-course corrections and fine-tuning adjustments as the program proceeds toward the goal.

2. Program Design

Regional 1% Program and 10-year Goal

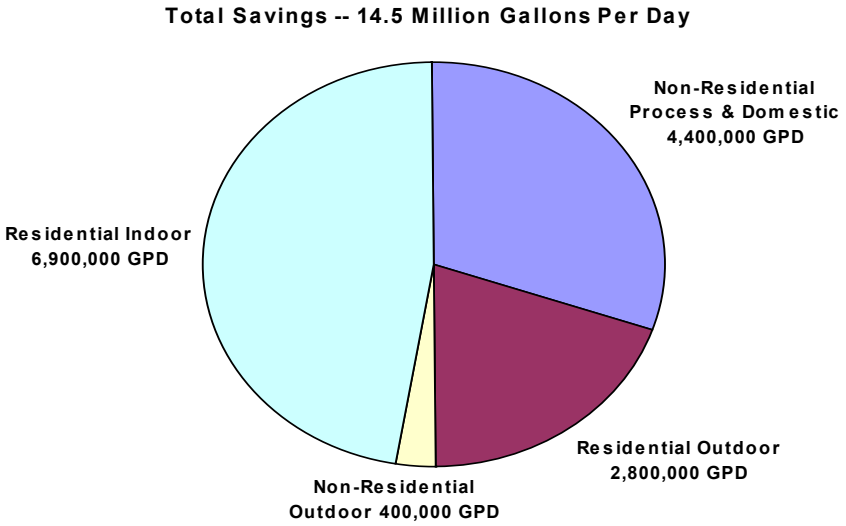
The Saving Water Partnership has an established goal of reducing per capita water use in the regional service area by 1% every year through 2010. When combined with new codes, price impacts and system savings, this goal will result in decreases in total water demand through the year 2010 despite a forecasted 10% growth in regional population over this same time frame. Consequently, water withdrawn from the Tolt and Cedar River supply sources will be no greater in 2010 than they are today, providing significant environmental benefits for fish and other riparian resources. More detailed objectives and strategies for the 10-year program and beyond are presented in the *Ten Year Conservation Program Plan* (Seattle Public Utilities, 2002).

Water system demand reduction comes from several sources: savings from water rates and plumbing codes, conservation programs, and other savings such as the impact of the economy on water use, and utility non-revenue water use. Between 2000 and 2010, savings from rates and plumbing codes are expected to reach 11 MGD annual average savings, and savings from the 1% Program will achieve an additional 14.5 MGD of peak season savings (11.0 MGD annual average). Although Cascade Water Alliance (CWA) utilities are no longer participating in the regional 1% Water Conservation Program, it is assumed that CWA will undertake demand management activities of their own to produce their share of the total Seattle water system savings needed to achieve the 2010 1% target. This report focuses on the 1% Program component of the total conservation picture. Unless otherwise stated, all references to conservation in this report are to those arising from 1% Program implementation.

In 1998, SPU completed a detailed econometric analysis of water conservation potential, the *Conservation Potential Assessment* (CPA, Seattle Public Utilities, 1998; updated in 2004). The CPA provides a rigorous analysis of the cost, volume, and reliability of conservation opportunities available within Seattle's wholesale and direct service areas. The CPA ensures that the 1% Program focuses on the most cost-effective conservation opportunities.

Chart 2 on the next page shows how the savings targets are to be achieved by various customer sectors.

Chart 2: 2010 Peak Season[1] Savings Targets by Sector[2]



[1] See Table 4 on page 13 for annual average saving targets by sector.
[2] Overall messaging and schools elements are considered supports for other elements and do not have savings targets tied directly to them.

Conservation savings will result from improvements in water use efficiency in residential, commercial, industrial, institutional and landscape customer sectors. The 1% Program will implement conservation programs to improve customer water use efficiency through strategies that integrate information, education, incentives, codes and regulations.

10-Year Measures and Strategies

Programs promoting and encouraging the use of efficient water-using equipment, behavior, and technology are the backbone of the 1% Program implementation strategy. Extensive public information and education outreach supports specific targeted program elements.

Since the early 1990's, the SWP has implemented aggressive conservation programs. The effect of these programs during the 1990's is quantified in Chapter 4. Many of these programs continue to be implemented and have been expanded, including: Water Smart Technology commercial/industrial/institutional incentives, Water Efficient Irrigation Program incentives for commercial customers, WashWise water-efficient washing machine rebates for residential customers, and Natural Lawn & Garden techniques for residential landscapes. In addition, new targeted hardware and behavior programs are being implemented for residential landscape and residential indoor uses. These programs are discussed in more detail in Chapter 3.

The initial years of the program have emphasized primarily getting savings from the expansion of ongoing programs, and ramping-up new programs. In 2004, program ramp-up lead to full scale implementation of irrigation system efficiency upgrade incentives for residential landscapes. Major savings over the life of the program will come from residential domestic use

programs, more efficient residential landscaping, and commercial/ industrial cooling and process improvements. Table 4 below shows where specific savings will come from and how the programs will achieve them. For further information on the long-term conservation program plans, see the *Ten Year Water Conservation Program Plan* (Seattle Public Utilities, 2002).

Savings in Table 4 are shown in peak season and annual average. Each customer sector has a unique pattern of annual water usage. Water use in the residential and commercial landscape sectors is heavily peak-season oriented, as landscapes are watered mainly during the hot summer months. Some commercial process water uses increase during the summer months, while others may partially increase and others stay constant year-round. Examples of water uses that increase during the peak season include hotel rooms, other tourism-related businesses, canning and bottling, and cooling. Examples of water uses that remain constant year-round include office building restrooms, laboratories, and commercial and industrial process water. While some residential indoor water uses such as showering and laundry tend to increase during the summer months, the increase is not significant enough to differentiate peak season usage from year-round use.

Table 4: 10-year Conservation Program Savings, Measures and Strategies

Sector	Types of Measures	Types of Strategies
Residential Indoor **Peak Savings: 6.90 MGD** by 2010 Ann Avg Savings: 6.90 MGD by 2010 =12% of annual average residential indoor water use	▪ Replace toilets, faucets, showers (single family & multifamily) ▪ Fix leaks ▪ Change behaviors (flushes, faucet use, showers, full loads)	▪ Incentives and promotion to accelerate code replacement ▪ Behavior messaging
Residential Landscape **Peak Savings: 2.80 MGD** by 2010 Ann Avg Savings: 0.93 MGD by 2010 =16% of annual average residential landscape water use	▪ Reduce lawn watering ▪ Improve Irrigation performance ▪ Change lawn & garden practices	▪ Direct & indirect media outreach ▪ Technical materials ▪ Irrigation efficiency incentives ▪ Landscape industry partnerships
Commercial/Process/Domestic **Peak Savings: 4.40 MGD** by 2010 Ann Avg Savings: 3.04 MGD by 2010 =10% of annual average commercial process and domestic water use	▪ Upgrade toilets and equipment for cooling, process other uses ▪ Improve cooling performance	▪ Technical assistance ▪ Financial incentives
Commercial Landscape **Peak Savings: 0.40 MGD** by 2010 Ann Avg Savings: 0.13 MGD by 2010 =19% of annual average commercial landscape water use	▪ Upgrade equipment (irrigation controls) ▪ Improve scheduling & maintenance	▪ Assessments and technical assistance ▪ Financial incentives

Supporting Elements

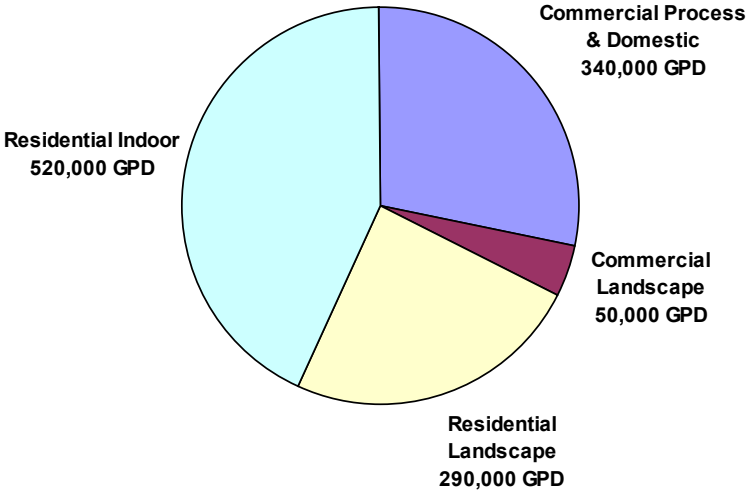
Sector	Types of Measures	Types of Strategies
Youth Education Supports water savings in other sectors	▪ Conservation awareness and personal responsibility	▪ Educator training & resources ▪ Classroom and take-home materials ▪ Watershed tours ▪ Interactive web site
Overall Messaging Supports water savings in other sectors	▪ Conservation awareness, personal responsibility, and residential and commercial measures	▪ Targeted marketing

2004 Program and Goals

An overall peak season savings target of 1.2 million gallons per day (MGD) was set for 2004, based on a total program budget of $3.6 million. For all sectors, new conservation efforts fell into two categories: 1) hardware incentives – primarily financial incentives to replace fixtures or equipment; 2) behavioral incentives and outreach – assistance to change behaviors or upgrade equipment, usually without financial incentives. This year established incentive programs built new savings based on past success, new residential landscape advertising was introduced, assistance and outreach services were expanded and ground was broken on new, future savings programs.

Chart 3 shows the 2004 savings targets planned for various customer sectors.

Chart 3: 2004 Peak Season Savings Targets by Sector



2004 Measures and Strategies

2004 presented special challenges and associated solutions in all of the major customer sectors:

Residential indoor water use. Rebates for clothes washers were lowered in recognition of increasing market share of water efficient machines. To ensure that the market share of these machines continues to increase, marketing efforts were expanded to compensate for the lower rebate.

Residential outdoor water use. Rebates for residential irrigation system efficiency improvements were offered for the second year. An early irrigation season made customer recruitment a challenge for this program. Partnerships continued with retailers, garden writers and the landscape industry. Overcoming customer barriers to water-saving practices, and quantifying savings from these behavioral practices, continue to be a challenge in this sector.

Commercial process, domestic, and landscape water use. Recruiting sufficient customer participation to meet the ambitious savings target for this sector is an ongoing challenge. Two targeted programs - a pre-rinse sprayhead retrofit program focused on restaurants, and a targeted program with a bonus incentive to stimulate retrofit of medical sterilizers, achieved excellent results.

Table 5 shows in detail the different conservation measures and strategies implemented during 2004 within the different customer sectors and supportive elements in youth education and overall messaging.

Table 5: 2004 Conservation Measures and Strategies

Types of Measures	Types of Strategies
RESIDENTIAL INDOOR (2004 Target = 520,000GPD Peak Season Savings)	
▪ Replace washing machines ▪ Replace toilets & faucets (single family & multifamily) ▪ Fix leaks ▪ Change behaviors (flushes, faucet use, shower time, full loads)	▪ WashWise rebates ▪ Double Your Savings rebates ▪ Multifamily toilet rebates ▪ Target building owner and operator associations ▪ Behavior messaging ▪ Collaboration with energy utilities ▪ Promotion through media, mailing ▪ Promotion of results of Maximum Performance Testing of Popular Toilet Models conducted by Veritec Consulting (Veritec, 2004)
RESIDENTIAL LANDSCAPE (2004 Target = 290,000 GPD Peak Season Savings)	
▪ Improve watering efficiency ➢ Irrigation system performance ➢ Landscape watering behaviors ➢ Practices that affect watering (e.g. mulch and soil prep)	▪ Irrigation system efficiency rebates ▪ Aesthetic-oriented media campaign ▪ Regional sales event ▪ Retailer partnerships (nurseries & home & garden centers) ▪ Technical materials ▪ Target high peak users
COMMERCIAL PROCESS/DOMESTIC (2004 Target = 340,000 GPD Peak Season Savings)	
▪ Upgrade toilets and other domestic water use fixtures ▪ Upgrade efficiency of equipment for cooling, process other industrial uses ▪ Improve cooling performance ▪ Upgrade efficiency of specific water consuming medical and lab equipment ▪ Replace pre-rinse spray heads	▪ Target small businesses ▪ Target restaurants and other users of inefficient pre-rinse spray heads ▪ Recognize outstanding projects through BEST awards program ▪ Outreach to chambers of commerce and other business groups through Resource Venture ▪ Technical assistance, assessments, workshops ▪ Financial incentives (custom projects & standard rebates) ▪ Possible bonus incentive to increase participation ▪ Targeted promotion through vendors, trade groups, agencies ▪ Recruit large customers ▪ Perform end-use metering wherever possible to build cost-effective conservation recommendations
COMMERCIAL LANDSCAPE (2004 Target = 50,000 GPD Peak Season Savings)	
▪ Upgrade irrigation equipment (controls, rain sensors, drip) ▪ Improve scheduling & maintenance	▪ Assessments, workshops and technical assistance ▪ Financial incentives (custom projects and set rebates) ▪ Targeted recruiting and promotion ▪ Begin transforming market by establishing and building vendor and contractor relationships

Supporting Elements

Types of Measures	Types of Strategies
YOUTH EDUCATION (Supports savings in other sectors)	
▪ Conservation awareness and residential measures	▪ Educator training and resources ▪ Classroom and take-home materials ▪ Educational TV PSA for kids ▪ Interactive activities
OVERALL MESSAGING (Supports savings in other sectors)	
▪ Conservation awareness supporting recruitment of residential and commercial customers	▪ Targeted marketing ▪ Collaboration with Puget Sound regional water utilities ▪ Festivals

3. Performance by Sector

The commercial customer sector exceeded their expected hardware-related savings in 2004, but other sectors fell below both hardware and behavior-related savings targets because of continued low behavior-related savings as described in Chapter 1.

