

Saving Water Partnership Regional 1% Water Conservation Program

2003 Annual Report

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1. Summary Of 2003

This report reviews annual progress of the regional 1% Water Conservation Program (1% Program). 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 2003. Cascade Water Alliance utilities were participants in the 1% Program in 2003 and their conservation performance is included in this report accordingly.

The regional 1% Water Conservation Program (1% Program) is sponsored by the Saving Water Partnership (SWP). This Partnership includes the City of Seattle and a group of 22 utilities purchasing wholesale water from the City of Seattle. The City of Seattle administers the 1% Program in cooperation with these utilities, under terms of long term contracts.

The region continued to make good cumulative progress in reducing per capita water demands, although in 2003 the 1% program itself fell short of meeting its target water savings goal. Total cumulative regional water savings is a combination of the 1% program savings since its inception in 2000, plus other long term water savings produced from rates, codes, and water system efficiencies.

The primary reason the 1% savings target was not reached was a significant jump in the consumption of purveyor utility residential customers during an unusually warm and dry summer peak season and a corresponding lack of behavior related water savings. Weather-adjusted peak season consumption for customers within SPU's direct service area continued to decline consistent with the expectations of the 1% program. Equipment and hardware replacement savings continued to meet their respective targets.

The year 2003 experienced an exceptionally warm summer with high peak season irrigation water demands, perhaps most noted for a record number of continuous days without rainfall. However, when actual water consumption was adjusted for the warmer-than-usual weather, many customers still had unusually high irrigation use. A strong summer water supply reduced the need for an expensive, highly visible summer education message (summer campaign) possibly resulting in a lapse of customer attention to conservation. Public awareness of the need for conservation was not emphasized in 2003 with an emphasis placed instead on beginning a targeted recruitment of high peak use residential customers to make changes to their irrigation systems. The remaining, transitory carry-over effect of lower consumption following the 2001 drought largely disappeared over the course of the warm summer.

Interpretation of the data on purveyor customer consumption remains less than clear. Consumption for purveyor customers during the winter season actually declined consistent with expectations of the 1% Program. However, purveyor summer peak consumption jumped significantly; 38% greater than summer consumption in 2002 after adjusted for weather. This rise in consumption more than offsets a weather-adjusted decline in summer peak season consumption within the Seattle retail service area. The result is a total conservation savings of 0.9 MGD, 40% less than the target for 2003 of 1.5 MGD.

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 in new long-term savings. Noteworthy:

- Relative to the 2010 savings target of 18 MGD, the cumulative 1% program (years 2000 to 2003) has now achieved 27% (or 4.9 MGD), which is still slightly ahead of the revised cumulative four-year target goal, largely due to good success in previous years;
- Cumulative cost of savings to date is \$14.3 million, or \$3 million per MGD;
- Water savings for the year 2003 from the 1% Program fell below the target goal by 40%;
- 0.8 MGD of the 2003 conservation savings was from new fixtures and equipment, 60% higher than hardware savings achieved in 2002;
- The remaining 0.1 MGD was generated by new permanent conservation behaviors, only 14% of the long-term behavior savings achieved in 2002;
- Transitory savings noted in 2002, originally from the 2001 drought voluntary water curtailment, largely disappeared in 2003 as customers returned to pre-drought water using behaviors; and
- Good progress continues to be made in Non-1% Program regional conservation savings. These included an additional .75 MGD from the impacts of water rates and plumbing codes (predicted in existing demand forecasts), 0.5 MGD from non-revenue system water savings, and 0.1 MGD from a slower than expected business economy.

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) that were cost effective (i.e., less than or equal to Seattle's avoided cost of new supply). These measures were 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, for a total savings goal of 18 MGD. This savings goal roughly corresponds to the forecasted growth in water demand in the service region over this same time period. Achieving the 1% goal will hold water demand in the Seattle service region at the end of 2010 to approximately the same level as in 1999.

The 1% goal 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 18 million gallons of drinking water per day. This amount of water will meet the needs of 130,000 people, or approximately the amount of projected growth within the Seattle service region over the next ten years.
- *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 supply.* 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 have 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 2003-2010.

2003 Goals and Strategies

The 1.73 MGD target shown in the *Ten Year Water Conservation Program Plan* (Seattle Public Utilities, 2002) was adjusted to 1.5 MGD, in early 2003 to reflect budget availability. The revised 2003 goal of 1.5 MGD was considerably higher than the 2002 goal of 1.1 MGD, and higher than the 1% savings obtained in 2002 of 1.2 MGD. The average annual targets for subsequent years identified in the *Ten Year Water Conservation Program Plan* will be adjusted in 2004 to reflect Cascade Water Alliance utilities' departure from the regional 1% Program.

The 1% Program fixture and equipment rebate programs for residential and commercial customers expanded upon 2002 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. Customer receptiveness to new conservation measures was also tested in one utility service area. 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 focussed 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. The Saving Water Partnership also contributed to a multi-county water conservation awareness media campaign organized by the Water Conservation Coalition of Puget Sound.

2003 Program Performance

The decade plus trend of excellent progress on regional water conservation continues. Regional per capita use is declining 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 1975. 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. The 1% program along with carry-over effects from drought curtailment in 2001 and a continuing economic slowdown have contributed to the reduced water use seen today. More detail about Chart 1 is provided in Chapter 4.

Chart 1: Regional Per Capita Customer Use

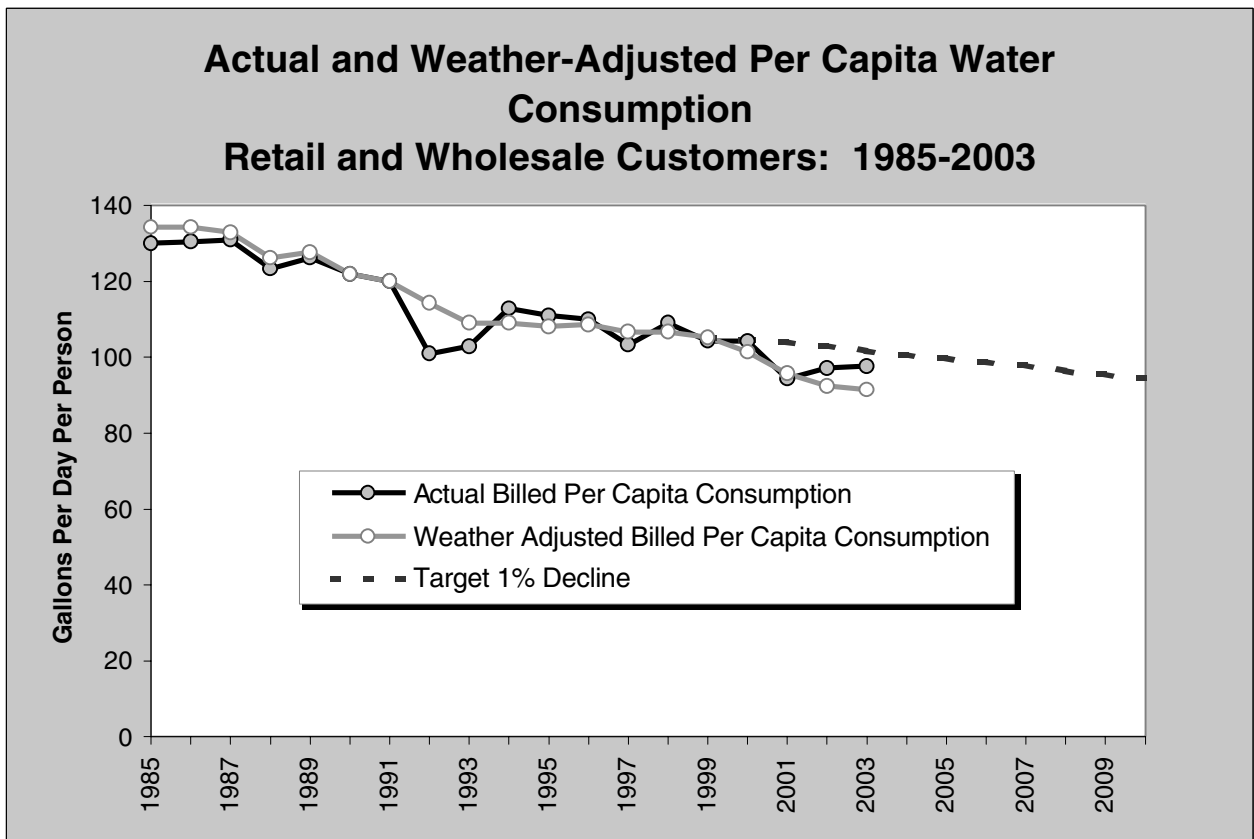


Table 1 shows estimated long-term savings in 2003, with more detailed analysis provided in Chapter 4. New water savings achieved in 2003 include both long-term savings and transitory, or temporary savings. **Long-term** savings include both the direct and indirect impacts from implementation of the 1% 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 the slowing of

economic activity in the regional service area. All long-term savings are included in SPU's demand forecast, whereas transitory savings are not.

Total long-term savings remain slightly ahead of target in relation to the *Ten Year Water Conservation Program Plan* (Seattle Public Utilities, 2002). However, the 2010 savings goal for the 1% program will be reviewed and adjusted as needed in 2004 to reflect the change in the conservation service area with the departure of the Cascade Water Alliance utilities from the 1% program.

Table 1: New Peak Season Water Savings Achieved in 2003 (in MGD)

	New Long-Term Customer Savings						Other Savings		Total
	1% Conservation Program		Rates	Code	Seattle Low Income	Total	Economy	System non-revenue	
	Hardware	Behavior							
Residential Indoor	0.348	0	0.1	0.4	0.14	1.0		-	1.0
Residential Landscape	<0.01	0.1	0.1	-	-	.2		-	.2
Commercial Domestic	0.099	0	<0.1	0.1	-	.26		-	.26
Commercial Process	0.267	0	0.05	-	-	.25			.25
Commercial Landscape	0.088	<0.1	<0.1	-	-	.1		-	.1
Other Savings							.1	.4	.5
2003 Total	0.804	0.1	0.25	0.5	0.14	1.8	.1	.4	2.3

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 0.8 MGD in 2003.

Behavioral Incentives and Outreach Savings include permanent conservation achieved with and without incentives from customer changes in water using behaviors. These savings are estimated to be 0.1 MGD in 2003. These estimates are explained in greater detail in Section 4.