Highlights:

- Commercial sector water savings were again very strong in 2004. The Water Smart Technology program targeted to commercial process and domestic water conservation exceeded its expected savings in 2004. The Water Efficient Irrigation Program targeted to commercial irrigation did not meet its savings goal.
- Residential indoor sector water conservation savings were also strong again in 2004. WashWise rebates exceeded their goal, but Multifamily Toilet rebates and behavior savings did not meet performance targets, so that the sector achieved significant savings but did not meet sector savings targets. Program costs are expected to decrease in future years as the hardware rebate programs evolve and as confidence in the new toilets and washers increases among customers.
- The residential landscape sector continued a rebate program and rolled out a behavior change campaign targeted to high peak water users, both key components of achieving the long-term goal. Barriers to changing the summer watering practices of these customers are significant and the second year of this program improved over the first year's performance, but did not produce significant savings. Despite a highly visible summer message that addressed overwatering, behavioral savings could not be tangibly demonstrated. An effort is underway to enable the program to better quantify behavioral savings.

Residential Indoor Use

Program Description

The residential indoor sector focuses on the indoor water use of single and multifamily customers. Water conservation efforts result from both fixture upgrades and behavioral changes. The program provides customers with direct financial incentives (rebates), technical assistance, and education. Program information is provided to customers through targeted and regional advertising, point-of-purchase materials at retailers, and direct contact with customers.

The Multifamily Toilet Rebate and other rebates were advertised regularly in the top-read publications for property owners and managers

2004 Goals and Strategy

For 2004, residential indoor conservation services were tasked with achieving 520,000 gallons per day (GPD) of new peak season savings. These savings were to be achieved through fixture replacement and behavioral changes. Fixture upgrades focused on toilets, clothes washers, showerheads and bathroom faucet aerators. While some residential indoor water uses such as showering and laundry tend to increase during the summer months, the increase is not significant enough to warrant using a differential between peak season and year-round savings when counting savings.

Program strategies concentrated on boosting ongoing rebate programs, testing a pilot conservation program, and educating customers about long-term behavior changes. Specific elements included:

- **Washing machine rebates** – The program offered rebates of $50, $75, or $100 to customers for the purchase of qualified efficient clothes washers. Such an approach was intended to educate consumers that washers are not just efficient/inefficient, but offer a range of efficiency levels.

- **Toilet rebates** – The Multifamily Toilet Rebate Program grew from its solid foundation set over the two previous years. A key goal of the program is to work with property owners and managers to replace toilets that would not have otherwise been replaced.

- **Showerheads and bathroom faucet aerators** – Customers who participated in the Multifamily Toilet Rebate Program were eligible to receive these products included in their rebate. These items provided additional water savings in living units as part of the toilet installation "package." The showerheads and aerators have been well received by residents.

Apartment buildings can replace their inefficient showerheads as part of the Multifamily Toilet Rebate Program

- **Outreach** – The WashWise program put major emphasis on advertising in 2004 to keep program participation high in spite of reduced rebate levels. Bus advertising and regional newspaper ads promoted the benefits of resource-efficient machines. Efforts to promote the Multifamily Toilet Rebate continued through articles, case studies, and ads in trade journals. Presentations were made at events sponsored by apartment and condominium owner associations.

2004 PERFORMANCE

Residential indoor conservation produced an estimated 271,500 GPD in new long-term peak season savings. The hardware elements of the program continued to capture savings through thousands of program participants.

Table 6: 2004 Residential Indoor Peak Season Water Savings

Type	Major focus	Peak Savings (GPD)
Outreach & education	Toilets, leaks, behaviors	0
Rebates & promotion	Washing machines, toilets, faucet aerators	271,500
	TOTAL	271,500

Resource efficient clothes washers rebated and installed in the SWP service territory remained a strong source of savings in 2004. The SWP continued to partner with Seattle City Light for customer rebates in Seattle City Light's service area. Clothes washers rebated through the program totaled 6,397 for the year. The water savings attributed to the installation of these machines is an estimated 106,830 GPD of peak season savings. Thirty-nine percent of the rebates were from wholesale service areas, which indicates higher per capita rebate participation for water districts outside of SPU's service territory. An additional 7,000 GPD of peak season savings, the equivalent of 500 efficient washing machine installations, has been attributed to this program. Significant increases in the market share of efficient machines since the WashWise program began indicate that consumers are being influenced to purchase efficient machines, even if they don't apply for a rebate.

WashWise rebates were promoted on Metro buses throughout the regional service area

The program continued to offer tiered rebates, providing greater incentives to customers who purchased higher-efficiency machines. This approach appeared effective, with the greatest number of machines purchased in the highest tier of efficiency. Manufacturers have also increased their offerings of machines in the highest tier of efficiency. According to many local retailers, sales of all rebate-eligible machines now make up around 50% of their total washing machine sales.

The multifamily toilet replacement program helped multifamily building owners and property management firms replace toilets in 143 buildings. Since the program's inception in late 2001, the program has served over 640 participating buildings and rebated over 15,000 toilets.

Table 7: 2004 Residential Fixture Rebates

Rebated Fixtures	Fixture Targets	Fixture Totals	Peak Season Savings (GPD)
Multifamily Toilets*	7,100	4,141	146,400
Washing Machines	3,600	6,397	113,800
Toilet Flapper Pilot (2003)	600	1,200	9,000
Toilet Recycling Support	300	100	2,300
		TOTAL	271,500

*Savings includes installation of showerheads, aerators and leaks repaired during toilet installation.

A total of 4,141 toilets were replaced through the program in 2004, totaling 144,900 GPD of peak season savings. An additional savings of 1,500 GPD of peak season savings, equal to 41 toilets or one percent of program accomplishments was credited to this program to reflect the program's educational effect on property managers who are replacing their fixtures without applying for a rebate. Participation levels below the target of 7,100 fixtures was disappointing but not surprising, given the assumption that many "early-adopters" had already participated in the program. The program continued to have strong participation in wholesale service areas, primarily a reflection of the King County Housing Authority completing the replacement of all old toilets in their housing portfolio. In addition, more than 114 tons of toilets were recycled through the program.

The toilet flapper replacement pilot program that took place in Northshore Utility District in 2003 was evaluated and found to have reduced participants' water consumption by 4.2%, or eight gallons per household per day, on average. The evaluation found that higher savings were achieved from customers with homes more than 10 years old. The level of savings was not sufficient to warrant implementation of a full-scale flapper program in 2005, but a program may be developed that would offer replacement flappers to regional residents with high winter water consumption and who live in older homes.

A common type of toilet flapper

Toilet recycling support for single family residents took place in the form of offering a subsidy of $5 per toilet to participating cities that coordinate city-sponsored recycling events annually. The 1% Program offered the incentive to enable cities to collect toilets for recycling at no cost to the customer. 274 toilets were collected through seven city-sponsored events. In addition, toilets were accepted for recycling year-round at no charge at Seattle's South Recycling and Disposal Station.

Program messages and materials included articles, fact sheets and advertising about conservation behaviors and incentives. Methods included print and bus advertising, press releases, public festivals and events, the savingwater.org web-site, and phone hotline information requests.

LOOKING AHEAD
The residential indoor program will continue to emphasize the WashWise and Multifamily Toilet programs in 2005. Now that the WashWise program has offered tiered rebates for two years, a trend is emerging that shows an increase in the higher efficiency machines. Customers are purchasing higher efficiency machines, and manufacturers are offering more products that are pushing the upper limits of efficiency. The rebate structure in 2005 provides a significantly higher incentive to customers who purchase the most efficient "Three Star" machines. This continues the program's movement toward an exit strategy that provides the greatest incentive to the most efficient machines, and eventually to a program that will be based on customer education rather than incentives. A promotion will be considered for late spring to celebrate the 50,000th WashWise rebate.

As of the end of 2004, the Multifamily Toilet Replacement Program (MTRP) was revamped to increase program participation. The program now offers an $80 per toilet rebate, or a free toilet option. The rebate was increased to stimulate greater participation before use of ratio utility billing systems (RUBS) – various systems for allocating water utility costs directly to tenants – becomes widespread. Once these billing systems are implemented, property owners are less motivated to conserve water. The rebate was also increased to provide more conservation assistance to non-subsidized low-income rental housing units, as mandated in Seattle by city ordinance. For this second reason, a percentage of the MTRP costs in SPU's service territory are being funded by Seattle's low-income program and not funded by wholesale partners. A market penetration study will be conducted in 2005 to determine the remaining potential for toilet replacement in this sector.

Planning is underway to offer a pilot showerhead/bath aerator program to Highline Water District residential water customers. If cost-effective water savings are calculated, such an effort could be expanded throughout the SWP service territory.

An educational effort will launch early in 2005, called FlushStar™. This SWP-driven effort will provide a list of toilets that are recommended to residents based on the results of independent toilet testing. Since mid-2004, all toilets rebated through the Multifamily Toilet Replacement Program have been required to be FlushStar™ qualified products. The FlushStar™ program in 2005 may be supplemented with a time-limited single-family toilet rebate program.

An additional educational effort is planned to capture savings from people making changes in everyday behaviors. An advertising and outreach campaign is scheduled to take place in fall of 2005 to increase the number of households washing full loads of clothes.

Residential Landscape Use

PROGRAM DESCRIPTION
This customer sector targets water used for single family landscapes. The long-term goal, over ten or more years, is to build a new customer ethic with respect to landscapes, replacing traditional and resource-intensive practices with those that are more resource-efficient and more closely follow a natural model. The primary target audience is high peak water users: customers who use significant quantities of water in the landscape. The important secondary audience is users who may not use as much water but who actively garden. The Natural Lawn & Garden (NLG*)* is the unifying concept that conveys key messages about healthy landscapes that require fewer resources, such as water and chemicals. It is an integrated approach,

addressing water supply, solid waste reduction and surface water quality and quantity issues and is supported with funding from Seattle and King County solid waste and drainage utility funding. This holistic approach has created efficiencies by leveraging resources from other utilities and agencies and has been well received by landscape professionals and customers. Program efforts focus on outreach and education, program incentives, ecological landscape management, and evaluation.

The key "what" message of this program is summarized in five steps to establishing and maintaining a healthy and beautiful natural lawn and garden.

1. Build healthy soil
2. Plant right for your site
3. Practice smart watering
4. Think twice before using pesticides
5. Practice natural lawn care.

Ways to implement the five steps listed above are detailed in a series of publications called the natural lawn and garden guides:

- Growing Healthy Soil
- Choosing the Right Plants
- Smart Watering
- Natural Pest, Weed & Disease Control
- Composting at Home
- Natural Lawn Care
- Natural Yard Care (summary)
- The Plant List (draft completed in fall, 2004)

2004 GOALS AND STRATEGY

Residential landscape conservation was targeted to reduce long-term water use by 290,000 gallons per day (GPD) in 2004. The strategy focused on four areas:

- **Awareness building** – Raising awareness is the first step toward achieving changes toward new, efficient behaviors. A highly visible advertising campaign about the costs of overwatering was implemented to build interest among the general public in how to water landscapes efficiently.

- **Education** – The program offered technical assistance, materials and training to assist customers in changing their behaviors. An advertising campaign with the tag line "Plant Right for Your Site," and a new brochure called *The Plant List*, encouraged customers to choose plants suited to the site where they would be planted. This idea of "right plant, right place" was further supported with a series of classes. Alliances with local garden columnists resulted in additional publication of the "plant right for your site" message in newspapers, and in securing highly respected garden writers as hosts and teachers of the classes. The Natural Lawn and Garden Hotline answered customer questions about all aspects of resource-efficient gardening, Although not funded by the 1% Program, 17 classes focused on landscape design and maintenance were offered to professionals such as landscape architects, designers, builders, turf and landscape installation and maintenance contractors.

- **Behavior change using incentives** – Two efforts made use of financial incentives to encourage customers to practice resource-efficient behaviors in their landscapes. The Water Efficient Irrigation Rebate (WEIR) provided an incentive to encourage people to upgrade

their in-ground irrigation systems. Northwest Natural Yard Days was a highly visible promotion of resource-efficient products sold at discount prices in many nurseries and box stores in the spring and fall.

- **Research and evaluation** – Research and evaluation ensure that program resources are put to their best use. In 2004, research on woody mulch products, a survey on mulching practices, and a survey on use of the natural lawn and garden guides were conducted to further refine recommendations to customers.