Table 2: 2003 Performance

PROGRAM SECTOR	EXPENDITURES (\$1,000)	2002 WATER SAVINGS (1,000 GPD)	
		Goal	Conservation Achieved
Residential Indoor	\$1,286	410	348
Behavioral & Outreach	80		0
Hardware Incentives	1206		348
Res. Landscape	\$648	400	103
Behavioral & Outreach	224		100
Hardware Incentives	424		3
Comm Domestic	\$590	150	99
Behavioral & Outreach			0
Hardware Incentives	450		99
Comm Process	\$768	390	267
Behavioral & Outreach			
Hardware Incentives	768		267
Comm Landscape	\$140	150	88
Behavioral & Outreach			<0.1
Hardware Incentives	140		88
CPA	\$140		
Customer Research and Program Pilots	\$210		
Youth Education, Annual Report, 684-SAVE, Savingwater.org, Administration	\$680		
Totals	\$4,322	1,500	904
Behavioral & Outreach	654		100
Hardware Incentives	3,782		804

Sector Highlights

Residential indoor sector demonstrated increased water savings, despite reduced per-fixture incentive levels for both the standard Multifamily Toilet and WashWise rebate programs. The Multifamily Toilet Program showed great progress for the second straight year. The number of WashWise washing machine rebate applicants slightly exceeded last year's levels. Puget Sound Energy contributed to rebates in their service territory for

the first time in 2003 and manufacturers matched their rebate during a special promotion in late Spring and early Summer. Customer testing of toilet flapper replacement incentives was also completed in 2003.

Residential landscape developed new approaches to reaching the target audience of high water users by appealing to their aesthetic desires. Market research showed that a primary motivator for this group was having a beautiful garden and that environmental messages would be less effective in causing them to change their resource-intensive behavior. This led to development of a new tagline - *A Better Way to Beautiful* - that emphasizes a key customer benefit and aesthetic desire while cleverly inferring this is a different approach to gardening. The approach is based on sound ecological and horticultural practices. The tagline became the focus of the 2003 landscape campaign and connected strongly to the five key practices that correspond to the five Natural Lawn and Garden Guides. Seventeen nurseries partnered with the SWP on this campaign that included print and radio advertising. A new program addition in 2003 was residential rebates for efficiency upgrades to automatic irrigation systems incorporating the *Better Way to Beautiful* theme.

Commercial, industrial and institutional facilities implemented sixty financial incentive projects in 2003. A number of additional projects were also completed by facilities without financial incentives as a direct result of the 1% program's information and outreach to businesses. Completed or significant incentive projects underway included the University of Washington (campus sterilizer retrofit, campus toilet retrofit), Seattle Tacoma International Airport (complete toilet retrofit), King County Facilities (fixture retrofits, once-through cooling, water-cooled air compressor), Swedish Medical Center (three campus sterilizer retrofit, once-through cooling) and Bank of America-Bellevue Branch (water-cooled chiller). Significant outreach and technical assistance to the business community included a direct mailing to 20,000 small businesses in partnership with Seattle City Light and Puget Sound Energy and completion of more than 20 facility audits and assistance visits at commercial facilities such as Bunge Foods, Four Seasons 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 business organizations such as the Building Operators and Managers Association, numerous local chambers of commerce, and the Medical Industry Roundtable. Articles were published in several newsletters, and water conservation became a main feature on the Resource Venture website.

Commercial irrigation emphasized customer landscape efficiency assessments and audits, and an additional 20% rebate if customers submitted applications by June 30 and completed projects by December 31. A professional irrigation auditor reviewed the performance of customers' irrigation systems and made recommendations for improving efficiency. To increase program awareness in 2003, customers of wholesale partners were targeted. 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. New promotions and expanded technical assistance more than doubled program participation and water savings achieved compared to last year.

Youth education activities provided education and customer recruitment support for measurable savings achieved by the residential indoor and landscape conservation

programs. The number of students and classrooms participating in SWP activities exceeded 2003 targets. Accomplishments included development of a new version of the home water savings kits, development of an interactive computer educational tool, hosting professional teacher development opportunities, information/activity booths at community events, on-line activities, and child-oriented TV messaging.

Five wholesale customer working groups met throughout the year to guide the implementation of Residential Indoor, Landscape, Marketing, Commercial/Industrial/Institutional, and Education programs.

1% Program Total Savings to Date

Table 3 shows the combined savings for the 1% Program since it began in 2000. 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: Cumulative 1% Conservation Program Savings to Date (1,000 GPD peak)

	"Ramp-Up" 2-Year Total	2002	2003	2004	2005	2006	2007	2008	2009	2010
Residential Indoor	1,150	386	349							
Residential Landscape	400	304	103							
Commercial Domestic, Process, Landscape	1,250	525	452							
Actual Annual Savings	2,800	1,215	904							
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							
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										

Looking Ahead

The annual 1% Program savings target and budget has been adjusted in 2004 to reflect departure of Cascade Water Alliance utilities that represented 27% of the annual peak

season consumption in the 2003 SWP service area. This adjustment will also begin a reexamination of customer targets for the different program sectors. In 2004, the regional Conservation Potential Assessment will be updated further assisting the effort to reexamine conservation savings targets and sectors, and the measures to achieve savings.

The 2004 1% Program will continue to build on the success of ongoing program implementation. New federal clothes washer energy efficiency standards that take effect in 2004 will allow for further refinement of water conservation rebates and marketing strategies. National research results about toilet performance will enable a narrowing of rebate eligibility for the multi-family toilet rebate program and establish a foundation for development of a single family toilet rebate program. Results from limited customer testing of toilet flapper replacement will form the basis for development of a regional leak repair and flapper rebate program. First year experience with residential irrigation system rebates will lead to expansion of this effort in 2004 with an increased focus on landscape contractors and equipment vendors.

In 2004, the commercial program will scale back its recruitment efforts from the record levels in 2003 because of a smaller regional service area. However, the program will continue to emphasize assistance to both small businesses and the largest commercial customers who made important conservation progress in 2003.

Although not part of the 1% Program, Seattle Public Utilities continues its implementation of the Everyone Can Conserve low-income housing conservation assistance program within the City of Seattle. As this program nears completion of the first phase of assistance to Seattle Housing Authority and the major non-profit low-income housing providers in Seattle, the Mayor and Seattle City Council will review the program's progress and determine the next phase of conservation assistance for implementation beginning in late 2004.

Ongoing Performance Monitoring

The 1% Program regional ten-year conservation goal requires significant conservation expenditures through the year 2010. Carefully tracking and evaluating program performance through efforts such as those included in this report will help meet the 1% goals 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. This document is the third of an annual series of reports designed to inform and guide the program toward its goal.

2. Program Design

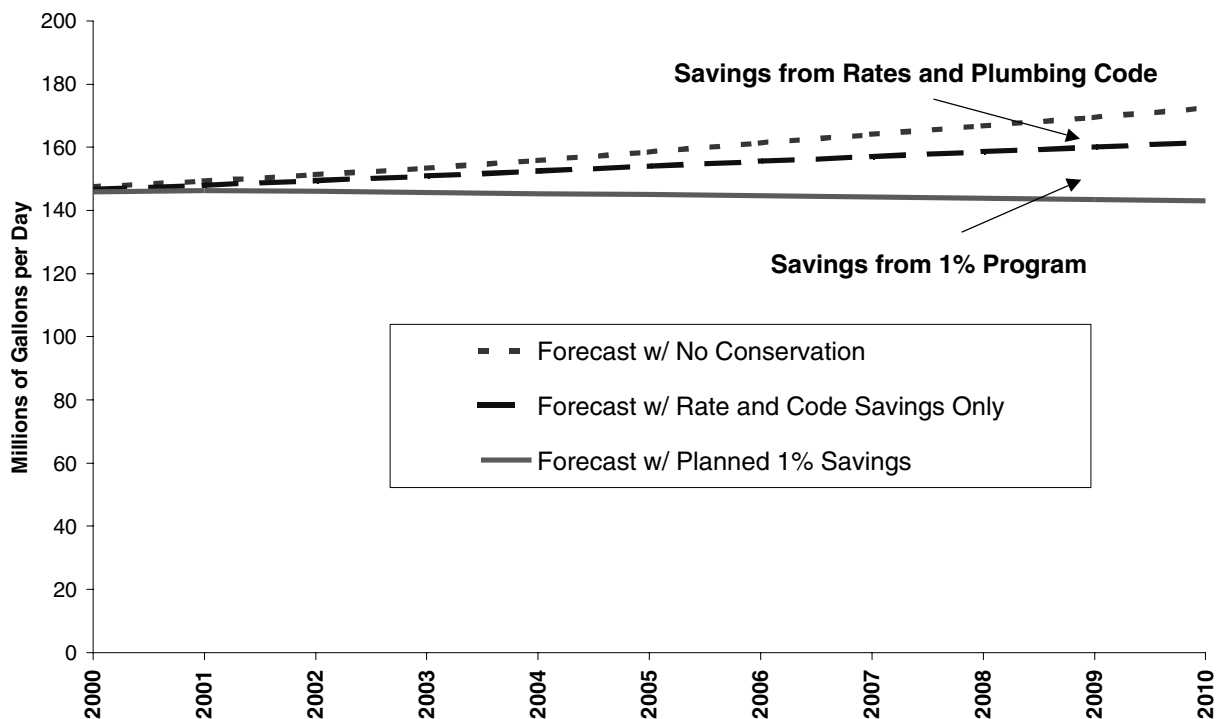
Regional 1% Program and 10-year Goal

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. This goal will result in relatively constant 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).

Chart 2 shows forecasted water demand (retail plus wholesale): 1) with no conservation; 2) with conservation savings from water rates and plumbing codes only; and, 3) with conservation savings from the 1% Program. Savings from rates and plumbing codes are expected to reach 11 MGD by 2010, and savings from the 1% Program will achieve an additional 18 MGD by 2010. 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% goal.

This report focuses on the 1% Program component of the total conservation picture. The conservation savings shown below from rates and code are those that would be

Chart 2: Water Demand and Conservation



achieved with or without 1% Program efforts. Unless otherwise stated, all references to conservation in this report are to those arising from 1% Program implementation.

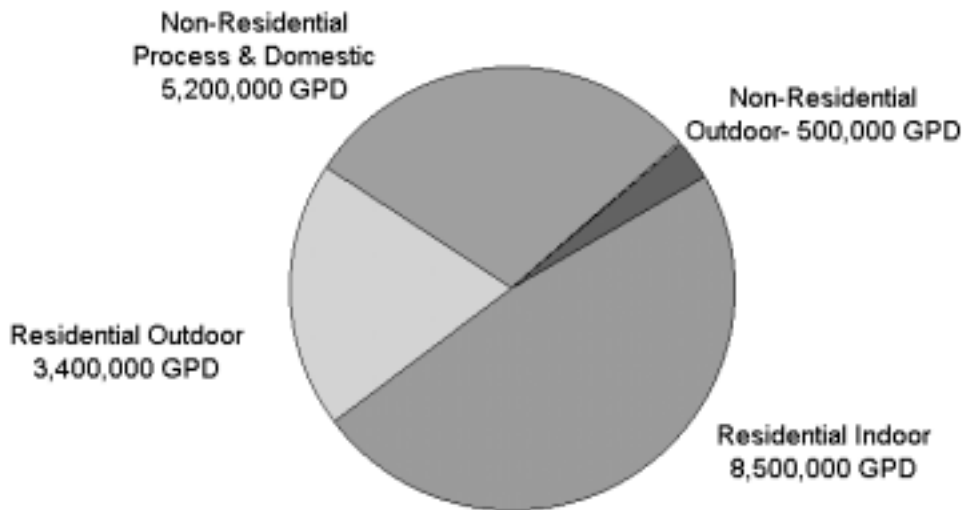
In 1998, SPU completed a detailed econometric analysis of water conservation potential, the *Conservation Potential Assessment* (CPA, Seattle Public Utilities, 1998). The CPA provides a rigorous analysis of the cost, volume, and reliability of conservation opportunities available within Seattle’s wholesale and direct service areas through 2020. The CPA analysis has determined that substantial water savings, up to 31 MGD or 16% of peak summer season use, could be achieved through conservation actions by customers over the next 20 years with no reduction in customers’ ability to use water or their satisfaction with water services.

The cost of these savings is less than the cost of new peak season water supply defined in the *2001 Water System Plan Update* (Seattle Public Utilities, 2001). The 1% Program implements cost-effective conservation identified in the CPA over the next ten years. Chart 3 shows how the savings targets are to be achieved by various customer sectors.

Chart 3: 2010 Savings Targets by Sector*

2010 Savings Targets by Sector*

Total Savings -- 18 Million Gallons Per Day



* Umbrella or schools elements are considered drivers 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 2003, program ramp-up lead to full scale implementation of a multi-family residential indoor conservation program, and introduction 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, 2001),

Table 4: 10-year Conservation Program Measures and Strategies

Sector	Types of Measures	Types of Strategies
Residential Indoor Save: 8.5 MGD by 2010 =7% of residential indoor water use	<ul style="list-style-type: none"> ▪ Replace toilets, faucets, showers (single family & multifamily) ▪ Fix leaks ▪ Change behaviors (flushes, faucet use, showers, full loads) 	<ul style="list-style-type: none"> ▪ incentives and promotion to accelerate code replacement ▪ Behavior messaging
Residential Landscape Save: 3.4 MGD by 2010 =20% of residential landscape water use	<ul style="list-style-type: none"> ▪ Reduce lawn watering ▪ Improve Irrigation performance ▪ Change lawn & garden practices 	<ul style="list-style-type: none"> ▪ Direct & indirect media outreach ▪ Technical materials ▪ Irrigation efficiency incentives
Commercial/Process/Domestic Save: 5.2 MGD by 2010 =10% of commercial, process, domestic water use	<ul style="list-style-type: none"> ▪ Upgrade toilets and equipment for cooling, process other uses ▪ Improve cooling performance 	<ul style="list-style-type: none"> ▪ Technical assistance ▪ Financial incentives
Commercial Landscape Save: 0.5 MGD by 2010 =11% of commercial landscape water use	<ul style="list-style-type: none"> ▪ Upgrade equipment (irrigation controls) ▪ Improve scheduling & maintenance 	<ul style="list-style-type: none"> ▪ Assessments and technical assistance ▪ Financial incentives

Table 4 (continued): 10-year Program Measures and Strategies Supporting Elements

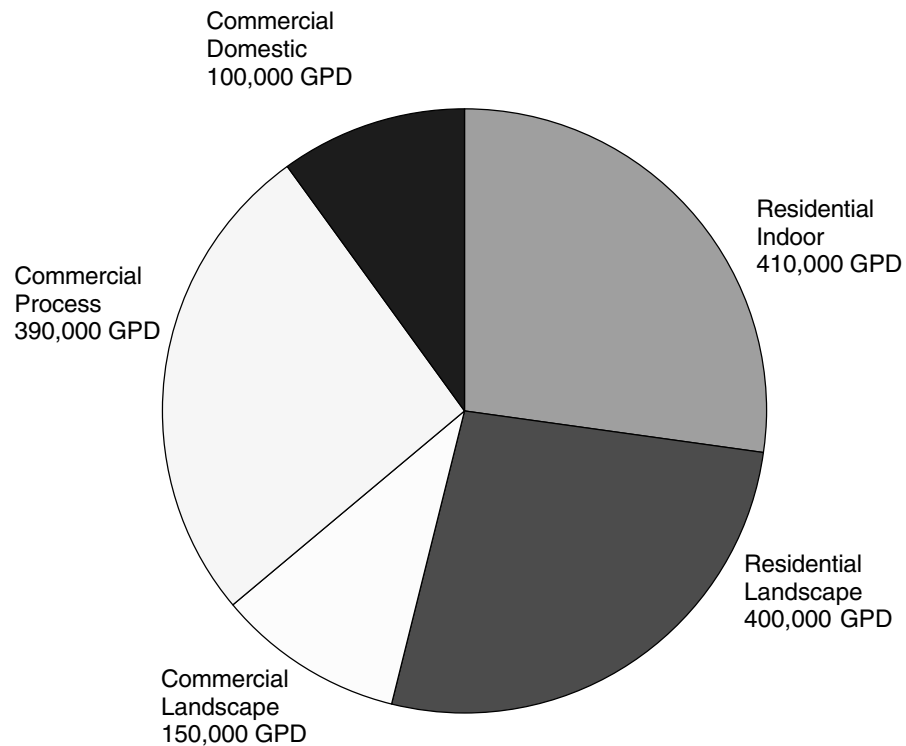
Sector	Types of Measures	Types of Strategies
Youth Education Supports water savings in other sectors	<ul style="list-style-type: none"> ▪ Conservation awareness and personal responsibility 	<ul style="list-style-type: none"> ▪ Educator training & resources ▪ Classroom and take-home materials ▪ Watershed tours
Overall Messaging Supports water savings in other sectors	<ul style="list-style-type: none"> ▪ Conservation awareness, personal responsibility, and residential and commercial measures 	<ul style="list-style-type: none"> ▪ Targeted marketing

2003 Program and Goals

An overall savings target of 1.5 million gallons per day (mgd) was set for 2003, based on a total program budget of \$4.3 million. For all sectors, new conservation efforts fell into two categories: 1) hardware incentives – primarily financial incentives to replace fixtures or equipment; and 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 and commercial landscape incentives were introduced, assistance and outreach services were expanded and ground was broken on new, future savings programs.

Chart 4 shows the 2002 savings targets planned for various customer sectors.

Chart 4: 2003 Savings Targets by Sector



2003 Measures and Strategies

2003 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, and introduction of an energy rebate by Puget Sound Energy for the first time. Accordingly, marketing efforts were expanded to compensate for the lower rebate. In addition, the Northwest Energy Efficiency Alliance and the major clothes washer manufacturers sponsored a special rebate promotion from April 15-July 15.

Residential outdoor water use. Rebates for residential irrigation system efficiency improvements were introduced for the first time. One driver for the timing of this new program was the strong, adverse reaction of high use Seattle customers to the effects of third tier water rates in 2002. Although introduced during the drought year of 2001, many customers did not see their bill rise dramatically until 2002. The new rebate program offered customers assistance in taking action to reduce water used by their irrigation systems.

Commercial process, domestic, and landscape water use. A bonus incentive was offered in 2003 to stimulate conservation investment in a down economy with excellent results.

Table 5 shows in detail the different conservation measures and strategies implemented during 2003 within the different customer sectors and supportive elements in youth education and overall messaging.

Table 5: 2003 Conservation Measures and Strategies

Types of Measures	Types of Strategies
RESIDENTIAL INDOOR (2003 Target = 410,000GPD)	
<ul style="list-style-type: none"> ▪ Replace washing machines ▪ Replace toilets & faucets (single family & multifamily) ▪ Fix leaks ▪ Change behaviors (flushes, faucet use, shower time, full loads) 	<ul style="list-style-type: none"> ▪ 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 <i>Toilet Performance Testing</i> conducted by the National Association of Homebuilders Research Center (NAHBRC, 2002)
RESIDENTIAL LANDSCAPE (2003 Target = 400,000 GPD)	
<ul style="list-style-type: none"> ▪ Improve watering efficiency <ul style="list-style-type: none"> ➢ Irrigation system performance ➢ Landscape watering behaviors ➢ Practices that affect watering (e.g. mulch and soil prep) 	<ul style="list-style-type: none"> ▪ 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 (2003 Target = 540,000 GPD)	
<ul style="list-style-type: none"> ▪ Upgrade toilets and other domestic water use ▪ Upgrade efficiency of equipment for cooling, process other industrial uses ▪ Improve cooling performance 	<ul style="list-style-type: none"> ▪ Bonus incentive to offset economic slowdown ▪ Target small businesses ▪ Target restaurant and other use of inefficient pre-rinse spray heads ▪ Recognize outstanding projects through BEST awards program ▪ Outreach to chambers of commerce through Resource Venture ▪ Technical assistance, assessments, workshops ▪ Financial incentives (custom projects and set rebates) ▪ Targeted promotion through vendors, trade groups, agencies ▪ Recruit large customers
COMMERCIAL LANDSCAPE (2003 Target = 150,000 GPD)	
<ul style="list-style-type: none"> ▪ Upgrade irrigation equipment (controls, rain sensors, drip) ▪ Improve scheduling & maintenance 	<ul style="list-style-type: none"> ▪ 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)	
<ul style="list-style-type: none"> ▪ Conservation awareness and residential measures 	<ul style="list-style-type: none"> ▪ Educator training and resources ▪ Classroom and take-home materials ▪ Educational TV PSA for kids ▪ Interactive activities
OVERALL MESSAGING (Supports savings in other sectors)	
<ul style="list-style-type: none"> ▪ Conservation awareness supporting recruitment of residential and commercial customers 	<ul style="list-style-type: none"> ▪ Targeted marketing ▪ Collaboration with Puget Sound regional water utilities ▪ Festivals

3. Performance by Sector

Some program customer sectors exceeded their expected hardware-related savings in 2003, but all sectors fell below overall targets because of a drop in behavior-related savings as described in Chapter 1. The 2001 drought carry-over effect was not detectable in 2003, and the economic downturn produced significantly less water use reduction than in 2002.

Highlights:

- The Water Smart Technology and Water Efficient Irrigation programs exceeded their expected hardware-related savings in 2003.
- The residential indoor programs saw mixed results. WashWise and Multifamily Toilet rebates met their goals, but behavior savings did not meet performance 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 rolled out an irrigation hardware rebate program for the first time in 2003 and 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 first year of this program did not produce significant savings. Since staff efforts were concentrated on ramping up programs for high use customers where a large saving potential exists, the long term summer watering messaging received less emphasis. An initial evaluation found very little behavior savings from changes in watering behaviors in 2003. In fact, some backsliding happened in some purveyor areas, where some of these customers returned to less efficient watering practices.

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.



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

2003 GOALS AND STRATEGY

For the 2003 calendar year, residential indoor conservation services were tasked with achieving 348,500 gallons per day (GPD) in new water 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. Building on programs from the previous year, a major emphasis was on the multifamily housing sector.