2004 Performance
Residential landscape savings totaled 156,500 gallons per day of peak season savings, achieving 54% of the target of 290,000 gpd of peak season savings. An early irrigation season, a delay in marketing of the rebate program, and difficulty in attributing savings to behavioral changes have in part contributed to savings falling below target.

Table 8: 2004 Residential Landscape Peak Season Savings

Type	Major focus	Peak Savings (GPD)
Behavioral incentives & outreach	Radio and print ads, nursery partnerships, retailer partnerships, compost, water timers, soaker hoses and educational materials	150,000
Hardware incentives & promotion	Automatic irrigation system hardware retrofits	6,500
	TOTAL	156,500

"Overwatering…Soaks You, Drowns Plants, Drains Resources" campaign
Developed as a comprehensive public awareness approach to behavioral and equipment changes, the "Overwatering" campaign utilized radio, internet banner, bus, and print ads throughout the summer. With three different messages, customers learned about the negative impacts of overwatering and the resources available to use water more efficiently. The messages focused on the financial, plant health, and environmental issues of overwatering, and included graphic images depicting each of the scenarios. In addition, the campaign directed customers to savingwater.org and 684-SAVE for information on irrigation sprinkler rebates and watering tips.

This ad campaign encouraged people to think about how they water their landscapes, and why they might want to change the way they do it

A radio ad aired during peak listening periods on two stations, KOMO AM 1000 and 570 KVI AM. The ad featured two men light-heartedly discussing the financial and environmental impacts of their neighbor's overwatering problem. The *Seattle Times, Seattle PI, King County Journal*, and community papers, bus, and radio and newspaper websites rotated one of the three messages weekly.

"Plant Right for Your Site" Campaign
The goal of this campaign was to encourage customers to choose the "right plant for the right place." Plant selection is a highly misunderstood concept by the gardening public. From surveys, we have found that most gardeners choose plants for aesthetic

Choosing the right plant gives you less yard work and more time to enjoy your yard

reasons without regard to whether their plants will thrive in their existing sun, soil and water conditions. This can result in excessive use of water, fertilizers and pesticides. However, gardeners are strongly influenced by nurseries and local garden writers. Therefore, in Spring 2004, SWP partnered with nine area nurseries and five of the Puget Sound's most widely known garden columnists to teach and host classes. The columnists taught classes at the nurseries from March 27th through May 1st (peak plant sale period). In total, 207 people attended the classes. Of these attendees, 162 completed class evaluations. The evaluations revealed that 75% of those responding were going to try matching the right plants for their gardens. In addition, 10 nurseries helped to promote the classes and proper plant selection through cooperative SWP-nursery advertising in *Pacific NW Magazine*, *Seattle Home + Garden*, *NW Garden News* and KIRO radio during Ciscoe Morris's gardening show.

Proper plant selection was presented in a fresh light through a full-page ad in an October issue of Pacific Northwest Magazine, entitled "Pull on your galoshes and plant for dry summers ahead." The goals of the ad were to educate gardeners on why fall is the best time to plant and to use the following resources with our dry summers in mind: request the new *Plant List* and other Natural Lawn & Garden guides available through the Natural Lawn & Garden Hotline; visit savingwater.org website and attend the class, "Under the Seattle Sun…Drought Resistant Gardening Inspired by Tuscany." Following the ad, the Hotline received 200 requests for *The Plant List* and 97 people attended the class taught by gardening columnist Marianne Binetti. 89% of the attendees returned evaluations, with 91% saying they would try plants suggested during the class.

Development of *The Plant List*
The Plant List was developed as a key tool to support customers in selecting the right plant for the right place in their landscapes. The newest addition to the family of Natural Lawn & Garden Guides was developed during the second half of 2004, with a draft completed in time for an October waterwise gardening class. *The Plant List* was developed with the valuable assistance of the Great Plant Picks horticultural education program. The list consists of almost 400 plants, organized into four categories: Wet Winter/Dry Summer Plants, Moisture-Loving Plants, Favorite Pacific Northwest Native Plants, and Drought-Tolerant Plants. *The Plant List* will be finalized as a 14 page, full color brochure in early 2005.

"The Plant List" helps people choose the right plant for the right place

Alliances with local garden columnists were initiated in 2003 and showed numerous results in 2004. Columnists understood our goals and programs and enthusiastically partnered with us to teach the classes described earlier. In addition, five of the *Seattle Times* and *Seattle P.I.* journalists wrote articles about watering less in the garden. Two of these titles were "Curb your watering habit for healthy grass" and "How to stop wasting water with irrigation systems."

Natural Lawn & Garden Hotline
The Natural Lawn & Garden Hotline had nearly 7,500 public contacts in 2004, answering over 13,000 questions from the gardening public. Approximately 30% of the calls received came from King County residents outside of Seattle plus another 10% from gardeners living outside

Table 9: 2004 Landscape Customer Outreach

Contacts	Targets	Actual
Naturals guides	60,000	44,720
Public class attendees	300	304
Attendees at training for professionals	400	365
Natural lawn & garden hotline questions answered	12,000	13,000

King County. The Hotline number was seen more than ever - in addition to the SWP using it, it was also used by suburban cities, various media outlets and even gardening businesses. The Hotline was promoted through business cards and magnets, print ads in landscape industry publications and radio ads on the Ciscoe Morris show on KIRO radio. The Hotline was also a point of contact for Northwest Natural Yard Days, irrigation contractors and evaluation of the "Naturals" brochures.

Natural Landscapes – 2004 Professional Education

While funded by SPU's Solid Waste and Drainage utilities and not by the 1% Program, this professional education and outreach work complements ongoing public education and market transformation campaigns in the landscape area, and includes a strong landscape water conservation focus. In 2004, 17 classes and full day workshops attracted 365 professionals, including: architects/landscape architects/designers/project managers; builders & contractors; engineers & consultants (stormwater, erosion control, civil, etc.); realtors/development sales staff; and turf & landscape installation & maintenance contractors. Classes for these audiences focused on landscape design and maintenance choices, with a particular emphasis on soil preparation, mulching, and appropriate plant selection.

Water Efficient Irrigation Rebate Program

Now in its second year, the objective of the Water Efficient Irrigation Rebate Program (WEIR) is to increase the efficiency of residential automatic irrigation systems through customer rebates. The mostly vendor driven program doubled the number of rebates for irrigation controllers and rain sensor upgrades in 2004 compared to the first year of the program, even with a reduced service area.

Focusing on landscape and irrigation contractors as a vehicle for marketing the program, WEIR sent an irrigation newsletter and provided training opportunities for contractors to learn about the rebates, important irrigation efficiency information, and industry news. The program also offered contractors who attended the training the opportunity to be posted in a section of www.savingwater.org. which lists contractors who can perform efficient irrigation retrofits. This information was also distributed through the Natural Lawn and Garden Hotline when customers called 684-SAVE and were directed to the hotline with questions about the rebate program.

Ciscoe Morris, a popular local gardening expert, served as spokesperson for Natural Yard Days

Half of the customers who received rebates in 2004 were in wholesale service areas. 88% of customers installed rain sensors and 71% upgraded their controllers. Of the 57 customers who upgraded their controllers, eight installed evapotranspiration controllers. 73% of the customers learned about the rebates from their contractor. Others found out from direct-mail, newspaper, and radio. Two irrigation contractors were responsible for 60% of the rebates received from customers. $17,850 was paid in rebates, with an average rebate amount of $220.

Northwest Natural Yard Days
2004 was the seventh year for Northwest Natural Yard Days. The campaign continues to emphasize the five steps to natural yard care outlined in the Natural Yard Care brochure. For the first time, in 2004 the campaign was carried out in two seasons, spring and fall. The fall campaign discounted compost and organic fertilizers. Local radio and TV gardening personality Ciscoe Morris was again the spokesperson for the campaign. Ciscoe appeared in two 30-second TV spots and one 10-second spot, as well as a radio ad, print ads, a pullout supplement to the *Seattle Times/P-I* Pacific Magazine, and in-store banners, shelf talkers and near life size silhouettes. In addition, the program kick-off generated an extended spot on KCPQ-TV and a story in the Seattle Times. The program's direct education focus shifted from store customers to retail staff at 23 stores - 139 staff received training in the spring and 130 were trained in the fall. Though compost sales rose only moderately, sales of soaker hoses and water timers went up substantially.

Table 10: 2004 NW Natural Yard Days Sales Results

Product	Number of items sold
Electric Mowers	1,486
Push Mowers	1,741
Weed Puller	2,678
Soaker Hoses	5,657
Insecticidal Soap	2,545
Water Timers	1,354
Bags of Compost2	94,318
Bags of Organic Fertilizer	6,255
Overall Items Sold	**116,034**

Mulch research
In 2004, SPU contracted with Howard Stenn to conduct research on documented benefits or harm associated with the use of various woody mulches in landscapes. The purpose of the research was to determine whether bark mulch was a good product to add to the Northwest Natural Yard Days retail promotion. In prior years, SPU primarily recommended wood chips from arborist work as a woody mulch product. While this product is adequate, many residents were frustrated with the lack of a predictable schedule for availability and delivery of the material.

The literature review and interviews with landscape professionals found that there is no evidence of growth inhibition in woody landscape plants due to the use of commonly available bark mulch products. Surface crusting (and related water-shedding) and nitrogen immobilization can sometimes be a problem with using certain types of woody mulches. Disease transmission by arborist chips from diseased plants is not a documented phenomenon.

As a result of the research bark mulch was added to the discounted products offered by retailers during the Northwest Natural Yard Days promotion.

Mulch intercept survey
SWP has undertaken many programs to encourage gardeners to mulch. Among other benefits, mulching helps soil retain moisture, meaning that gardeners don't need to water as often. However, SWP has learned from previous surveys that although customers mulch, they may or may not water less. In an effort to gauge whether or not customers make this connection and to what extent they would be motivated to mulch if they knew they could use less water, SWP conducted a customer intercept survey at four large retailers (box stores such as Home Depot and Lowe's) and three nurseries. 520 responses were collected. Most customers (71%) thought that mulching in the fall would help them save water in the summer. And most customers (62%) claim to water mulched beds less than unmulched beds. While this survey had a small sample size and relied on self-reported behavior, the responses showed that customers were making the intended connection between mulching and watering.

Natural lawn & garden guides survey
To help determine whether customers who receive copies of the Naturals guides find them useful, a postage-paid postcard was sent with four questions to a total of 347 customers during the summer of 2004. These were customers who had been sent guides after calling the Natural Lawn & Garden Hotline. In total, 89 postcards were returned, or 26% of the total. Comments were generally favorable. Respondents said that they changed their practices most often in the following areas, based on reading the guides:

- Improving mulching and composting practices
- Reducing water use through scheduling changes
- Improvements to natural lawn care practices
- Reducing pesticide and weed and feed use

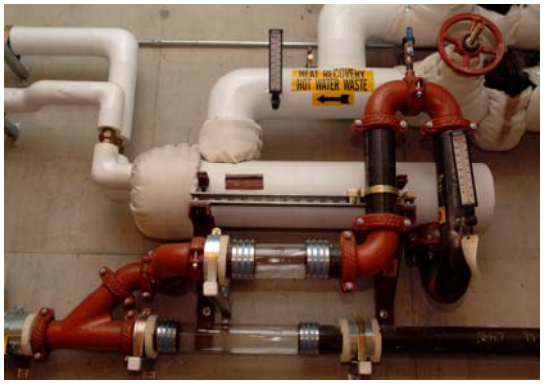
To obtain data from customers over the course of an entire year, the survey will continue through spring of 2005.

LOOKING AHEAD
In 2005, the SWP will research the feasibility of working with housing developers on establishing limited-to no-irrigation landscapes. Successes from 2004 will be reinforced in the coming year. A key objective is to continue to leverage resources through strong partnerships with a variety of actors, including housing developers, nurseries, garden writers and landscape and irrigation professionals. Activities were:

- Forming new community partnerships with garden tours, plant sales, and large garden clubs to distribute educational materials at community events with high gardener attendance.
- Establishing partnerships with libraries and book stores to capture the interest of gardeners who read. The SWP will approach libraries and bookstores with a new bookmark to promote *The Plant List* and explore opportunities to display *The Plant List* in gardening book promotions. Potentially host classes at libraries in an effort to connect with gardeners at a neighborhood level.
- Rewriting the Soaker Hose fact sheet to appeal more to beginner gardeners.
- Assessing the Naturals guides to determine if re-designs and re-writing would add value and appeal to new gardeners.
- Promoting the new evapotranspiration website at iwms.org, which will post daily ET, irrigation scheduling calculators, and a water budget calculator.
- Repeating the 'Overwatering' campaign, including a direct mail to high peak season water users.
- Publishing two newsletters and conduct two landscape and irrigation contractor trainings to promote the rebate program.
- Developing and implementing a plan to enable the landscape program to better quantify savings made from customers changing their water-using behaviors.

Commercial Process and Domestic Use

PROGRAM DESCRIPTION
The Water Smart Technology program provides technical assistance and financial incentives to reduce water use in commercial, industrial and institutional facilities. Conservation opportunities include replacing toilets and urinals, converting ice machines and refrigeration equipment from water cooling to air cooling, other types of pass-through cooling, installing high efficiency commercial



Water reclamation system at Fred Hutchinson Cancer Research Center

clothes washers, upgrading air compressors and other medical equipment, process water recycling and reuse, cooling tower improvements, and other water use efficiency technologies. Program staff and consultants provide efficiency solutions through on-site assessments and metering, technical review, product evaluation, fact sheets, and case studies. Program financial incentives provide standard rebates, custom incentives of up to 50% of the installed costs of any cost-effective conservation measure, and special incentives of up to 100% of installed cost for targeted measures. Most program participants have a simple payback period of less than two years on their investment.

2004 GOALS AND STRATEGY

The Water Smart Technology Program had a water savings target of 340,000 GPD of peak season savings for 2004, including savings produced from customer information and outreach activities.

Program delivery and outreach focused on four strategies:

- Promotion through service and equipment vendors;
- Partnerships with trade groups, electric utilities, agencies and other service providers;
- Targeted recruiting of select business categories, including large customers, hospitality, medical facilities, and schools and institutions; and
- Workshops designed to address selected end uses.

These strategies and priorities are described in the *Commercial Delivery Strategy* (Seattle Public Utilities, 2001).

2004 PERFORMANCE

The Water Smart Technology Program exceeded its savings target by 42% in 2004. Improvements at commercial facilities produced estimated long-term water savings of 483,700 GPD of peak season savings.

Table 11: 2004 Commercial Process and Domestic Peak Season Savings

Type	Major Focus	Peak Savings GPD
Rebates & administration	Toilets, cooling, process, technical assistance	483,700
	TOTAL	483,700

Significant outreach and assistance was provided by the Resource Venture and contributed to these savings. The Resource Venture is a non-profit affiliate of the Greater Seattle Chamber of Commerce that is under contract to the SWP and SPU to provide resource conservation outreach to the business community.

2004 program accomplishments included:

- Completed or making significant progress on major incentive projects at the University of Washington (campus toilet retrofit is now approximately 75% complete and a study evaluating water treatment options for UW's 20+ cooling towers is in progress), Westin Hotel (complete toilet replacement - North Tower), Children's Hospital medical air compressor, Consolidated Laundry installing a water reclaim system, and Highline School District multi-school bathroom retrofits.
- Targeted program focus and special program incentive on medical sterilizers brought in estimated savings of 45,000 GPD of peak season savings. The interest and success encouraged an extension of the special program incentive through March 1, 2005.

- Assisted customers with long-term conservation planning, including the Port of Seattle, University of Washington, and several King County facilities.
- Adopted the FlushStar Toilet list for the Water Smart Technology Program.
- Held third annual Businesses for an Environmentally Sustainable Tomorrow (BEST) awards ceremony, recognizing businesses for their environmentally beneficial accomplishments including water and energy conservation. The awards are sponsored by a partnership of the SWP, the Resource Venture, the Greater Seattle Chamber of Commerce and Seattle City Light. The awards draw attention to businesses' success in resource conservation.

Table 12: 2004 Commercial Incentive Projects

Process and Domestic Measures	Projects	Peak Savings GPD
Bathroom measures	36	135,698
Refrig./ Ice Machines/ Cooling	15	36,439
Medical Equipment	7	58,357
Washing Machines/Laundry Sys	4	51,569
Process Water	9	33,488
Laundrywise	NA	3,843
Sprayheads	NA	152,260
2004 Total	71	471,654
2004 Target	*75*	
Non-incentive Projects	Projects	GPD
Non-incentive projects	6	12,033

- The Resource Venture conducted eight presentations for facilities managers and targeted trade group audiences on water conservation programs and services, and conducted 12 water conservation assistance visits. Articles were published in several newsletters, and water conservation is a main feature on the Resource Venture website.
- Sponsored two hospitality industry workshops providing technical information tailored specifically to water conservation opportunities in that sector.
- Sponsored a vendor/contractor workshop to promote a special Water Smart Technology Program Incentive and to increase participation in the WST Program.
- The Efficient Pre-rinse Sprayhead Program partnership with Puget Sound Energy was highly effective for all of 2004. Over 2,000 heads were installed in SWP territory. This success was rewarded with agreement to install an additional 750 heads above the original goal of 3,000. This program
  involves the direct replacement of inefficient pre-rinse sprayheads in food service settings at no cost to the participating customer. New, highly efficient sprayheads produce significant water and energy (hot water) savings.
- Developed a program partnership with Puget Sound Energy to offer a significant rebate increase for coin-op clothes washers installed in commercial laundromats.
- Completed a direct mail promotion to 800 small business customers that had requested information through a 2003 direct mail campaign.
- SWP staff outreach activities included conducting more than 20 audits and assistance visits at commercial facilities such as Bunge Foods, Trident Seafoods Four Seasons Hotel, Alaska Airlines, Cabrini Medical Tower, King County South Transit Base, Ash Grove Cement, Westfarm Foods, Arctic Ice Cream, and the Washington State Trade and Convention Center. Made promotional and workshop presentations to business organizations such as BOMA (Building Operators and Managers Association), numerous local chambers of commerce, and the Medical Industry Roundtable.
- Extended the Resource Venture contract to the end of 2005. More emphasis was placed on core services and easy to obtain and effective educational materials.

More than 2,000 efficient sprayheads are saving over 150,000 gallons per day in restaurants throughout the service area

LOOKING AHEAD
With the extension of the sprayhead program and continuing to target medical sterilizers, as well as two large projects lined up for early 2005, Nucor Steel and the Shoreline School District, the Water Smart Technology Program is well positioned to achieve target savings in 2005. The program will continue to support a broad spectrum of cost-effective conservation measures through technical assistance and incentives. New targets providing potential opportunities for specific end-use savings are dental vacuum pumps and continuing with coin-op clothes washers that got a late start in 2004. Consideration will also be given to updating the commercial toilet incentive to match the multi-family offer of either a free toilet or $80 rebate for a FlushStar toilet. Outreach recruitment will continue utilizing the Resource Venture for targeted business sectors including hotels and restaurants, medical, and institutional facilities. A special emphasis will be given to sprayhead program participants. A new commercial assistance brochure will be completed by the end of the second quarter, and evaluation of the Sprayhead Program, now due to be completed by the second half of 2005, will occur late in the year.

Commercial Landscape and Irrigation Use

PROGRAM DESCRIPTION
The Water Efficient Irrigation Program (WEIP) provides irrigation conservation services to commercial and multifamily customers in the form of free irrigation audits, water use analysis, and financial incentives to encourage irrigation system capital improvements that save water. It differs from the residential program (Water Efficient Irrigation Rebates, or WEIR), in that it provides a more customized service, since commercial/multifamily irrigated properties tend to be larger and therefore the potential for water savings is greater.

2004 GOALS AND STRATEGY
New commercial landscape efficiencies produced 500 gallons per day (GPD) peak season savings in 2004, 1% of the expected hardware savings of 50,000 GPD in peak season savings. In 2004, changes in program staffing led to a delay in recruiting customers for the program, and impacted the overall success of WEIP. Most outreach efforts focused on recruitment for irrigation audits. Only six customers submitted applications for irrigation incentives and all were for standard rebates.


Efficient irrigation systems deliver water uniformly

2004 strategy paralleled the strategy used in 2003. The program emphasized customer landscape assessments and audits. A professional irrigation auditor reviewed the performance of participating customers' irrigation systems and made recommendations for improving efficiency. The following promotional efforts took place:

- Workshops for landscape and irrigation professionals, property managers and other irrigation customers to educate them about the costs of poorly managed systems, efficiency opportunities, and how to qualify for financial incentives.
- Standard rebates for the installation of rain sensors, conservation controllers and evapotranspiration (ET) controllers.
- Promotion and technical assistance through sector targeting conducted by the Resource Venture.

- Partnerships with landscape and irrigation professionals to help them understand the business opportunities associated with water conservation and to increase awareness of WEIP incentives for customers.

Table 13: 2004 Commercial Landscape Peak Season Savings

Type	Major focus	Estimated GPD Peak
Outreach and education	Audits, rain sensor promotion	Not determined
Rebates & administration	Irrigation upgrades, rain sensor rebates	500
	TOTAL	500

2004 PERFORMANCE

Program accomplishments included:

- Conducted 36 irrigation system audits and provided specific efficiency recommendations to property owners/managers.
- Provided rebates to one medical research facility, one office park, and four multifamily customers, for a total of six sites. Rebated measures included four rain sensors, four conservation controllers and four reprogrammed irrigation schedules.

A comprehensive review of commercial programs and savings can be found in *Impact and Process Evaluation: 2001 Commercial Water Conservation Programs* (Seattle Public Utilities, 2002).

Table 14: 2004 Commercial Landscape Assistance

Technical assistance	2004
Audited sites	36
Rebated measures*	
Schedule & weather controls	4
System performance	4
Install rain sensor	4
Rebate projects	
Total Measures	12
Target	*50*
*Projects have multiple measures	

LOOKING AHEAD

The Water Efficient Irrigation Program is undergoing major changes. An assessment of the program revealed the need for a more cost-effective approach to water savings for the commercial and multifamily sectors. The two existing central program initiatives, audits and customized incentives, appeared to be a comprehensive solution to improving the irrigation systems of commercial customers. The audit identifies a system's inadequacies, and the financial incentives provide the encouragement a customer needs to make improvements. But a closer look revealed problems, hidden costs, and conflicts that proved detrimental to the program's success and its ability to create long-term water savings.

According to an analysis of historic project data, of the 244 audits provided between 1995 and 2004, only 38 led to incentive projects. Follow-up with customers revealed that even the simplest recommendations were not being implemented.

Another concern with providing free irrigation audits performed by SWP consultants was that the service discouraged contractors from performing audits for their customers. Programmatic efforts would be better served by encouraging contractors to provide auditing services directly and to pursue the Irrigation Association Auditor Certification. Restructuring the auditing portion of the program to support all contractors to provide an auditing service will be more in line with SWP efforts to improve professional irrigation skills.

The Market Transformation Approach

Changes to the program support market transformation by encouraging irrigation contractors to utilize all program tools to increase their customers' water efficiency. Changes will increase their knowledge of irrigation technologies and practices that save water, and make it easier for them to provide conservation and SWP rebate services to their customers. SWP staff

anticipates that contractors will be more likely to support conservation if it positively improves their bottom-line. The residential rebate program has successfully established that this type of partnership is viable with contractors.

The Water Efficient Irrigation Program will continue to promote financial incentives and support events that promote the design, installation and maintenance of efficient irrigation systems. In 2005, the program will sponsor two Irrigation Association trainings for landscape and irrigation professionals. Contractors will learn about the program changes through direct mail pieces and the free trainings (required for contractor listing on savingwater.org). The program will also continue to reach customers through Resource Venture outreach.

The new program will offer contractors and commercial properties the following incentives and services:

Technical Support
- Irrigation Scheduling Calculator
- Water Budget and Water Budget Calculator
- Before and After Irrigation Schedules
- Inspection of Valves and Heads
- Assessment Forms
- Assessment Recommendation for Rebates

Standard Rebates
- Rain Sensor
- Conservation Controller
- Evapotranspiration (ET) Controller

Potential New Standard Rebates
- Central Control System
- Flow Sensors
- Pressure Regulating Valves
- Double-Check Valve Heads to prevent the system from leaking after the water is shut off

Resources
- Smart Water Application Technologies (SWAT) Website – Irrigation System Information – www.irrigation.org/SWAT
- Irrigation Water Management Society Website – Daily ET – www.iwms.org
- Demo Sites

General Customer Outreach and Messaging

PROGRAM DESCRIPTION
The purpose of general messaging efforts is to continue building and reinforcing a water conservation ethic among all Saving Water Partnership customers. In 2004 the messaging efforts combined general messages with program specific outreach. The approach worked well by allowing the SWP to better leverage promotional dollars, reaching a large number of people at a reasonable cost.

2004 GOALS AND STRATEGIES

Outreach efforts focused on developing messages that both encouraged water conservation and directed customers to specific programs. It was determined that focusing on individual programs instead of general messaging was the best way to achieve actual water savings with customers. Advertising such as the "Overwatering Soaks You" campaign included a general message with a program specific promotion. The ad campaign promoted rebates for in-ground lawn sprinkler systems, but also carried a general message that overwatering was bad – not good – for the lawn.

Banner ads like this one appeared on selected radio station web sites and linked directly to information about irrigation system rebates on the 1% Program web site, www.savingwater.org

Radio and print advertising played a key role in 2004 outreach efforts. Radio served as the linchpin for driving messages to the greatest number of customers while being reinforced by print advertisements in *The Seattle Times*, *Seattle PI* and targeted community papers reaching SWP wholesale water customers.

Transit ads, which proved to be an extremely successful vehicle for the WashWise campaign, continued to also serve an important role in customer outreach.

Anchoring all the advertising was a completely remodeled Savingwater.org web site. The site has seen a three-fold jump in visitors since the remodel, which was accomplished after extensive research and usability. Savingwater.org serves as the main contact point in all SWP advertising.