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 a \$75 rebate to customers for the purchase of qualified efficient machines. A Double Your Savings promotion, sponsored by local energy utilities and washer manufacturers, took place from April 15th through July 15th. The program was heavily promoted by the SWP. The program offered an increased rebate to customers (\$100) and offered an opportunity for the SWP to reduce incentive costs by marketing the energy utility/manufacturer rebate promotion.
- **Toilet rebates** – The Multifamily Toilet Rebate Program grew from its solid foundation set over the two previous years. During 2003, the program provided incentives for customers to replace their water-wasting toilets with conserving models. Toward the end of the year, significant progress was made with King County Housing Authority who began replacing the first of an estimated 3,300 toilets in their facilities. 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.
- **Toilet flapper replacement pilot program** – Toilets are the most common location of home water leaks. During 2003, a pilot leak identification and flapper replacement project was completed. This project entailed working with Northshore Utility District staff to develop a direct-mail solicitation for their single-family residential customers. The results of the participant survey showed the program was effective and valued by customers. Pending the evaluation of water savings resulting from the project, information will be used to plan a region-wide flapper incentive program for late 2004 or 2005.
- **Outreach** – The WashWise program put major emphasis on advertising in 2003 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.



*2.0 gallons per minute
efficient residential
showerhead*

2003 PERFORMANCE

Residential indoor conservation produced an estimated 348,000 GPD in new long-term savings. The sector demonstrated increased water savings, despite reduced per-fixture incentive levels for both the standard multifamily toilet and WashWise rebate programs.

The Multifamily toilet program showed great progress for the second straight year. The number of WashWise washing machine rebate applicants slightly exceeded last year's levels.

Resource efficient clothes washers rebated and installed in the SWP service territory decreased slightly in 2003. For three months of the year, the Double Your Savings promotion offered customers a higher rebate from manufacturers than the standard \$75 offered by utilities for the remainder of the year. Rebates, including customers participating in the Double Your Savings promotion, totaled 8,208. The water savings attributed to the installation of these machines is an estimated 114,900 GPD.

The multifamily toilet replacement program continued to expand. A total of 6,674 toilets were replaced through the program in 2003. 3,048 (46%) of these toilets were installed in SWP areas outside SPU. The rebate total was an increase of 2,332 toilets over the 2002 totals (54% increase). Water savings from the installation of the toilet packages (toilet/showerhead/sink aerator) totaled an estimated 233,600 GPD.

Rebate numbers for 2003 were higher because of the participation of building owners, property management firms, and work with King County Housing Authority (KCHA). One property management firm in particular brought in over a dozen projects. The property management firm segment of the multifamily sector will be targeted in 2004.

The standard multifamily program offered a \$60 per toilet rebate throughout the year. Toilets installed by KCHA and a handful of other low-income projects were rebated at the low-income rebate level of \$100 or \$125 (special promotion). These numbers do not include Seattle's separate low-income housing conservation program, which are detailed separately in this report.

Although not counted, the vast majority of old toilets replaced through the program were recycled, including all KCHA toilets. Toilet recycling has been available to customers at Seattle Public Utilities' South Transfer Station at no cost. Tonnage recycled in 2003 totaled 40.3 tons. Consideration is being given to making old toilet recycling mandatory for program participation in future years.

Program messages and materials included articles, fact sheets and advertising about conservation behaviors and incentives. Methods included print and bus advertising,

Table 6: 2003 Residential Indoor Savings

Type	Major focus	Savings (GPD)
Outreach & education	Toilets, leaks, behaviors	0
Rebates & promotion	Washing machines, toilets, faucet aerators	348,500
TOTAL		348,500

Table 7: 2003 Residential Fixture Rebates

Rebated Fixtures	Fixture Targets	Fixture Totals	Savings (GPD*)
Multifamily Toilets	6,000	6,674	233,600
Washing Machines	8,000	8,208	114,900
TOTAL			348,500
*Savings includes installation of showerheads, aerators and leaks repaired during toilet installation.			

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 Multifamily Toilet and WashWise programs in 2004. The WashWise program transformed in 2004 to a tiered rebate program, offering larger incentives for the more efficient machines. In addition, planning is underway to offer a showerhead/bath aerator program to residential wholesale water customers. Pending evaluation of pilot program savings, planning will proceed for a region-wide flapper program.

Additional materials will be developed to educate customers about the value of resource-efficient clothes washers. Other educational pieces will be developed for home improvement stores, to educate customers about why and how to choose a quality toilet, and why and how to replace toilet flappers.

Residential Landscape Use

PROGRAM DESCRIPTION

This customer sector targets water used for single family landscapes. The primary target audience is high peak water users: customers who use significant quantities of water in the landscape. 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. 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 desired behaviors are described in a series of six publications called the Natural Lawn & Garden Guides, and a seventh guide, Natural Yard Care, which summarizes the key practices. Guide titles include:

- Growing Healthy Soil
- Choosing the Right Plants
- Smart Watering
- Natural Pest, Weed & Disease Control
- Composting at Home
- Natural Lawn Care
- Natural Yard Care

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.

2003 GOALS AND STRATEGY

Residential landscape conservation was targeted to reduce long-term water use by 100,000 gallons per day (GPD) in 2003. The overarching goals each year continue to focus on increasing awareness, providing education, and creating incentives for efficient landscapes. In 2003, the primary strategies for achieving these goals were:

- Initiating and executing a communications plan to raise awareness, especially among peak, high water-using customers;
- Mobilizing partners and allies to spread messages and provide incentives;
- Testing a new community-based method of social marketing; and
- Offering financial incentives to automatic irrigation customers.

Table 8: 2003 Residential Landscape Savings

Type	Major focus	Savings (GPD)
Behavioral incentives & outreach	Radio and print ads, nursery partnerships, retailer partnerships, compost, water timers, soaker hoses and educational materials	100,000
Hardware incentives & promotion	Automatic irrigation system hardware retrofits	3,000
TOTAL		103,000

2003 PERFORMANCE

Residential landscape savings totaled 103,000 gallons per day, achieving only 25% of the savings targeted in this sector during 2003. A significant contributor to this performance was an unusually warm and dry summer resulting in greater outdoor watering than the region had experienced in recent years. A change in programmatic direction to focus conservation efforts on high peak water use customers may have also contributed to savings falling well below target. This effort, described in greater detail below, was initiated in 2003 and is expected to produce greater savings in 2004 and beyond.

A Strategic Communication Plan completed in 2003 laid out several approaches to reaching our target audience of high water users by appealing to their aesthetic desires, identifying tools for raising awareness via advertising, the web and media; and by working with partners who could influence their gardening behaviors. Market research showed that a primary motivator for this group was having a beautiful garden and that focusing on the health and beauty of the landscape would be more effective in changing behavior than focusing on environmental messages. The communication plan led to development of a new tagline - *A Better Way to Beautiful (BWTB)* - that emphasizes a key customer benefit and aesthetic desire while suggesting this is a different approach to gardening. BWTB is essentially a marketing approach to promoting the Naturals practices to this key group. BWTB was used as the title to a mini-brochure that condensed the Naturals practices to five key steps. This mini-brochure was used in a direct mail promotion to high peak users and has been distributed through 17 nurseries as a teaser for customers to pick up more information. More examples of the use of the BWTB tagline are included below.

Print Advertising in the summer and fall months incorporated the *Better Way to Beautiful* approach with inviting photos of beautiful gardens and a key behavioral step in achieving this beauty while reducing water consumption. The summer ad entitled “Think Drink. Not Drown” was placed in 18 local papers for a total of 89 ads from July to September throughout the service area. The fall ad entitled “Mulch Now. Play Later” ran in the larger papers (*Pacific NW Magazine* and *The King County Journal*) for a total of ten ads from September through October. Each ad encouraged customers to use a specific behavior and to visit savingwater.org or the Natural Lawn &



One of the Better Way to Beautiful print media advertisements initiated in 2003

Garden Hotline for a particular Natural Lawn & Garden Guide that was directly related to the ad. While it is difficult to quantify their behavioral impact, the presence of these messages in newspapers and radio reinforced programmatic work and built public awareness of natural lawn and garden practices that contributed to real savings.

Radio Advertising on KING FM initially raised awareness about the *Better Way to Beautiful* concept, and later in September and October used the Mulch Now message to encourage a specific behavior. The demographics of KING listeners closely aligned with our high peak water customers, and therefore this station was chosen as a second media to strengthen message reach and penetration during the mulch advertising. Similar mulch messaging was relayed in a KPLU radio weather sponsorship that ran during commute-time in September. There were a total of 310 spots between these two stations.



Conservation-oriented yard maintenance products display at a local retailer during Northwest Natural Yard Days

Northwest Natural Yard Days (NWNVD) was a collaboration between the Saving Water Partnership (SWP), King County Solid Waste, King County Hazardous Waste, Pierce County, the City of Tacoma, Puget Sound Clean Air Agency and a number of suburban cities to promote sales of natural yard care products. NWNVD built upon and expanded an annual “Mower For Less” mulching lawn mower sale that was held each spring from 1998 to 2001. In 2002 the program changed its name and expanded from mowers only to a sale of water timers, soaker hoses, bagged compost, weed pullers, insecticidal soap and organic lawn fertilizer. Water conservation and pesticide reduction were both part of the promotion. In 2003, Northwest Natural Yard Days became an entirely in-store promotion. Over 78,000 NWNVD discounted products were sold in April 2003, more than a 50% increase over 2002 sales for 30 participating retailers.

Nursery Partnerships relied mostly on stocking Natural Lawn & Garden Guides and providing nurseries with the new summary printed pieces, *Natural Yard Care* and *A Better Way to Beautiful*. In the fall, staff visited 17 nurseries and discussed the *Better Way to Beautiful* approach, ideas for 2004 partnerships and feedback on the Naturals guides. Nursery owners and managers gave high praise for the Mulch Now ad and most indicated they would be very interested in joining SWP in a similar ad campaign in Spring 2004. These one-on-one meetings helped solidify the relationships with nurseries, gained insight into our shared customers and laid the foundation for spring campaign elements.

Table 9: 2003 Landscape Customer Outreach

Contacts	Targets	Actual
Naturals guides	60,000	51,455
Public class attendees	545	555
Attendees at training for professionals	500	505
Natural lawn & garden hotline questions answered	10,000	11,000

Alliances with local garden columnists were initiated through one-on-one discussions. These weekly columnists write about many of the same practices encouraged by SWP. Meetings with these columnists helped them become aware of SWP, the Natural Lawn & Garden guides and began laying the groundwork for specific

partnership ideas for 2004. All of the writers enthusiastically supported SWP's educational work and wanted to help strengthen the reach of our shared messages.

The Natural Lawn & Garden Hotline is an evolution of the Compost Hotline, operated by Seattle Tilth for Seattle Public Utilities since 1986. In 2001 the Hotline was re-named, the scope of service was expanded to include all of Natural Lawn & Garden care, the service area was enlarged to include all of King County, and SWP funding was added to the Hotline's budget. The Hotline is an excellent example of leveraging several agency partners to serve a larger geographic area. The Hotline telephone number was included in all Saving Water Partnership materials, including the Natural Lawn & Garden Guides, advertisements and websites. Purveyor partners also promoted the Hotline through their own outreach avenues. For example, the City of Bellevue promoted the Hotline in newsletters, on the web, in on-hold messages, and at gardening classes. The hotline answered over 11,000 questions from approximately 6,700 contacts (phone calls, emails and walk-ins). This was up from 9,300 questions answered from 6,800 contacts in 2002. Approximately 30% of the calls came from King County residents outside of Seattle.