2004 PERFORMANCE

A newly remodeled **Savingwater.org** web site allowed the SWP to better track advertising response rates and helped the programs access overall market outreach success. During the "Overwatering Soaks You" campaign, for example, staff were able to directly track visitors from banner ads and links on radio station home pages. During these periods, upwards of 70 percent of visitors to savingwater.org would arrive from advertised links; a major success by any measure.

Broadcast radio advertising served as a major venue for outreach in 2004. The SWP was able to negotiate an excellent ad package with Fisher Broadcasting (KOMO AM, KING FM, KPLZ FM and KVI AM radio stations) that allowed the program to reach the greatest number of area customers for the lowest ad dollar. The ad package also included Mariner Baseball coverage on KOMO AM radio. Listenership for Mariner broadcasts is nearly 50 percent of the SWP customer base, and even with a poor year for the Mariners, listenership did not waver.

The WashWise program developed a **co-op ad campaign**. Fisher developed a washer give-away contest and recruited area appliance dealers to donate the washers in exchange for name recognition at the end of the ads. All washers had to meet the WashWise approved ratings requirements.

Print advertising focused on *The Seattle Times* and *Seattle PI*, as well as community papers that could best reach the targeted audience. Both the "Overwatering Soaks You" and Wash Wise campaigns made use of the outstanding reach of *The Seattle Times* and *PI*. Even in

specific wholesale water districts, more people subscribed to and read the *Times* and *PI*, than read the community papers.

In addition to newspaper advertising, landscape messages were advertised in Sunset Magazine. Since the addition of the Inside Seattle section, the program was able to target 20,000 avid gardeners with outdoor watering messages during the spring, summer and fall.

Transit ads on the sides of King County Metro buses served both the WashWise program and "Overwatering Soaks You" campaigns very well in 2004. The SWP was able to negotiate a new long-term contract with Titan, the company that manages Metro Bus advertising, that will allow the program to take advantage of excellent rates and customer reach in 2005.

LOOKING AHEAD IN 2005

The Saving Water Partnership will continue to promote an overall conservation ethic, specific behavior changes and rebate programs. The SWP's advertising reach and success continues to improve with each passing year. The newly negotiated contracts with Fisher Broadcasting and Titan, plus ongoing contracts with *The Seattle Times* and *PI* give the SWP the best ad rates and customer reach the water conservation program has ever had. The new year will bring with it several milestones and events that merit promotion. The first major milestone will be the celebration of the 50,000th rebate for the WashWise program. It is estimated that that rebate will occur in late spring. Landscape messages will continue to be advertised, and a residential indoor campaign encouraging customers to wash full loads of clothes will be developed.

Youth Education

Close to 1,000 people visited the 1% Program booth at Issaquah Salmon Days

PROGRAM DESCRIPTION

Raising the awareness level of school-based audiences about the importance of valuing and conserving water is a goal of the SWP. Resources and program materials for students, teachers and other associated educational groups are developed through partnerships with respective school districts. Materials and services are developed to directly meet the needs of schools and youth organizations.

2004 GOALS AND STRATEGY

Activities developed for youth education support measurable savings achieved by the residential indoor and landscape conservation programs. In 2004, youth education strategies included:

- Making on-line resources for kids and educators easier to access
- Developing advertisements to encourage use of the on-line resources
- Refining services and products that have been successful in the past
- Revising the Water Matters teacher training workshop and evaluating whether to combine this workshop with existing teacher training offered by Seattle Public Utilities staff at the Cedar River Watershed
- Continuing to provide field trips to the Cedar River Watershed upon request.

2004 PERFORMANCE

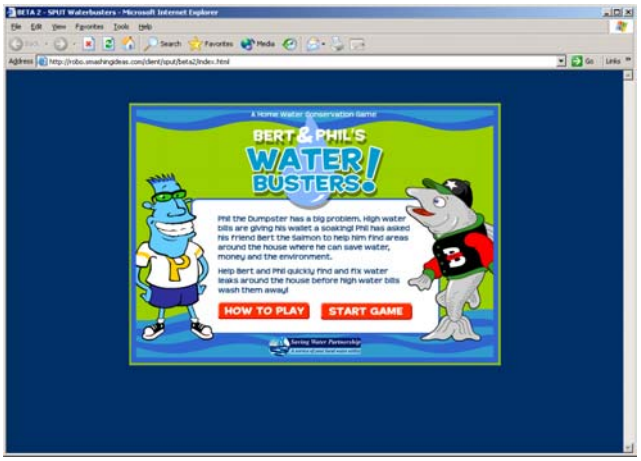
Accomplishments in the area of youth education included development of a revised Home Water Conservation Kit, Waterbusters promotional ad, revised web page, distribution of existing materials to school groups, and water event sponsorship and participation.

Table 15: 2004 Youth Education Resources

Activity	Target	Totals
Conservation kits	2,000	2,000
Posters distributed	100	150
Water timers distributed	300	500
Activity books distributed	300	300

A revised **Regional Home Water Saver Kit** was produced and distributed. The new version includes a revised description of the rationale for water conservation and list of current SWP members. Kits were distributed as part of school programs and event giveaways.

A **Waterbusters ad** was created featuring Bert the Salmon and his sidekick, Phil Dumpster, to promote the on-line interactive conservation game. The ad depicts Phil playing the game on a laptop computer while floating on an inner tube in a living room filled with water. As he continues to solve the challenges, the water level recedes. Viewers are encouraged to go to the Savingwater.org website and play the game. The web site received more than 10,000 visits, most of them within one hour of the time the ads aired. The ads aired during youth-oriented programming on KCPQ 13 and WB22 from June to September.

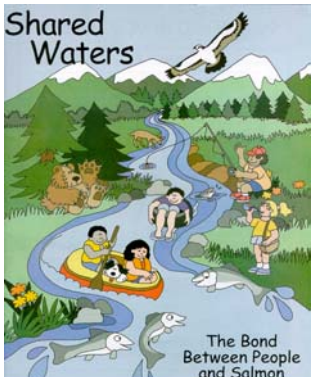


Phil Dumpster gets help reducing his water use from Bert the Salmon

The **youth education web page** was revised as part of the overall Savingwater.org website remodel. New information and links were included as well as revised text so that student and educator groups could more easily navigate the site.

Resources were distributed to educators and student groups. Included were copies of the Regional Water System poster, Bert the Salmon bookmarks promoting the Waterbusters game, Shared Waters student activity books, Five Minute Shower timers and the above-mentioned Home Water Conservation Kits.

The Saving Water Partnership was involved with the **H2O 2004 Festival, The Sammamish Watershed Festival** and, for the second year, **Issaquah Salmon Days**. Home Water Conservation kits, Regional Water System posters, Bert the Salmon bookmarks and *Shared Waters* activity books were distributed to children attending the events.



Shared Waters is a student activity book that explains the importance of protecting water resources

LOOKING AHEAD

- It has been more than 20 years since the first regional youth education programs were offered. An evaluation of the effectiveness of these efforts is planned to provide future program guidance.
- The popular Waterbusters Game will undergo a revision to include more challenges and features.

- The Waterbusters promotional ad will again be aired during summer and early fall months.
- The revised Shared Waters student activity books will be produced and available for distribution.
- A revised Water System poster will be produced to reflect the departure of CWA utilities from the 1% Program and distributed along with other available resources.
- Sponsorship and participation in selected water-related community events will again take place.

Evaluation and Monitoring

PROGRAM DESCRIPTION
Each conservation program plan contains a feedback loop for monitoring progress and evaluating costs and savings. Ongoing program evaluation is essential for designing and managing effective programs, monitoring results, and achieving conservation goals in a timely and cost-effective manner. Monitoring, program service delivery evaluation, and program impact evaluation all ensure that resources are put to their best use, that programs are managed for optimum results, and that effective adjustments are made as program implementation proceeds.

Program evaluation includes accurate tracking of program statistics, resources and activities. Service delivery evaluation reviews participant satisfaction with the process of participating in a program, non-participant awareness of the program and barriers to participating, and opportunities for program improvement. Impact evaluation examines program results, accuracy of initial program estimates, and satisfaction with the new products installed and/or new behavior changes undertaken.

The *Conservation Potential Assessment* (CPA, Seattle Public Utilities, 1998) is an overarching conservation tool that guides effective program implementation by identifying potential conservation opportunities and estimating costs. As programs are implemented, the cost and savings assumptions of the CPA are tested, refined, and either validated or modified. A major update of the CPA will be finalized in 2005.

2004 GOALS AND STRATEGY
Evaluation efforts in 2004 focussed on five major areas to support comprehensive review and improvement of conservation services:

- **Complete the 2003 Annual Report** of 1% Program savings and accomplishments.
- **Improve tracking and reporting** to facilitate regular monitoring and coordination of conservation efforts. Maintain and utilize a database of retail and wholesale customer data on a voluntary basis (Wholesale Customer Billing and Research Database). Enhance database tools for both wholesale and direct service customers.
- **Implement residential customer surveys and product research to evaluate the largest water saving opportunities**: indoor water use (end use metering and indoor behaviors) and mulch research. Responses are key to the design of cost-effective measures to reach these targeted customers. An end-use metering study of random homes took place in 2003, followed by surveys of water use behaviors, appliances, and fixtures. The analysis of this monitoring data was completed in 2004. It represents the first major quantification of the market share of the largest water uses in most homes. Learning how efficient these are,

and the rate of change to efficiency is critical to the design of retrofit programs. Mulch research helped document benefits and effectiveness of woody mulches in landscapes.

- **Upgrade the Conservation Potential Assessment model** to allow more dynamic modeling by program managers of program costs, alternatives, and savings potential.
- **Identify customer barriers to conservation** so that greater participation can be obtained**.** During 2004, a regional survey and two focus groups were conducted to identify barriers to adopting residential indoor behaviors such as washing full loads of clothes, taking shorter showers and fixing leaks. Better information will lead to ways to overcome these barriers and thus achieve greater overall adoption of measures. In addition, a postcard survey of recipients of the *Naturals* guides provided information on which landscape-related water-saving behaviors were being adopted most often by customers.

2004 ACCOMPLISHMENTS

SWP staff and consultants designed and implemented new evaluation tools in 2004 to improve program performance and reporting, including:

- Issued the 2003 Annual Report for the 1% Program, containing an improved analysis of system water consumption.
- Made upgrades to the Conservation Potential Assessment model to make it more user friendly and expand interactive capabilities, and completed a report on the updates.
- Conducted a detailed barrier analysis of residential indoor measures.
- Developed a new database to track savings of Multifamily Toilet Rebate participants over time.

Residential indoor behaviors: A regional survey and two focus groups of homeowners and renters were held to establish a baseline and to identify barriers to adopting residential indoor behaviors such as washing full loads of clothes, taking shorter showers and fixing leaks. The research will inform coming behavior message campaigns and will serve as a baseline to measure the success of the campaigns. Some interesting findings from the research include:

- Customers think they are washing full loads, but are actually filling the machine 25-30% under capacity.
- Less than half of survey respondents said they checked their toilets for leaks in the past two years.
- There is potential for customers to save water, but in general it will be challenging to interest people in changing their behaviors.

Flapper replacement: Also in 2004, the toilet flapper replacement pilot program that took place in Northshore Utility District in 2003 was evaluated. This pilot was a field test of savings and customer participation in a not-too-glamorous toilet maintenance activity that is a common source of water leakage. The pilot was found to reduce participants' consumption by 4% on average. The evaluation found that higher savings were achieved from customers with homes more than 10 years old. The level of savings was not sufficient to warrant implementation of a full-scale flapper program in 2005, but a program may be developed that would offer replacement flappers to regional residents with high winter water consumption and who live in older homes.

New multifamily database: Developed a database to track "rolling savings" of mutifamily toilet replacement participants. This database includes monthly and annual water use for participating buildings in SPU's service territory. The database will be expanded in the future to include wholesale customer consumption data. The data will enable the SWP to refine estimates of program savings.

Residential landscape behaviors: A postcard survey was mailed to customers who had received the *Naturals* guides. Respondents reported that they found the guides very helpful, and that they had changed a variety of practices. The practices most mentioned were watering/water use practices, mulching and pesticide usage. Integration of these findings continues, but has already played a major role in determining the focus of the program on 'plant right for your site,' including *The Plant List* and seminars dedicated to the topic of 'right plant, right place.'

Natural Yard Care Neighborhoods: This program is based on a 'social diffusion' model and attempts to help people change to new, resource efficient landscaping practices by offering a series of workshops and incentives and assistance to a particular neighborhood. In 2002 and 2003 the 1% Program contributed funding to this program. In 2004 Seattle's program was funded entirely by King County's Local Hazardous Waste Management Program, without 1% funds. A participant survey was fielded in late 2003 and the results received in 2004. Highlights of the findings include:

- Significant increases in how knowledgeable people became about some of the topics covered in the workshops.
- For every practice taught in the workshops, at least some participants had begun new conservation behaviors.
- There was a strong correlation between the number of workshops attended and the number of people participants talked to about the practices.

Mulch research: This product research documented benefits and found no harm associated with the use of various woody mulches in landscapes. The research enabled SPU to add bark mulch to the list of products sold at discounted prices through the Northwest Natural Yard Days promotion. The additional recommended mulch product addressed customer frustrations with obtaining the one type of mulch SPU recommended in the past, arborist wood chips.

Mulch intercept survey: Previous surveys had shown that customers who were mulching were not necessarily watering less. Through this survey staff learned whether customers were making the connection between two behaviors: mulching and watering less. The survey found that most customers (71%) thought that mulching in the fall would help them save water in the summer. And most customers (62%) claim to water mulched beds less than unmulched beds.

LOOKING AHEAD

In 2005 methods will be developed to attempt to better quantify behavioral savings achieved through 1% Program efforts. In addition to the 2004 Annual Report, a variety of service delivery and program impact evaluations will be conducted in the residential and commercial sectors of the 1% Program, including:

- A water savings potential matrix will be developed for hardware and behavioral measures that save water in the landscape. This information will be used to gain a more comprehensive understanding of water savings from various actions.
- Residential irrigation hardware will be further evaluated to determine persistence of savings.
- Behavioral efforts such as distribution of the Natural Lawn and Garden guides, nursery partnerships, and compost discounts will be assessed from a perspective of multiple years of implementation.

- The Multifamily Toilet Rebate Program will conduct a market saturation study to assess savings potential for the program and will assess customer satisfaction and evaluate savings.
- A plan will be developed to better determine behavioral savings from the residential indoor sector.
- Research into overcoming barriers that prevent customers from participating in SWP programs will continue.
- Retailer feedback will also be solicited, in order to continue smooth delivery of collaborative programs, and in order to refine estimates of market share of efficient products.
- The Conservation Potential Assessment will continue to be updated in 2005 and in the ensuing years. It will provide estimates for savings potential and costs based on new research, technology improvements, survey and program data.

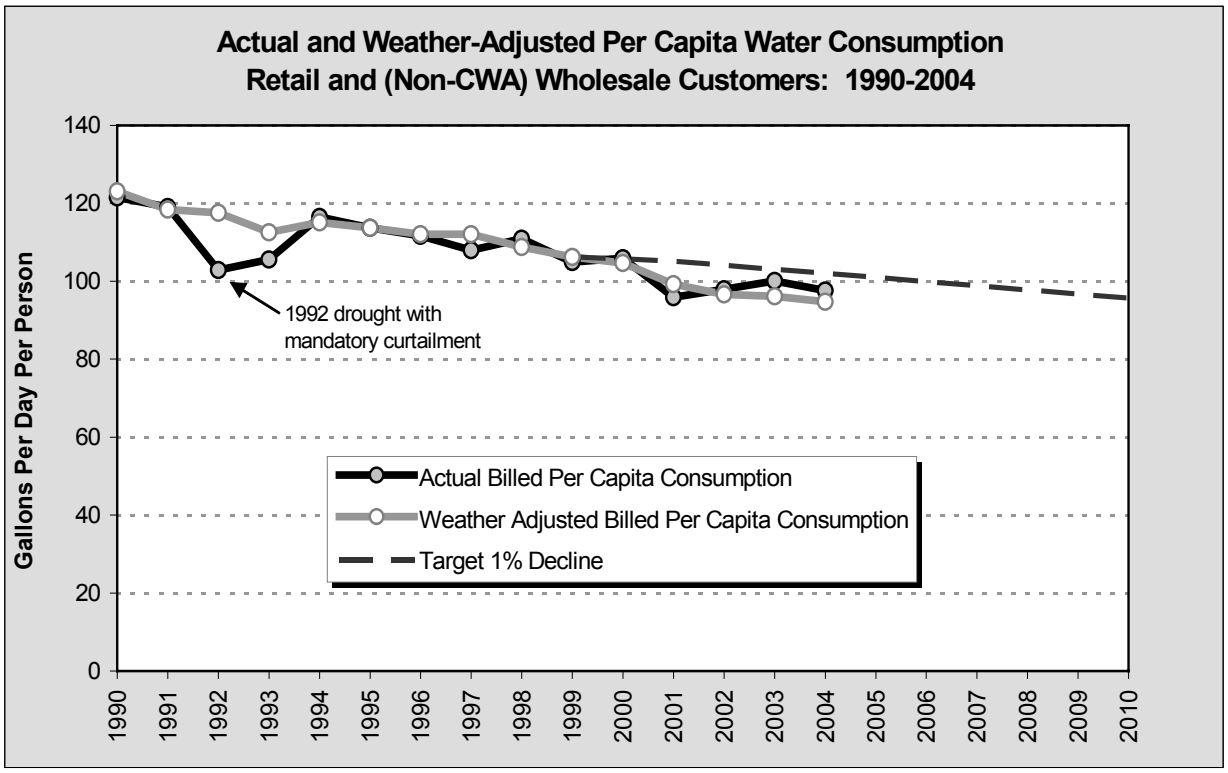
4. Consumption Analysis

Historical Data

Per capita water consumption has declined steadily since 1990, due to a number of factors including changes in the structure and level of water rates, the Washington State plumbing code, and a history of water conservation programs culminating in the current 1% Program. Another source of water savings over the past 14 years has been more efficient system operations, (reservoir overflowing and cleaning, main flushing, etc.). While the system efficiency improvements reduced *non-revenue* water by more than half, they do not affect billed water use by customers, which is the focus of this analysis.

The consistent downward trend in billed per capita water consumption is easily seen in Chart 4 and Table 15 below, especially after adjusting for summer weather. Much of the up and down variation in consumption from year to year is caused by different weather conditions in the summer months. The normal increase in water use during the peak season is reduced in cool wet summers and amplified by hot dry summer weather. Adjusting for summer weather is important in revealing the underlying trends in consumption. For example, the increase in actual consumption from 2002 to 2003 was due entirely to an extremely hot dry summer in 2003. It is estimated that 2003 per capita consumption would have actually dropped slightly from the prior year given normal summer weather.

Chart 4: Annual Average Billed Per Capita Water Use — Combined 1% Program Participating Utilities



The tables and charts in this section show average annual customer consumption for participating 1% Program utilities. The amount of water sold to wholesale customers and the number of people served have been changed from previous 1% Program annual reports to reflect the departure of Cascade Water Alliance utilities from the 1% Program. Also, the numbers do not include non-revenue water. In the 2001 and 2002 annual reports, the consumption analysis used regional average water demand numbers that included non-revenue water. The total demand trends were representative of customer water use. However, since the 1% Water Conservation Program focuses on reducing customer demands, and excludes non-revenue water reductions, reporting on total water system demand does not correctly capture the effects of the 1% Program. Therefore, the 2003 and 2004 reports have used actual billed consumption (billed water sales), rather than total regional water demand, in the consumption analysis. Although it doesn't make a significant difference in trends or conclusions, doing so produces actual savings numbers that are a little lower. Readers should note this minor difference if they compare the 2001 and 2002 annual reports with this report.

Table 16: Water Consumption Trends - SWP Utilities (Annual Average)

Year	Water Sold Retail in MGD	Water Sold Wholesale* in MGD	Total Water Sold in MGD*	Population Served* (thousands)	Gallons per Person per Day (GPD)	Weather Adjusted GPD
1998	71	42	113	1,019	111	109
1999	68	40	108	1,029	105	106
2000	69	40	109	1,031	106	105
2001	62	37	99	1,033	96	99
2002	63	38	101	1,034	98	97
2003	62	41	103	1,036	100	96
2004	61	39	100**	1,028**	98	95

* Excludes Cascade Water Alliance utilities
** Decline in population from 2003 to 2004 reflects the transfer of much of Coal Creek to Bellevue.

Total water sold to all customers (of participating utilities) over the past seven years has declined at an average rate of about 1.8% per year. Meanwhile, population increased by about 0.3% per year resulting in an annual decrease in consumption per capita of 2.1%. Normalizing the consumption figures for summer weather bumps the annual decline in per capita consumption down slightly to 2.3%, far exceeding the 1% per year annual goal for the 1% Program. However, less than half of the reduction in water use can be credited to the 1% Program. The bulk of the per capita reduction is estimated to have come from the impact of increased water rates and the water efficiency plumbing code. In addition, the recent economic slowdown is estimated to have contributed significantly to the decline since 2000.

Table 16 shows a breakdown of where the peak season savings came from in 2004. Savings attributed to the 1% Program are shown in the first three columns shaded in gray. Hardware savings are based on installation of water saving equipment with known and measured savings, and thus these numbers are fairly accurate. The behavior based residual savings are difficult to measure, and they are derived from the difference after accounting for all other savings. Allocation of behavior savings between the different customer sectors is based on program evaluation work that has been conducted over the past four years. The remaining columns show savings from sources other than the 1% Program, and as previously noted, these savings continue to be larger than the combined 1% numbers.

In 2004, total savings were overshadowed by an increase in non-revenue water use (or negative savings) of 4.6 MGD annual average use. The increase in non-revenue water use was

due to increased reservoir overflowing for water quality reasons. Of the total estimated -2.67 MGD annual average savings, 0.7 MGD of annual average savings came from the 1% Program, 1.2 MGD of the total savings came from rates and codes and 0.03 MGD came from retrofit work with low income homeowners and housing providers in Seattle. Note that the low-income program applies only to the City of Seattle. It represents a small amount of additional savings that is neither credited to nor funded by the regional 1% Program.

Table 17: New Water Savings Achieved in 2004 (in MGD)

	New Long-Term Customer Savings						Other Savings		Total
	1% Conservation Program		1% Program Total	Rates	Code	Seattle Low Income	Economy	System	
	Hardware	Behavior							
Residential Indoor	**0.27**[1]		**0.27**	0.1	0.5	0.03			
Residential Landscape	**0.01**	**0.15**	**0.16**	0.1					
Commercial Non-Landscape	**0.48**		**0.48**	0.1	0.3				
Commercial Landscape	**<0.1**	**<0.1**	**<0.1**	0.1					
Other Savings								-4.6[3]	**-4.6**
2004 Total 1% Program Peak Season Savings	**0.76**	**0.15**	**0.91**						**0.91**
2004 Total Annual Ave Savings[2]	**0.65**	**0.05**	**0.70**	**0.4**	**0.8**	**0.03**	**0.0**	**-4.6**	**-2.67**

[1] 1% Program sector savings are reported as peak season savings.
[2] See text in Chapter 1, page 2, and Chapter 2, page 13 for conversion of peak season savings into annual average numbers.
[3] Much of the higher than usual non-revenue water use was believed to be due to reservoir overflowing for water quality purposes.

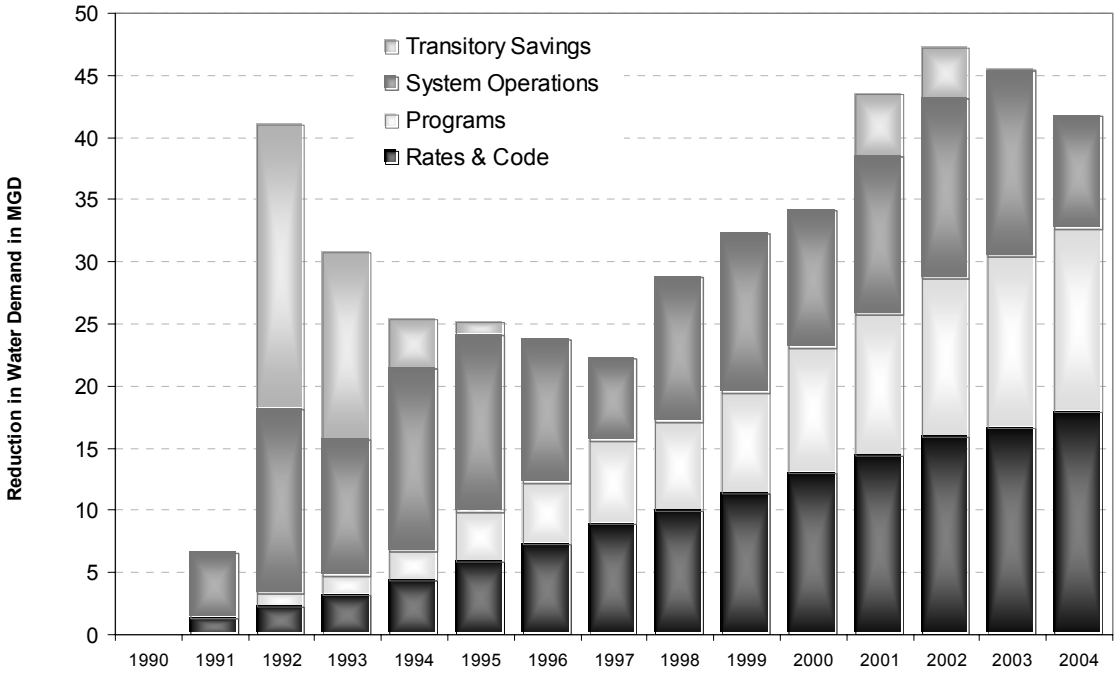
Cumulative Savings

Chart 5 depicts cumulative water savings since 1990. The chart is best used as a picture of historical progress, rather than as an absolute count of cumulative savings. The 1% Program savings shown are peak season savings, while the other three categories are all shown as annual average savings. These savings are planned to keep system demand essentially flat by offsetting increased demand due to population growth. Note the transitory savings (the top bar) seen in 1992-1995, and again in 2001 and 2002, disappear over time, since these savings are a result of sacrifice in response to a drought curtailment message, and are not derived from long-term water efficiency measures. Once customers believe that a drought is over, most of them return to their previous water using behaviors.