Training for Home Gardeners & Landscape Professionals took place throughout the year, reaching thousands of citizens and professionals. The SWP collaborated with the SPU/Local Hazardous Waste Management Program's Green Gardening program to incorporate water conservation into slideshows on Introduction to Green Gardening, Pest-Resistant Plants, Salmon-Friendly Gardening, and Garden Design. To reach professionals, the Program provided training to staff at area nurseries (over 200 attended), and to horticulture students at local community colleges. In addition, each fall the program presents an Integrated Pest Management Seminar that has drawn approximately 350 attendees in each of the past four years.

In addition to the Green Gardening Program offerings, the SWP offered a variety of **training** workshops throughout the year. This training, ranging from Natural Lawn Care to soils topics to salmon-friendly gardening to ways to save water in the landscape, reached hundreds of area residents. SWP staff extends this reach by "training the trainers" – educating community outreach volunteers to teach resource conservation. These hundreds of volunteers use Natural Lawn and Garden and other SWP materials to reach thousands of area residents. This integrated training leverages other agency staff and financial resources in addition to SWP support.

The SWP also offered a variety of **professional workshops** during the year, including turf management, water conservation, environmentally-friendly landscape design, on-site stormwater management, and soil restoration. These courses are offered in cooperation with landscape professional organizations, SPU and City Light's Sustainable Building Advisor Certificate Program, university and cooperative extension programs, the Washington Organic Recycling Council, and other professional and local government partnerships.

Natural Yard Care Neighborhoods tested a community-based marketing approach in Seattle, Bellevue, Redmond and Shoreline neighborhoods. Residents were recruited in relatively limited areas in order to increase the opportunities for neighbors to talk to neighbors and maximize social diffusion. A series of workshops were conducted over at least three evenings in each community, and covered six different topics. An intensive evaluation was mounted for this effort. Participants were surveyed before the

workshops began (350 surveys received) and six months later on awareness of natural yard care issues and twenty-five key natural yard care behaviors (158 surveys). They were also surveyed on their satisfaction with each night's classes. In addition, a control group of non-participants from the same neighborhoods was given the survey of the twenty-five key behaviors (193 surveys).

There were significant changes in the percentage of participants who felt "very informed" before and after the classes on five broad topic areas:

- How to build healthy soil – "very informed" went from 11% to 53%
- How to choose the right plant for your garden – "very informed" from 8% to 30%
- How much to water and when – "very informed" from 18% to 70%
- How to control pests & diseases without pesticides – "very informed" from 7% to 34%
- How to practice natural lawn care – "very informed" from 10% to 54%

There was a very close correlation between the number of classes attended and how informed the participants felt about the subject.

Behavior change was significant with a number of behaviors, with participants either beginning a practice or increasing the frequency or amount that they engage in that practice. The top five new behaviors included using organic or slow release fertilizer (34% began following this practice), checking the texture of their soil (27%), watering deeply but infrequently (27%), checking soil moisture (25%) and fertilizing the lawn moderately in May and September with organic or slow release fertilizer (23%). The top five behaviors that were increased included watering deeply but infrequently (29% increased their practice of this behavior), using an organic layer of mulch (27%), choosing plants suited to their yard's conditions (26%), avoiding chemical pesticides (25%) and choosing lower water use plants (24%). Water conservation was well served in this list of behavior changes. With behavior change there was again a significant correlation between the number of classes attended and degree of behavior change.

Spin-off benefits of the classes included each participant talking to an average of five other people about natural yard care techniques. Approximately 90% of participants are using the materials given out in the classes, 70% are using alternative yard care products recommended in the classes, 27% are accessing one of the natural yard care websites, and 10% are calling the Natural Lawn & Garden Hotline.

Water Efficient Irrigation Rebates marked the beginning of an incentive-based program to encourage residential sprinkler system owners to tune-up and upgrade existing systems for better water efficiency that will also improve landscape care. As part of the "Better Way to Beautiful" promotional umbrella, Water Efficient Irrigation Rebates (WEIR) for qualifying irrigation hardware efficiency upgrades were received by customers beginning in July 2003, soon after a June program launch. The goal of the rebate program is to educate homeowners about the efficiency and ease of smart technology and ultimately change landscape-watering practices. Since market research finds that most home irrigation systems are not well-maintained and one objective is to increase water efficiency by encouraging better maintenance practices, the rebate program also



New landscape conservation tag line promoting water conservation without compromising landscape aesthetics

encourages residential sprinkler system owners to keep their systems in top shape. To participate in the program homeowners are required to have their existing systems professionally inspected and tuned up in order to receive a rebate for upgrading their irrigation hardware with new, water-efficient smart scheduling equipment. The WEIR program is one element of a broader irrigation “market transformation” strategy. One important benefit to WEIR is the interest and participation of a significant number of landscape and irrigation contractors, often the best means of promoting efficient technologies and practices to their customers.

Market research was conducted in late 2003 with the primary landscape target audience of high peak water users. The research focussed on obtaining statistically valid survey data about behaviors, barriers and motivations of this key target audience, and to follow up on previous barrier analysis research. This was the first time since 1996 that in-depth research was conducted with this group. The final report will be available in second quarter, 2004. Some notable findings from the research include:

- 68% of high peak use residential customers have automatic watering systems. This has increased dramatically from 34% in the 1996 survey.
- Only 9% of those with automatic watering systems correctly answered that such systems “waste a fair amount of water”.
- There was strong recognition of several of the key “Naturals” concepts, such as use of right plant in the right place, and use of mulch. However, reported behaviors did not reflect an accurate understanding of these concepts.
- Many respondents report an interest in obtaining information about gardening practices and identified nurseries, gardening books and landscape professionals as the top three sources for information. There is significant need to educate these customers to address apparent “disconnects” between behavior and intention.

LOOKING AHEAD

Successes from 2003 will be amplified in the current year. A key objective is to continue to leverage resources through strong partnerships with a variety of actors, including nurseries, garden writers and landscape and irrigation professionals. These efforts will also build on market research performed in 2003. Examples include:

- A major advertising partnership with area nurseries will be the focus of a 2004-outreach campaign called “Plant Right for the Site. The partnership will include many of the region’s top garden writers and personalities. These garden experts will teach classes at the participating nurseries and include the discussion topics in articles and radio programs they host. The purpose of the shared advertising and education campaign is to encourage customers to correctly practice the “right plant, right place” concept for reduced water, pesticide and fertilizer use.
- Northwest Natural Yard Days will be expanded to two spring months at box stores and the reach of the program will expand to the entire Puget Sound basin, from Bellingham to Olympia.
- Natural Yard Care Neighborhoods will expand into other geographic areas.
- Analysis of savings from behavior-based programs versus hardware-based programs will be used to refine program delivery strategies. Irrigation contractor training will be part of the three-pronged marketing approach to promote market transformation to smart irrigation products.
- Outreach and support to small irrigation contractors will be increased, as will information about behavior change and rebate benefits to the targeted public.

Semi-annual contractor training and vendor fairs will be organized where contractors can gain hands-on experience with new irrigation technology.

Commercial Process and Domestic Use

PROGRAM DESCRIPTION

The Water Smart Technology program provides free 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 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, technical review, product evaluation, fact sheets, and case studies. Program financial incentives provide standard rebates or custom incentives of up to 50% of the installed costs of any cost-effective conservation measure. Most program participants have a simple payback period of less than two years on their investment.



Waterless urinal installed at Seattle University

2003 GOALS AND STRATEGY

The Water Smart Technology Program had a water savings target of 540,000 GPD for 2003, 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).

2003 PERFORMANCE

In spite of a down local economy, the Water Smart Technology Program had its best year ever in terms of number of projects completed and conservation savings achieved. Improvements at commercial facilities produced estimated long-term water savings of 367,000 GPD in 2003, Significant outreach and assistance was provided by the Resource Venture and

Table 10: 2003 Commercial Process and Domestic Savings

Type	Major Focus	Savings GPD
Outreach & information	Customer assistance, workshops	0
Rebates & administration	Toilets, cooling, process, technical assistance	367,000
TOTAL		367,000

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.

2003 program accomplishments included:

- Completed or making significant progress on major incentive projects at the University of Washington (campus sterilizer retrofit, campus toilet retrofit), Seattle Tacoma International Airport (complete toilet retrofit), King County Facilities (fixture retrofits, once-through cooling, water-cooled air compressor), Swedish Medical Center (three campus sterilizer retrofit, once-through cooling) and Bank of America-Bellevue Branch (water-cooled chiller).
- Increased customer focus on conservation technologies such as water conservation adaptations for medical sterilizers, and no-flush urinals.
- Assisted customers with long-term conservation planning, including Bellevue Community College, University of Washington, Port of Seattle and several King County facilities.
- Held second 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.
- Introduced a new program in partnership with Puget Sound Energy. 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. The program's main delivery mechanism is a direct installation of one or more sprayheads resulting from individual visits by contract installers.
- Conducted fourteen presentations for facilities managers and targeted trade group audiences on water conservation programs and services.
- Sponsored no-flush urinal summit that drew together building operators, vendors, maintenance technicians, and manufacturers of no-flush urinals to share their experiences and expertise on this relatively new and promising technology.
- Sponsored a vendor/contractor workshop to promote a special Water Smart Technology Program Incentive and to increase participation in the WST Program.
- Completed a direct mail promotion to over 20,000 small business customers with participation from Seattle City Light and Puget Sound Energy.

Table 11: 2003 Commercial Incentive Projects

Process Measures	Projects	Savings GPD
Washing Machines/Laundry Sys	5	4,330
Refrig./ Ice Machines/ Cooling	18	61,284
Medical Equipment	3	95,500
Laundrywise* (excluded from total)	459	21,988
Sprayheads* (excluded from total)	1,200	59,178
Water feature recycling	1	13,698
Process Water	4	11,528
2003 Total*	31	267,506
2003 Target	75	
Domestic Measures	Projects	GPD
Bathroom measures	29	97,848
Non-incentive projects	2	1,700
2003 Total	29	99,548
2003 Target	40	

- Undertook significant outreach: conducted more than 20 audits and assistance visits at commercial facilities such as Bunge Foods, Four Seasons Hotel, Alaska Airlines, Cabrini Medical Tower, King County South Transit Base, 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. Articles were published in several newsletters, and water conservation is a main feature on the Resource Venture website.
- Evaluated Resource Venture outreach effectiveness and service familiarity utilizing Northwest Research Group in a phone survey of participants and non-participants of Resource Venture services. Results indicated that services were well received but name recognition and retention were not optimal. This information was useful in the development of the 2004 Resource Venture workplan.
- Extended the Resource Venture contract to the end of 2004. More emphasis was placed on core services and easy to obtain and effective educational materials.