System savings (the third bar) are reductions in non-revenue water use. System savings come from a variety of sources such as reducing leaks and lining reservoirs, improved meter accuracy, and modifications to how water mains and reservoirs are flushed to maintain the highest water quality. System savings since 1990 have fluctuated from year to year, but average about 12 MGD annual average.

Long-term customer savings including rate and code effects, (the bottom and second bars) have grown steadily. Refinements in the method of calculating code savings resulted in a decrease in these cumulative savings compared to the figure reported in the 2003 Annual Report. Customer savings are derived from specific conservation measures and actions, and also include rate and code savings.

Chart 5: Cumulative Water Savings[1] Since 1990



[1]This chart provides historical progress rather than an absolute count of cumulative savings. 1% Program savings are shown as cumulative peak season savings, while rates, codes, system operations, and transitory savings are shown as annual average savings.

The savings breakout in Chart 5 was estimated as follows:

1. Rates – price elasticity parameters from SPU's econometric model forecast
2. Code – natural replacement of plumbing fixtures as forecast in SPU's Conservation Potential Assessment model. In 2004, refinements in the method of calculating code savings led to a new estimate of savings that is approximately 8MGD lower than the amount reported in prior years
3. 1% Program – see individual program estimates from Chapter 3 of this report
4. System – analysis of water operating system use
5. Transitory Savings – analysis of post-drought experience.

5. Rebate Program Activity by Water Provider

Tables 18 through 24 summarize rebate program activity in the SWP service area by water provider. Selected commercial/industrial projects are described in greater detail at the end of this chapter.

Table 18: WashWise High Efficiency Clothes Washer Rebates in 2004

Utility	Clothes Washer Rebates	% of Rebates in 2004	Total Rebates: Program to Date
Cedar River	175	2.7%	841
City of Bothell	91	1.4%	558
City of Duvall	47	0.7%	282
City of Mercer Island	169	2.6%	1,060
Coal Creek Utility District	92	1.4%	788
Highline	186	2.9%	1,203
Northshore	348	5.4%	2,216
Olympic View	17	0.3%	244
SPU	4,092	64.0%	26,482
Shoreline	170	2.7%	1,134
Soos Creek	297	4.6%	1,738
Water District #20	93	1.5%	467
Water District #45	8	0.1%	47
Water District #49	48	0.8%	306
Water District #90	48	2.3%	649
Water District #119	24	0.4%	142
Water District #125	34	0.5%	197
Woodinville	358	5.6%	2,025
Total	**6,397**	**100.0%**	**40,379**

Table 19: Multifamily Toilet Rebates in 2004

Utility	Toilets Rebated in 2004	% of Toilets Rebated in 2004	Total Toilets Rebated: Program to Date	Total Projects to Date
Cedar River			56	2
City of Bothell	129	3.1%	209	8
City of Mercer Island			9	1
Highline	326	7.9%	695	20
Northshore	107	2.6%	672	23
Olympic View	6	0.1%	74	3
Shoreline	490	11.8%	620	15
Soos Creek	165	4.0%	189	5
SPU	2,538	61.3%	9,696	515
Water District #20	212	5.1%	212	4
Water District #45			59	3
Water District #49	162	3.9%	262	9
Water District #125			208	4
Woodinville	6	0.1%	115	4
Total	**4,141**	**100%**	**13,076**	**616**

Table 20: Water Efficient Irrigation Residential Rebates in 2004

Water Utility	Estimated Peak Savings (GPD)	Rebate Measures	Rain Sensor	Tune-Up Signed
City of Mercer Island	25		Rain Sensor	Yes
City of Mercer Island	100	Cons. Controller	Rain Sensor	Yes
City of Mercer Island Total	**125**			
Olympic View Water & Sewer District	25		Rain Sensor	Yes
Olympic View Water & Sewer District	75	Cons. Controller		Yes
Olympic View Water & Sewer District	100	Cons. Controller	Rain Sensor	Yes
Olympic View Water & Sewer Dist. Total	**200**			
Seattle Public Utilities	25		Rain Sensor	Yes
Seattle Public Utilities	25		Rain Sensor	Yes
Seattle Public Utilities	25		Rain Sensor	Yes
Seattle Public Utilities	25		Rain Sensor	Yes
Seattle Public Utilities	25		Rain Sensor	Yes
Seattle Public Utilities	25		Rain Sensor	Yes
Seattle Public Utilities	25		Rain Sensor	Yes
Seattle Public Utilities	25		Rain Sensor	Yes
Seattle Public Utilities	25		Rain Sensor	Yes
Seattle Public Utilities	25		Rain Sensor	Yes
Seattle Public Utilities	25		Rain Sensor	Yes
Seattle Public Utilities	25		Rain Sensor	Yes
Seattle Public Utilities	25		Rain Sensor	Yes
Seattle Public Utilities	75	Cons. Controller		Yes
Seattle Public Utilities	75	Cons. Controller		Yes
Seattle Public Utilities	75	Cons. Controller		Yes
Seattle Public Utilities	75	Cons. Controller		Yes
Seattle Public Utilities	75	Cons. Controller		Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	100	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	200	ET Controller	Rain Sensor	Yes
Seattle Public Utilities	200	ET Controller	Rain Sensor	Yes
Seattle Public Utilities	200	ET Controller	Rain Sensor	Yes
Seattle Public Utilities	200	ET Controller	Rain Sensor	Yes
Seattle Public Utilities	200	ET Controller	Rain Sensor	Yes
Seattle Public Utilities Total	**3,400**			

Water Utility	Estimated Peak Savings (GPD)	Rebate Measures	Rain Sensor	Tune-Up Signed
Shoreline Water District	200	ET Controller	Rain Sensor	Yes
Shoreline Water District Total	**200**			
Water District No. 20	200	ET Controller	Rain Sensor	Yes
Water District No. 20 Total	**200**			
Water District No. 90	100	Cons. Controller	Rain Sensor	Yes
Water District No. 90	100	Cons. Controller	Rain Sensor	Yes
Water District No. 90	100	Cons. Controller	Rain Sensor	Yes
Water District No. 90 Total	**300**			
Woodinville Water District	25		Rain Sensor	Yes
Woodinville Water District	25		Rain Sensor	Yes
Woodinville Water District	25		Rain Sensor	Yes
Woodinville Water District	25		Rain Sensor	Yes
Woodinville Water District	25		Rain Sensor	Yes
Woodinville Water District	75	Cons. Controller		Yes
Woodinville Water District	75	Cons. Controller		Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	100	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	200	ET Controller	Rain Sensor	Yes
Woodinville Water District Total	**2,075**			

Table 21: NW Natural Yard Days Sales Data 2004

Sales Items	Store Sales 2001	2002 Event & Store Sales	2003 Event & Store Sales[1]	2004 In-Store Sales Only[2]	Percent Increase 2003-2004
Electric Mowers	447	1,966	1,812	1,486	-18
Push Mowers[3]	246	811	325	1,741	536
Weed Puller	1,027	2,189	2,296	2,678	17
Soaker Hoses	632	2,073	1,787	5,657	317
Insecticidal Soap	163	799	2,264	2,545	12
Water Timers	343	1,077	695	1,354	95
Bags of Compost[2]	14,496	41,039	81,651	94,318	15
Bags of Organic Fertilizer[2]	2,019	3,849	4,241	6,255	47
Overall Items Sold	**19,373**	**53,903**	**97,999**	**116,034**	**18**

Notes:

1 In 2003 and 2004 Northwest Natural Yard Days (NNYD) was a collaboration of the Saving Water Partnership, Seattle Public Utilities, King County Solid Waste, King County Hazardous Waste, the City of Tacoma, Puget Sound Clean Air Agency, Washington State Department of Ecology, Thurston County, and a number of suburban cities. In order to work more effectively with the "box stores", the promotion in those stores was extended to their Western Washington marketing areas, from Bellingham to Olympia. The sales figures listed in the 2003 1% Program Annual Report are from the larger, Western Washington area. The 2003 and 2004 sales figures reported above are from the Seattle/King County/Tacoma area.

2 In 2003 natural yard care products were promoted in the month of April. In 2004 the promotion ran through April and May. In addition, a promotion of compost and organic fertilizer took place in September 2004. 2004 sales, above, aggregate those three months.

3 Home Depot and Lowe's did not discount push mowers in 2003. Lowe's did sell 302 push mowers in 2003 (not included in the 325 listed above).

Table 22: Water Efficient Irrigation Commercial Audits in 2004

Utility	Name of Business/Company	Facility Name
Cedar River Water & Sewer District	City of Maple Valley Parks	Take-a-Break Park
Cedar River Water & Sewer District	Lake Wilderness Arboretum	Lake Wilderness Arboretum
Cedar River Water & Sewer District	Tahoma School District	Tahoma Junior High School
Cedar River Water & Sewer District	Senior Care Services	Fountain Court Assisted Living
Cedar River Water & Sewer District	Trammell Crow Residential	Pebble Cove Apartments
Cedar River Water & Sewer District	Fairway Village Condominium Association	Fairway Village Condominiums
City of Bothell	Seattle Times	Seattle Times, Bothell
City of Bothell	CWD Management Group	Riverfront Landing B & C
City of Bothell	Archstone Communities	Canyon Creek
City of Bothell	Allied Group	Heritage Park Apartments
Highline Water District	City of SeaTac	Valley Ridge Park
Highline Water District	City of Des Moines Parks	S J Underwood Park
Highline Water District	Allied Group	Windsor Heights Apartments
Highline Water District	Highline Water District Offices	Highline Water District Offices
Northshore Utility District	Saratoga Capital	Willow Glen Apartments
Seattle Public Utilities	Nitze-Stagen & Co, Inc	Lander Station
Seattle Public Utilities	Nitze-Stagen & Co, Inc	Starbucks Center
Seattle Public Utilities	Nitze-Stagen & Co, Inc	Frye Commerce Center
Seattle Public Utilities	Royal Richmond Condominium Assoication	Royal Richmond Condominiums
Seattle Public Utilities	City of Seattle Parks and Recreation	Judkins Park/Playfield (CE)
Seattle Public Utilities	Providence Mount Saint Vincent	Providence Mount Saint Vincent
Seattle Public Utilities	Northwest Hospital	Northwest Hospital
Seattle Public Utilities	Seattle Tennis Club	Seattle Tennis Club
Seattle Public Utilities	Capitol Hill Housing Improvement Program	Burke Gilman Gardens
Seattle Public Utilities	Indigo Real Estate	Shorewood Heights Apartments
Seattle Public Utilities	Seattle Conservation Corps	Terminal 18 Landscaping
Seattle Public Utilities	Lorig Management Services	Nordheim Court
Seattle Public Utilities	Lorig Management Services	Radford Court
Seattle Public Utilities	S-J Management LLC	Club at Bitterlake Apartments
Seattle Public Utilities	S-J Management LLC	Westhaven Apartments
Seattle Public Utilities	Historic Seattle	Good Shepherd Center
Soos Creek Water & Sewer District	Prometheus Properties	Mission Ridge Apartments
Water District No. 125	Allied Group	Empire Terrace Apartments
Water District No. 20	Kennedy High School	Kennedy High School
Woodinville Water District	SUHRCO Residential Properties	Redwood Village
Woodinville Water District	Fairfield Properties	Cascade Pines

Table 23: Water Efficient Irrigation Commercial Incentives in 2004

Utility	Business/Company	Facility Name	Estimated Peak Savings (GPD)	Install Rain Sensor	Irrigation Scheduling	Irrigation System Performance
City of Mercer Island	J.A.R. Investments	Lighthouse Properties	100	Yes	Yes	
Seattle Public Utilities	CondoManagements, Inc	Bay Villa HOA	25	Yes		
Seattle Public Utilities	Council House	Council House	75		Yes	Yes
Seattle Public Utilities	Maf-Jo Investments	Maf-Jo	100	Yes	Yes	Yes
Seattle Public Utilities	Arboretum Owner's Association	Arboretum Place Condos	100	Yes		Yes
Soos Creek Water & Sewer District	Euro Institute	Euro Institute	75		Yes	Yes

Table 24: Water Smart Technology Incentives in 2004

Utility	Business/Company	Facility Name	Final Peak Savings (GPD)	Measure Group Type
City of Bothell	Power Cleaners, Inc	Laundry Basket, The	144	Laundry Systems
City of Bothell	Ivar's Inc.	Ivar's Seafood Bar Bothell	510	Cooling/Refrigeration/Ice
Highline Water District	Highline School District 401	Chinook Middle School	1289	Bathroom
Highline Water District	Highline School District 401	Southern Heights	1115	Bathroom
Highline Water District	Highline School District 401	Olympic Elementary School	1263	Bathroom
Highline Water District	Highline School District 401	McMicken Heights Elementary	1219	Bathroom
Highline Water District	Highline School District 401	Manhattan Learning Center	1332	Bathroom
Highline Water District	Bright & Bold LLC	Orchard Plaza Maytag Inc.	1584	Washers
Water District No. 90	CKR Renton Retail Project	Hop In Grocery	5065	Custom Projects
Northshore Utility District	Frosty's Restaurant	Frosty's Restaurant	300	Cooling/Refrigeration/Ice
Seattle Public Utilities	Roosevelt Hotel	Roosevelt Hotel	1510	Bathroom
Seattle Public Utilities	Children's Hosp & Med Center	Children's Hosp & Med Center	11520	Custom Projects
Seattle Public Utilities	Children's Hosp & Med Center	Children's Hosp & Med Center	10000	Custom Projects
Seattle Public Utilities	Beso del Sol	Beso del Sol	800	Cooling/Refrigeration/Ice
Seattle Public Utilities	Virginia Mason Medical Center	Virginia Mason Medical Center	19400	Custom Projects
Seattle Public Utilities	University of Washington	UW - Multi-facility	31880	Bathroom
Seattle Public Utilities	University of Washington	UW - Multi-facility	12125	Custom Projects
Seattle Public Utilities	University of Washington	Haggett Hall Dormitory	7897	Cooling/Refrigeration/Ice
Seattle Public Utilities	University of Washington	Haggett Hall Dormitory	2660	Bathroom
Seattle Public Utilities	University of Washington	UW Medical Center	2437	Custom Projects
Seattle Public Utilities	University of Washington	Johnson Hall	8500	Cooling/Refrigeration/Ice
Seattle Public Utilities	UW Consolidated Laundry	UW Consolidated Laundry	45041	Laundry Systems
Seattle Public Utilities	Starwood Hotels & Resorts	Westin Hotel	6041	Bathroom
Seattle Public Utilities	Kidd Valley Restaurant	Kidd Valley Restaurant	300	Cooling/Refrigeration/Ice
Seattle Public Utilities	Seattle University	SU - Multi-facility	1071	Bathroom
Seattle Public Utilities	Seattle University	SU - Multi-facility	2575	Bathroom
Seattle Public Utilities	Highline School District 401	Cascade Middle School	1088	Bathroom

Utility	Business/Company	Facility Name	Final Peak Savings (GPD)	Measure Group Type
Seattle Public Utilities	Highline School District 401	Evergreen High School	3885	Bathroom
Seattle Public Utilities	Lorig Management Services	Hawthorne Hills Professional Center	245	Bathroom
Seattle Public Utilities	Market Place Offices	Market Place Offices	2000	Bathroom
Seattle Public Utilities	Port of Seattle	Seattle-Tacoma International Airport	70970	Bathroom
Seattle Public Utilities	Seattle Children's Home	Seattle Children's Home	2553	Cooling/Refrigeration/Ice
Seattle Public Utilities	Nitze-Stagen & Co, Inc	Starbucks Center	2160	Cooling/Refrigeration/Ice
Seattle Public Utilities	MacDonald Meat Company, LLC	MacDonald Meat Company	550	Custom Projects
Seattle Public Utilities	Al - Dearl Investment	Varons Building	70	Bathroom
Seattle Public Utilities	John Bennett	Ace Building	40	Bathroom
Seattle Public Utilities	John Bennett	Yi Building	60	Bathroom
Seattle Public Utilities	John Bennett	O'Neil Building	50	Bathroom
Seattle Public Utilities	John Bennett	Ritz Building	75	Bathroom
Seattle Public Utilities	John Bennett	Boysen Building	40	Bathroom
Seattle Public Utilities	John Bennett	Seaway Building	80	Bathroom
Seattle Public Utilities	John Bennett	Jukebox City Building	80	Bathroom
Seattle Public Utilities	North Seattle Dental	North Seattle Dental	40	Bathroom
Seattle Public Utilities	Park 90/5	Park 90-5 Police Support Facility	3387	Custom Projects
Seattle Public Utilities	Equity Office Properties	1100 2nd Ave Bldg.	814	Cooling/Refrigeration/Ice
Seattle Public Utilities	Prudential Signature Properties	Chardon Building	50	Bathroom
Seattle Public Utilities	Aurora Veterinary Hospital	Aurora Veterinary Hospital	113	Bathroom
Seattle Public Utilities	Chinatown Market Corp.	Chinatown Market	7500	Cooling/Refrigeration/Ice
Seattle Public Utilities	Ballard Baptist Church	Ballard Baptist Church	120	Bathroom
Seattle Public Utilities	Women's University Club	Women's University Club	1000	Custom Projects

Utility	Business/Company	Facility Name	Final Peak Savings (GPD)	Measure Group Type
Seattle Public Utilities	Kress Building	Kress Building	100	Bathroom
Seattle Public Utilities	Providence Mount Saint Vincent	Providence Mount Saint Vincent	4800	Laundry Systems
Seattle Public Utilities	Port of Seattle	Port of Seattle Maintenance Shop	1755	Cooling/Refrigeration/Ice
Seattle Public Utilities	O.S.F. International, Inc.	Old Spaghetti Factory	2000	Cooling/Refrigeration/Ice
Seattle Public Utilities	Tropic Isle, Inc.	The Islander Restaruant & Tiki Lounge	1500	Custom Projects
Seattle Public Utilities	Washington Biomedical Research Properties I	UW Medicine Lake Union @ 815 Mercer	360	Bathroom
Seattle Public Utilities	CC Slaughters North Ltd	CC Attles	750	Cooling/Refrigeration/Ice
Seattle Public Utilities	Julia's in Wallingford, Inc	Julia's in Wallingford	400	Cooling/Refrigeration/Ice
Seattle Public Utilities	Pig Iron Barbeque	Pig Iron Barbeque	200	Cooling/Refrigeration/Ice
Seattle Public Utilities	Seattle Surgery Center	Seattle Surgery Center	5000	Custom Projects
Seattle Public Utilities	Chinese Evangelical Church	Chinese Evangelical Church	200	Bathroom
Seattle Public Utilities	The Polyclinic	The Polyclinic	2500	Custom Projects
Seattle Public Utilities	Soules Properties	4301 Building	40	Bathroom
Seattle Public Utilities	Soules Properties	3212 Building	180	Bathroom
Soos Creek Water & Sewer District	Le Cruz Construction Company Inc.	H. P. Car Wash	2360	Custom Projects
Water District No. 125	King County - Metro Facilities	South Base Complex	5026	Custom Projects
Water District No. 20	Highline School District 401	Beverly Park @ Glendale Elementary	1663	Bathroom
Water District No. 20	Highline School District 401	Salmon Creek Elementary	863	Bathroom
Water District No. 49	Highline Community Hospital	Highline Community Hospital	7500	Custom Projects
Water District No. 49	Highline School District 401	Sylvestor Middle School	1331	Bathroom
Water District No. 49	Burien 76	Burien 76	2475	Custom Projects

Select Commercial Project Descriptions

Steam Sterilizer Water Conservation Kits - Six Locations

This project involved installation of water conserving trap cooling kits on older steam sterilizers in area hospitals and laboratories. These older sterilizers typically have a one to two gallons per minute (gpm) continuous flow of cold water going down the drain whenever the sterilizer is operational (often 24/7 in the case of hospitals) to ensure the temperature in the drain line remains below 140F. Installation of a kit incorporating a temperature sensor in the drain line can save approximately 90% of the water previously used. During 2004 the Water Smart Technology Program provided incentives for installation of 33 kits at six facilities including at two Highline Hospital locations (Water District 20 & Water District 49), Children's Hospital (Seattle), Virginia Mason Hospital (Seattle), Seattle Surgery Center (Seattle), and Polyclinic (Seattle). Total savings from these installations is estimated at approximately 45,000 GPD of peak season savings, or 22,000 CCF annually.

University of Washington Laundry – Water Recycling System

The University of Washington Consolidated Laundry (UWCL) performs complete laundry service for the UW Medical Center, other campus operations, and outside contracts. The quantity of goods processed is approximately 10 to 12 million pounds per year. Laundry operations by their nature consume significant quantities of water, electric, and natural gas resources. UWCL currently operates with two high-efficiency tunnel washers along with multiple washer extractors. Water use efficiency was about 2.5 gallons of water used per pound of laundered goods. The proposed water filtration/recycling system allowed UWCL to, cost effectively, reach close to the highest level of efficiency attainable with existing filtration technology. Successful implementation of this technology will become a case study for other large laundry facilities, demonstrating state of the art water efficiency.

Hop-in Grocery Car Wash – Water District 90 – Water Reclaim System

This project involved the installation of a car wash water reclaim system. This new construction project included a convenience store, gas station, retail center, and car wash. Savings were calculated when the new car wash facility was brought on line, by closely monitoring the numbers to verify car wash performance with both reclaim and no reclaim and number of daily washes.

HP Car Wash – Soos Creek Water & Sewer District – Water Reclaim System

The existing car wash facility consists of a touch-free station and four self-serve stations. A data-logger was installed to track water consumption in the car wash. This water reclaim project was undertaken as a pilot and research project. There were two main reasons for proceeding with this project:

- This is largely a self-serve facility. This was the first self-serve facility to install a reclaim system in the Saving Water Partnership service area and represents, if successful, the opportunity for water savings previously considered unobtainable.
- This is a relatively new technology to the United States and has the potential for significant market penetration due to its design utilizing aerobic bacteria in the water purification process, without the typical filtration and ozonation. No other systems of this type will be authorized until a thorough study of this system is completed.

Westin Hotel – Seattle – Toilet Replacement

The Westin Hotel will be retrofitting all their guestroom toilets in two phases, which will coincide with the hotel design of two distinctive circular towers. The South Tower was retrofitted in 2004, and the North Tower will follow in 2005. The Westin Hotel has undergone extensive analysis as part of the 2001 Hotel Demonstration Project and the toilet flush volume was thoroughly documented at 3.5 and 5 gallons per flush in the North and South Towers respectively. Significant toilet leaking was also discovered by submetering plumbing risers throughout the building. While this may not be a current issue, water savings as estimated in the hotel report for just the replacement toilets were up to 12,500 gallons per day (gpd) of peak season savings.

Seattle Police Department – Water Reuse

This was a City of Seattle project subject to and constructed under the City Leadership in Energy and Environmental Design (LEED) Policy for sustainability. The project involved a complete renovation of a building formerly occupied by Starbucks, into a facility that houses many City of Seattle Police functions; including photo lab, evidence holding, motorcycle patrols, and parking enforcement. The facility also offers police training room facilities, locker rooms, exercise equipment, and office space for high-ranking members.

The water conservation project made use of an opportunity to incorporate on-site drainage and stormwater management with domestic and landscape end uses not requiring potable water. This site has high groundwater levels that necessitate pumping water to the combined sewer system. The flow of water pumped varies from six to 60 gpm, but is continuous under all conditions and seasons. The project utilized this available water for on-site toilet flushing, vehicle washing, and landscape irrigation. Use of potable water supplied by the city was reduced significantly as estimated by the project mechanical design engineer.

Children's Hospital – Air Compressor

This project involved replacement of a water-cooled air compressor that provides medical air, is part of the fire suppression system, and air for pneumatic controls. The new system was all air-cooled and segregated systems. SPU performed one week of metering, which essentially validated water use by the air compressor system as reported in the water audit report. This project saved over 11,000 gpd of peak season savings. In addition, substantial energy savings also resulted, as the selected equipment was much more efficient than the equipment that was replaced.

King County-Metro Bus Maintenance Facility – WD #125 – Air Compressors

This project involved the replacement of two water-cooled air compressors with two air-cooled air compressors. The subject site is a KC-Metro bus maintenance facility and is located in the Water District #125 service area. Sub metering by motor loggers and point of discharge water meters was completed on both compressors. Over 5,000 gpd of peak season savings resulted from this project.

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Saving Water Partnership

Seattle-area utilities partnering to help you save water

- Conserve Inside
- Conserve Outside
- Conserve at Work
- Education/Resources
- About Us

Welcome

Welcome to SavingWater.org, a website to help conserve water at home and at work. Cutting back on the water we use is good for the environment, for salmon and other wildlife, and for our future. And it can lower your water bills, too!

Learn how to save water:

- Inside your home: in the kitchen, bathroom, and laundry room
- Outside of your home: in your lawn, yard, and garden
- At your business: in apartment buildings, in commercial and industrial applications, and more

See the Education and Resources section for case studies, tools, resources, links, and much more.

SavingWater.org is sponsored by the Saving Water Partnership, a group of local utilities that fund water conservation programs in Seattle and King County.

Participating Utilities:

- City of Bothell
- Cedar River Water & Sewer District
- Coal Creek Utility District
- City of Duvall
- Highline Water District
- Water Districts 20, 45, 49, 90, 119, and 125
- City of Mercer Island
- Northshore Utility District
- Olympic View Water & Sewer District
- Seattle Public Utilities
- Shoreline Water District
- Soos Creek Water & Sewer District
- Woodinville Water District

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- > Toilet Test Results
- > FlushStar Toilets (pdf)
- > Rebates

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The program web site was re-designed in response to customer input

Saving Water Partnership
www.savingwater.org
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