Giant concrete saw at Quiring Monuments

LOOKING AHEAD

Commercial targets and resources will be reduced 20% due to Cascade Water Alliance utilities leaving the Saving Water Partnership. Due to the high level of activity in terms of outreach and technical assistance, the new sprayhead program, and having a full year of contract technical assistance in 2003, the Water Smart Technology Program is well positioned to achieve target savings in 2004. The program will continue to support a spectrum of cost-effective conservation measures through technical assistance and incentives. An update of the Conservation Potential Assessment, begun in 2003, will be completed in 2004 and will provide an improved framework for obtaining cost effective commercial water conservation savings in future years. Outreach recruitment will continue utilizing the Resource Venture for targeted business sectors including hotels and restaurants, medical, manufacturing, and institutional facilities. A new commercial assistance brochure will be completed, and evaluation of the Sprayhead Program, due to be completed by June 1, will occur late in the year. A previously planned laundry water use workshop did not occur in 2003, but will move forward again in the second half of 2004.

Commercial Landscape and Irrigation Use

PROGRAM DESCRIPTION

The Water Efficient Irrigation Program (WEIP) increases landscape and irrigation efficiency for commercial, institutional and multifamily customers by providing no-obligation professional site assessments and irrigation audits, workshops, other technical assistance, and financial incentives where cost-effective to help customers upgrade their irrigation systems and reduce peak summer water use. Conservation opportunities include improved irrigation controls and scheduling, upgraded system

components, and soil amendment and plant selection. WEIP targets site owners, facility managers, and landscape and irrigation industry professionals.

2003 GOALS AND STRATEGY

New commercial landscape efficiencies produced 88,000 gallons per day (GPD) average savings in 2003, 160% of the expected hardware savings of 50,000 GPD.

In 2003, the program emphasized customer landscape assessments and audits, and an additional 20% rebate if customers submitted applications by June 30 and completed projects by December 31. A professional irrigation auditor reviewed the performance of participating customers' irrigation systems and made recommendations for improving efficiency. To increase program awareness in 2003, customers of wholesale partners were targeted and WEIP conducted collaborative outreach with the Water Smart Technology (WST) program as well as other efforts directed toward irrigation-specific audiences, including:



SWP-sponsored vendor fair for landscape contractors featured efficient weather-based irrigation technologies

- 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.
- Flat 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.

Table 12: 2003 Commercial Landscape Savings

Type	Major focus	Estimated GPD
Outreach and education	Audits, rain sensor promotion	-
Rebates & administration	Irrigation upgrades, rain sensor rebates	88,000
TOTAL		88,000

Saving Water Partnership staff work continually to improve 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.

2003 PERFORMANCE

New promotions increased program participation compared to last year. The 20% bonus incentive increased participation for both audits and rebates. Program accomplishments included:

- Conducted 47 irrigation system audits and provided specific efficiency recommendations to property owners/managers. Established contact with an additional 20 customers.
- Provided rebates to 1 institutional, 1 medical research facility, 2 office park, 1 city park and 7 multifamily customers, at a total of 36 sites.
- Provided rebates to upgrade irrigation systems: 26 rain sensors, 10 weather-based controllers, 19 reprogrammed irrigation schedules, 2 turf maintenance improvements, and 22 irrigation system performance improvements.

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)

LOOKING AHEAD

The Water Efficient Irrigation Program will continue to expand audit services, promote financial incentives, and support events that promote the design, installation and maintenance of efficient irrigation systems. In 2004, the program will sponsor Irrigation Association training for landscape and irrigation professionals, produce a new brochure and fact sheet, continue outreach efforts with wholesale partners and irrigation professionals, and develop a new program recruitment strategy. The program will also continue to reach customers through Resource Venture outreach to various sector groups and trade associations, and through the Resource Venture newsletter.

Table 13: 2003 Commercial Landscape Assistance

Technical assistance	2003
Initial Contacts/ Assessments	67
Audited Sites	47
Rebated measures [#]	
Schedule & weather controls	29
System performance	22
Install rain sensor	26
Improve turf maintenance	2
Rebate projects	
Total Measures	80
Target	50
[#] Many projects have multiple measures	

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. Much of the 2003 advertising and marketing efforts were intertwined with individual program efforts as opposed to stand along messages.

2003 GOALS AND STRATEGY

Market research during 2003 helped the SWP to craft an outreach strategy targeting program specific conservation messages with less of an emphasis on broad-based awareness and behavior messages. Instead of general encouragement to use less water, outreach efforts informed customers about how to cut back on water use and save money on their utility bills via specific, ongoing program actions.

Campaigns promoting Wash Wise clothes washers on transit busses and improved landscaping via the “Mulch Now Play Later” ads were two examples of program specific marketing that helped to achieve specific water savings targets by encouraging specific customer actions.

2003 PERFORMANCE

Print advertising allowed the Saving Water Partnership messages to be tailored to target specific audiences. Broad based print vehicles such as the Seattle Times, Seattle Post-Intelligencer and King County Journal helped reach a very large market segment for programs like WashWise and Better Way to Beautiful. To reach the highest water users, the SWP ran a series of ads in specialized publications such as Encore, which prints programs for the Seattle Symphony, Opera, Ballet and most area theater companies. Encore’s readership corresponds closely with the region’s high use water demographic.

Broadcast radio was the major venue used in 2003 for broadcast advertising. Ads for specific conservation programs ran on KING FM and KJR FM depending on the target audience. KING FM allowed the Saving Water Partnership to target high water users. KJR allowed the SWP to reach an audience with a high ratio of female listeners, where research has shown tend to make the purchasing decisions when it comes to clothes washers.

Transit provided a new and very successful outreach vehicle through the use of Metro buses to advertise the WashWise program. Bus billboards work best for very simple and easy messages and WashWise was a perfect fit. WashWise billboards ran continuously on Metro busses throughout Seattle and King County most of the year. Verizon Outdoors, the company that manages transit ads for Metro has told the SWP that layout and colors in the ads were among the best they have seen.

The Saving Water Partnership was a major contributor to a **regional campaign** sponsored by the Water Conservation Coalition of Puget Sound. Called “Water Use It Wisely”, the campaign consisted of radio ads running on KIRO, KBSG, KMTT and KNWX in July and August. The theme of the ads dealt with fixing leaks, both indoor and outside.

Savingwater.org web site was the focus of usability testing in 2003. Saving Water Partnership members wanted the web site to be as easy as possible to use no matter the computer and online experience of the user. A third party vendor conducted the usability test with experience in usability testing and web design. The results of the test revealed both strengths and weaknesses in the current web site and will result in a redesign of the site in 2004.

The Saving Water Partnership joined King County and the City of Issaquah to promote water conservation messages during **Issaquah Salmon Days**. The event was held during the first weekend in October and drew nearly a quarter million people. Salmon Days is considered the second largest event of its type in the Seattle metropolitan area and the largest free event held in the Pacific Northwest. Salmon Days was an excellent venue for reaching partnership customers. Bert the Salmon was one of the most popular visitors to the booth and was a hit with both adults and children. To add importance to our messages, the booth was located on the salmon hatchery grounds.

The SWP **water conservation hotline is 684-SAVE** which continued to play an important role providing customers with an additional resource for accessing water conservation information. The Conservation Hotline averaged 192 calls per month for a total of 2,302 calls in 2003.

LOOKING AHEAD IN 2004

Marketing and advertising will continue to focus on program specific recruitment in 2004. The reduction in the number of wholesale customers seeking SWP services will add new challenges for reaching customers in some outlying areas. This will increase the importance of using major mass-market advertising sources such as radio and major newspapers. The partnership will also continue to sponsor regional ads via the Water Conservation Coalition of Puget Sound.

Youth Education

PROGRAM DESCRIPTION

Raising the awareness level of school-based audiences about the need to value and conserve water is the goal of the SWP Youth Education Committee. 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.

2003 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:

- Developing and distributing a revised Saving Water Partnership version of the home conservation kit and five minute shower timer.
- Providing professional development opportunities for school staff.
- Developing, sponsoring and staffing educational booths at children's events.
- Developing and refining on-line activities and information for students and teachers.
- Developing a computer based on-line interactive "Waterbusters" conservation game.
- Airing an ad featuring Bert the Salmon aimed at educating children about water conservation.
- Developing and distributing a new Regional Water System Map.
- Completing an on-line interactive version of the Regional Water System Map.

2003 PERFORMANCE

The number of students and classrooms participating in SWP activities exceeded 2003 targets. Accomplishments included development of a new version of home water savings kits, development of interactive computer educational tools, hosting professional development opportunities, information/activity booths at community events, on-line activities, and child-oriented TV messaging.

Table 14: 2003 Youth Education Resources

Activity	Target	Totals
Conservation kits	5,000	10,000
Posters distributed	1,000	5,000
Water timers distributed	1,000	1,000
Activity books distributed	1,000	3,000

A revised Regional Home Water Saver Kit was produced and distributed. The new version includes a generic information sheet on the water system. In all, over 10,000 kits were distributed to five different school districts in the regional service area, at six event booth giveaways, and at four utility payment centers.

An **on-line interactive "Waterbusters" conservation game** was created featuring Bert the Salmon and his sidekick, Phil Dumpster and featured on the savingwater.org web site. Users earn points as they solve water problems moving from room to room in a virtual home. The goal is to score

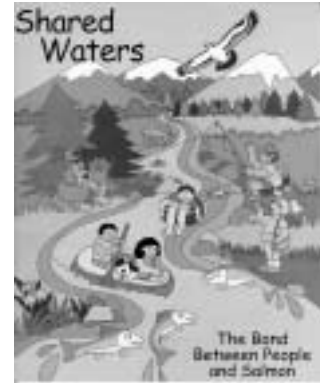
as many points possible before time expires. For those who succeed, awards are given with blue ribbons awarded for most points. Supplemental activities, including a home water audit are included that can be downloaded for immediate use.



Phil Dumpster, Bert the Salmon's bumbling sidekick

A fourth “**Water Matters**” teacher workshop was held in Northshore Utility District, based on the successes of the previous workshops. Twenty-two educators attended and gave positive reviews of the content and usefulness of the workshop.

An **on-line interactive map of the Regional Water System** was completed in 2003, the culmination of several years’ work. The map features pop up descriptions of water system features, virtual tours of the Cedar and Tolt Watersheds, current water quality and water supply data, and links to all purveyor locations. New components include conservation and fish habitat protection information.



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

A **Middle School program** was developed that includes presentations on water supply/conservation, water quality and salmon. Presentations feature regional images, messages and activities and are 50 minutes each in length.

The Saving Water Partnership was involved with the **H2O 2002 Festival, The Sammamish Watershed Festival** and, for the first time, **Issaquah Salmon Days**. Home Water Conservation kits, Regional Water System posters and *Shared Waters* activity books were distributed to children attending the events. An activity center featuring a series of laptop computers at Issaquah Salmon Days allowed visitors try the new Waterbusters game. Bert the Salmon made a guest appearance on both days of the event to underscore the importance of water for fish and people.

A promotional **Bert the Salmon bookmark** was produced and distributed at the events. Bookmarks feature a message to encourage users to play the Waterbusters game as well as a series of conservation tips.

Bert and Phil were also the stars of an **educational cartoon television ad** aired on KCPQ and WB 22, two local television stations with extensive programming for kids. Viewers were encouraged to save water indoors and outdoors. The ad aired from July to September, summer months high youth viewing.

LOOKING AHEAD

Based on the successes of activities developed and introduced this year, the 2004 program will continue to provide programs and resources that meet the needs of school-age youth and teachers in the region. This will include:

- Revising and updating the Youth Education web page.
- Airing the new ad promoting the Waterbusters Conservation game.
- Sponsoring two events for kids.
- Staffing a booth at Issaquah Salmon Days.
- Completing development of presentations for Middle Schools.
- Purchasing conservation kits, and promotional items.
- Development of a revised water conservation activity book.

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, process 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. Process evaluation reviews participant satisfaction, non-participant awareness and barriers, and opportunities for program improvement. Impact evaluation examines program results, accuracy of initial program estimates and service satisfaction.

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.

2003 GOALS AND STRATEGY

Evaluation efforts in 2003 focussed on six major areas to support comprehensive review and improvement of conservation services:

- **Complete the 2002 annual report** of 1% Program savings and accomplishments. A new reporting format will update the two previous efforts: the 2001 Annual Report and the 1990-98 Accomplishments Report.
- **Improve tracking and reporting, and create a comprehensive database** to facilitate regular monitoring and coordination of conservation efforts. Construct a database of purveyor customer data on a voluntary basis (Purveyor Billing and Research Database), and produce quarterly reports on all hardware incentive programs. Enhance data base tools for both wholesale and direct service customers.
- **Implement residential customer surveys to evaluate the largest water saving opportunities:** high water using landscapes and indoor water use (toilet flapper replacement). Responses are key to the design of cost effective measures to reach these targeted customers. A key element of this evaluation in 2003 is end use metering of random homes, followed by surveys of water use behaviors, appliances, and fixtures. The analysis of this monitoring data will be completed in 2004, but 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.
- **Complete a commercial conservation evaluation** incorporating field monitoring of sampled sites to revise saving estimates; regional business survey of conservation awareness and barriers; and participant surveys about service satisfaction. In 2003 an evaluation of the Resource Venture provided needed insights about ways to improve outreach and conservation service delivery to the business community.

- **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 2003, a focus of the evaluation process was the identification of customer barriers to various measures and delivery techniques. Better information will lead to ways to overcome these barriers and thus achieve greater overall adoption of measures.

2003 ACCOMPLISHMENTS

SWP staff and consultants designed and implemented new evaluation tools in 2002 to improve program performance and reporting, including:

- Issued the 2002 Annual Report for the 1% Program, containing more details, descriptive graphics, and an expanded lists of projects and customers.
- Enhanced the Purveyor and Seattle Billing Research Databases (PurvBird and WaterBird) for analysis of purveyor and direct service customer consumption and initiated annual collection of data
- Fielded several targeted surveys for high use customers. Installed indoor usage meters and monitored water use among selected random customers to refine estimates of indoor water use.
- Evaluated the performance of the Resource Venture as a commercial program recruitment tool.
- Upgraded the Conservation Potential Assessment model to make it more user friendly and expand interactive capabilities.
- Conducted a detailed barrier analysis of indoor and outdoor measures.

Residential Sector – Market research was conducted in late 2003 with the primary landscape target audience of high peak water users. The results will be used to inform program efforts in 2004 and beyond. The research focused on obtaining statistically valid survey data about behaviors, barriers and motivations of this key target audience, and to follow up on previous barrier analysis research. This was the first time since 1996 that in-depth research was conducted with this group. Some notable findings from the research include:

- 68% of high peak use residential customers have automatic watering systems. This has increased dramatically from 34% in the 1996 survey.
- Only 9% of those with automatic watering systems correctly answered that such systems “waste a fair amount of water”.
- There was strong recognition of several of the key “Naturals” concepts, such as use of right plant in the right place, and use of mulch. However, reported behaviors did not reflect an accurate understanding of these concepts.
- Many respondents report an interest in obtaining information about gardening practices and identified nurseries, gardening books and landscape professionals as the top three sources for information. There is significant need to educate these customers to address apparent “disconnects” between behavior and intention.

Also in 2003, Northshore Utility District worked with Seattle Public Utilities to conduct a toilet flapper replacement pilot program. This 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 and significant savings potential. Northshore residential customers were asked to check their toilets for leaks and invited to receive replacement flappers for

their toilets at no charge. The response rate was very favorable and will form the basis for full program design and development in 2004.

Commercial Sector – The Resource Venture (RV) is a non-profit affiliate of the Greater Seattle Chamber of Commerce under contract to the Saving Water Partnership and Seattle Public Utilities to provide free technical assistance and conservation information to local businesses. The RV is able to draw upon its Chamber of Commerce connections and business community network to recruit customers for SWP commercial and industrial programs. In 2003, an independent evaluation was conducted to determine the effectiveness of the RV's outreach efforts and improvements to be made in 2004. In general, the vast majority of RV users were satisfied with its services and would recommend the RV to colleagues or other businesses. However, awareness of the RV's services within the business community is fairly low. Future efforts need to focus on strengthening business utilization of RV technical resources.

LOOKING AHEAD

In 2004 the departure of five wholesale customers from the regional conservation program will require program adjustments. In addition to the 2004 Annual Report, a variety of process and impact evaluations will be conducted in the residential and commercial sectors of the 1% Program.

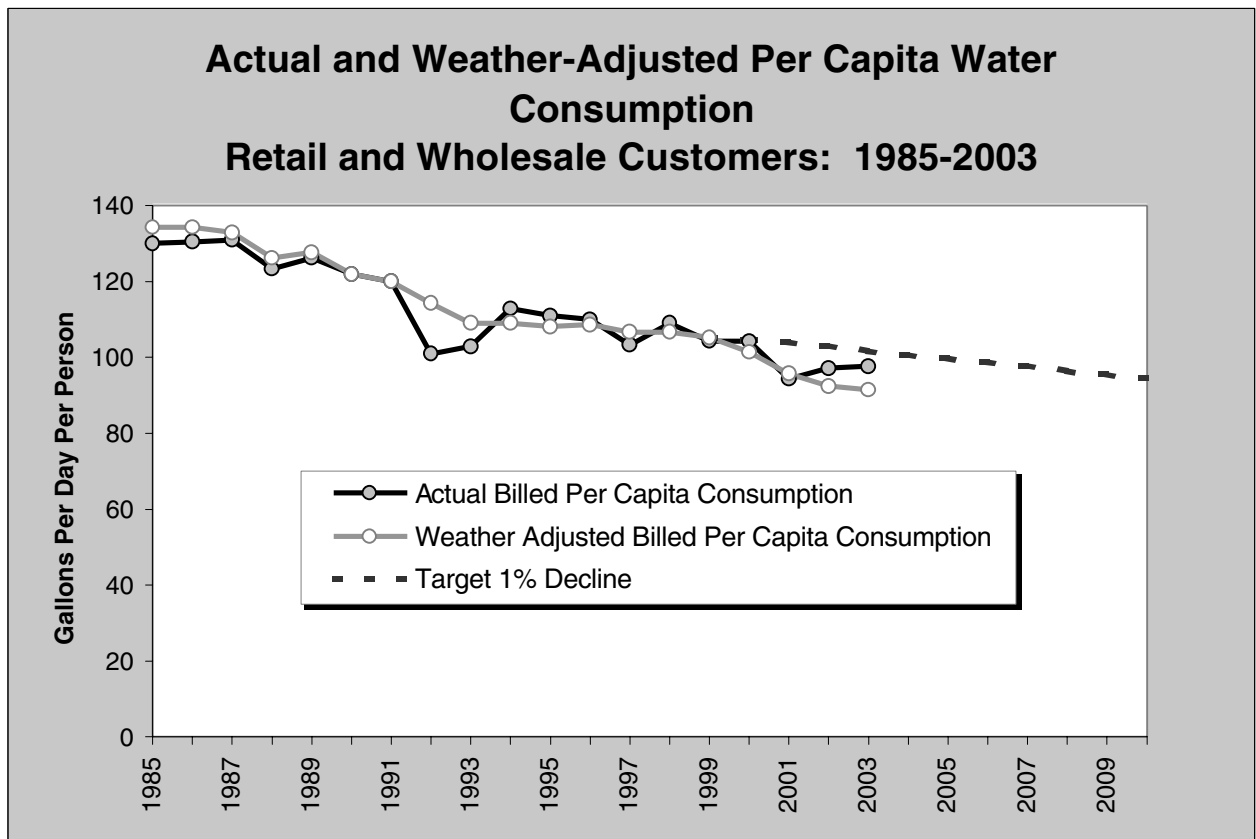
- The Multifamily Toilet Rebate Program will assess customer satisfaction and evaluate savings. For the first time, only toilets meeting a specific list of performance and durability will be rebated. The results of the 2003 flapper replacement pilot will be applied regionally.
- Residential landscape audits and irrigation hardware will be further evaluated to determine persistence of savings, and 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.
- NWNYPD will be evaluated to find out customer awareness of the program.
- Research into overcoming barriers that prevent customers from participating in SWP programs will continue.
- The Water Efficient Irrigation Program will evaluate commercial customer satisfaction and savings from irrigation system upgrades.
- 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 be updated in 2004. The new Conservation Potential Assessment will revise estimates for savings potential and costs based on new research, technology improvements, survey and program data.

4. Consumption Analysis

Historical Data

Chart 5 puts the 2003 Saving Water Partnership's program performance into an historical perspective. Actual billed per capita consumption was slightly higher than 2002, while weather adjusted consumption continued on a downward trend. Adjusting consumption for weather conditions is important because customer water use in the summer months is highly variable depending upon the amount of water used in the landscape. In cool wet summers water use is lower, and in warm dry summers landscape water use can be substantial. The summer of 2003 was warmer than average and customers used more water per capita then they did in 2002.

Chart 5: Regional Per Capita Water Use



However, when actual use is adjusted for the weather, water use would have been expected to be even higher than it was. Actual billed water use would have been lower had 2003 been an “average” or normal weather summer.

Table 15 shows average annual customer consumption for the regional system. 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, this 2003 report has 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 Report with this report.

Table 15: 1% Program Water Consumption Trends

YEAR	Water Sold in Seattle MGD	Water Sold Wholesale MGD	Total Sold MGD	Population Served (millions)	Gallons Per Person per day	Weather Normalized Gallons per Person per day
1998	71	68	139	1.27	109	107
1999	68	66	134	1.30	103	105
2000	69	66	135	1.32	103	101
2001	62	61	123	1.32	93	96
2002	63	64	127	1.33	95	93
2003	62	68	131	1.34	98	92

Total water sold to all customers over the past six years has declined at the rate of 0.96% per year. The regional population served over those six years increased at about 1.16% per year. Variations in weather from year to year can modify water used for irrigation, so normalizing consumption for weather provides a better comparison. Accounting for the increased population and variations in weather over the past six years, the gallons of water used per person per day has declined at an average rate of over 2% per year, well above the 1% per year annual goal for the 1% Program. However, not all of the reduction in water use can be credited to the 1% Program. More than half of the per capita reduction came from increased water rates and rate schedules, and from the water and energy efficient building codes. Although not reflected in the numbers above, good progress has also been made in reducing non-revenue water (water going into the distribution system but not sold to customers) from improvements in wholesale and retail water system operation. Similar to the 1% Program, these other savings factors are included in SPU's water demand forecast.

Table 16 shows a breakdown of where the peak season savings came from in 2003. Savings attributed to the 1% Program are shown in the first two columns shaded in gray. Hardware savings are based on installation of water saving equipment with known and measured savings, and thus these numbers are highly 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 three 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 2003 total savings were 2.3 MGD. Of this total, 0.9 MGD savings came from the 1% Program. As shown, 0.75 MGD of the total savings came from rates and codes. 0.14 came from retrofit work with major low income housing providers in Seattle. However, the low-income program applies only to the City of Seattle, is in addition to and is therefore not credited to nor funded by the regional 1% Program. Also shown in Table 16 are savings due to economic decline related to reduced business output in the manufacturing sector. This was estimated based on statistical analysis of the impact of changes in employment on commercial water consumption over the period 1987 through 2002, and reductions in non-revenue water from leak repair, enhanced metering, and system operations (flushing, etc.).

Table 16: New Peak Season Water Savings Achieved in 2003 (in MGD)

	New Long-Term Customer Savings						Other Savings		Total
	1% Conservation Program		Rates	Code	Seattle Low Income	Total	Economy	System non-revenue	
	Hardware	Behavior							
Residential Indoor	0.348	0	0.1	0.4	0.14	1.0		-	1.0
Residential Landscape	<0.01	0.1	0.1	-	-	.2		-	.2
Commercial Domestic	0.166	0	<0.1	0.1	-	.26		-	.26
Commercial Process	0.201	0	0.05	-	-	.25			.25
Commercial Landscape	0.088	<0.1	<0.1	-	-	.1		-	.1
Other Savings							.1	.4	.5
2003 Total	0.804	0.1	0.25	0.5	0.14	1.8	.1	.4	2.3

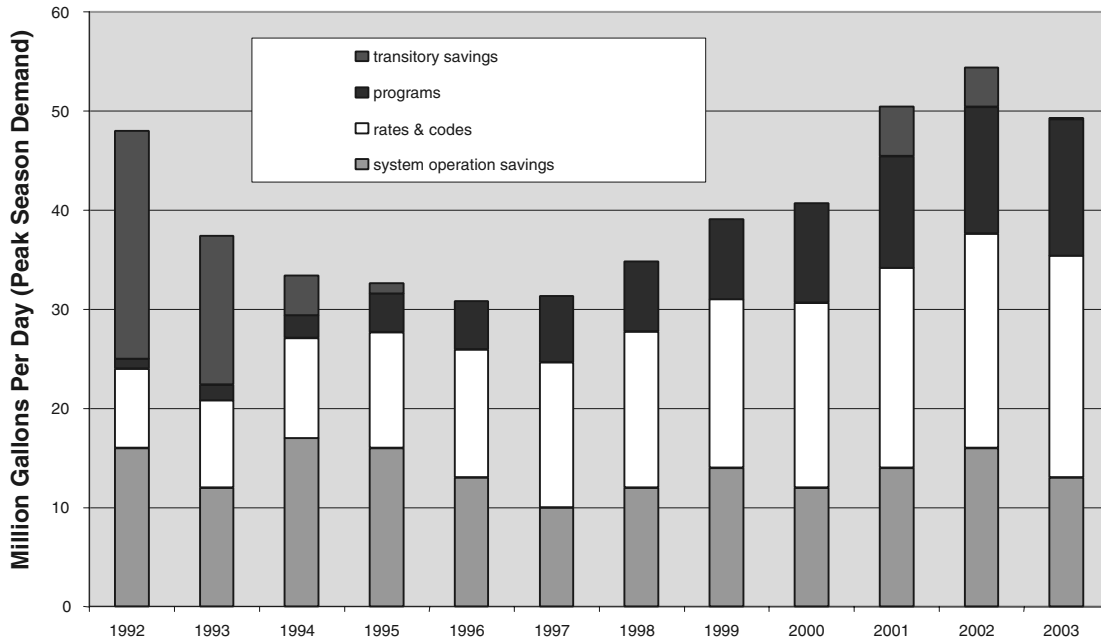
Cumulative Savings

Chart 6 depicts cumulative water savings since the 1992 Drought. Actual “net” savings are smaller than shown here, since an increment of these water savings have been used to meet increased regional water demand. 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 bottom 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. After the initial savings in 1992, system savings have fluctuated from year to year, but average about 12 MGD.

Long-term customer savings including rate and code effects, (the middle two bars) have grown steadily to almost 40 MGD in 2003. Customer savings are derived from specific conservation measures and actions, and also include rate and code savings.

Chart 6: Cumulative Water Savings



The savings breakout in Chart 6 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;
3. 1% Program – see individual program estimates from Section 3 of this report;
4. System – analysis of water operating system use; and
5. Transitory Savings – analysis of post-drought experience.

5. Rebate Program Activity by Water Provider

Tables 17 through 23 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 17: WashWise High Efficiency Clothes Washer Rebates in 2003

Water Provider	Clothes Washer Rebates	Percent of Rebates in 2003	Total Rebates: Program to Date
Cedar River	171	2.1%	701
City of Bellevue	663	8.1%	3,795
City of Bothell	89	1.1%	482
City of Duvall	58	0.7%	244
City of Edmonds	6	0.1%	469
City of Kirkland	294	3.6%	1,557
City of Mercer Island	172	2.1%	915
City of Redmond	393	4.8%	1,774
City of Tukwila	31	0.4%	123
Coal Creek	181	2.2%	711
Highline	200	2.4%	1,065
K.C. #119	22	0.3%	125
K.C. #125	33	0.4%	164
K.C. #20	75	0.9%	383
K.C. #45	5	0.1%	43
K.C. #49	60	0.7%	272
K.C. #85	4	0.0%	52
K.C. #90	118	1.4%	523
Northshore	417	5.1%	1,954
Olympic View	19	0.2%	229
Shoreline	161	2.0%	999
Skyway	41	0.5%	202
Soos Creek	309	3.8%	1,496
SPU	4,363	53.1%	23,123
Woodinville	325	4.0%	1,716
TOTALS	8,210	100.0%	43,117

Table 18: Multi-family Toilet Rebates in 2003

Water Provider	Completed Projects	Total Incentive Dollars	Toilets Rebated	Percent of Incentive Dollars
Cedar River	1	\$2,160	36	0.5%
City of Bellevue	9	\$119,510	1,006	25.1%
City of Bothell	2	\$6,125	59	1.3%
City of Duvall	0			0.0%
City of Kirkland	4	\$8,440	115	1.8%
City of Mercer Island	0			0.0%
City of Redmond	4	\$27,185	413	5.7%
City of Tukwila	0			0.0%
Coal Creek	0			0.0%
Highline	9	\$18,435	287	3.9%
K.C. #119	0			0.0%
K.C. #125	1	\$10,125	81	2.1%
K.C. #20	0			0.0%
K.C. #45	2	\$3,240	47	0.7%
K.C. #49	3	\$2,250	33	0.5%
Northshore	15	\$39,655	490	8.3%
Olympic View	1	\$1,320	22	0.3%
Shoreline	2	\$2,100	35	0.4%
Skyway	1	\$480	8	0.1%
Soos Creek	1	\$240	4	0.1%
SPU	188	\$231,241	3,636	48.6%
Woodinville	2	\$3,105	29	0.7%
TOTALS	245	\$475,611	6,301	100.0%

Table 19: Water Efficient Irrigation Residential Rebates in 2003

Water Utility	Rebate Measures	Rain Sensor	Tune-Up Signed
Seattle Public Utilities		Rain Sensor	
Seattle Public Utilities		Rain Sensor	Yes
City of Bellevue		Rain Sensor	Yes
City of Bellevue		Rain Sensor	Yes
City of Bellevue		Rain Sensor	Yes
City of Bellevue	Cons. Controller	Rain Sensor	Yes
City of Bellevue		Rain Sensor	
City of Bellevue		Rain Sensor	Yes
City of Bellevue		Rain Sensor	Yes
City of Bellevue	Cons. Controller	Rain Sensor	Yes
City of Bellevue		Rain Sensor	Yes
City of Duvall	Cons. Controller	Rain Sensor	Yes
City of Redmond		Rain Sensor	
King County Water District No. 90	Cons. Controller	Rain Sensor	Yes
King County Water District No. 90	Cons. Controller	Rain Sensor	Yes
King County Water District No. 90		Rain Sensor	Yes
King County Water District No. 90		Rain Sensor	Yes
Northshore Utility District	Cons. Controller	Rain Sensor	Yes
Olympic View Water & Sewer District	ET Controller	Rain Sensor	Yes
Seattle Public Utilities	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	Cons. Controller		Yes
Seattle Public Utilities		Rain Sensor	Yes
Seattle Public Utilities		Rain Sensor	Yes
Seattle Public Utilities		Rain Sensor	Yes
Seattle Public Utilities	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	ET Controller	Rain Sensor	Yes
Seattle Public Utilities		Rain Sensor	Yes
Seattle Public Utilities		Rain Sensor	Yes
Seattle Public Utilities	Cons. Controller		Yes
Seattle Public Utilities		Rain Sensor	Yes
Seattle Public Utilities	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	Cons. Controller		Yes
Seattle Public Utilities		Rain Sensor	Yes
Seattle Public Utilities		Rain Sensor	Yes
Seattle Public Utilities	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities		Rain Sensor	Yes
Seattle Public Utilities	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	Cons. Controller		Yes
Seattle Public Utilities		Rain Sensor	Yes
Seattle Public Utilities	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	Cons. Controller	Rain Sensor	Yes
Seattle Public Utilities	ET Controller	Rain Sensor	Yes
Seattle Public Utilities	Cons. Controller	Rain Sensor	Yes
Woodinville Water District		Rain Sensor	Yes

Table 19 (continued): Water Efficient Irrigation Residential Rebates in 2003

Water Utility	Rebate Measures	Rain Sensor	Tune-Up Signed
Woodinville Water District		Rain Sensor	Yes
Woodinville Water District	Cons. Controller	Rain Sensor	Yes
Woodinville Water District		Rain Sensor	Yes
Woodinville Water District	Cons. Controller	Rain Sensor	Yes
Woodinville Water District	ET Controller	Rain Sensor	Yes
Woodinville Water District	Cons. Controller		Yes
Woodinville Water District		Rain Sensor	Yes
Woodinville Water District	Cons. Controller		Yes

* 6-zone conservation controller

** 12-zone ET (evapo-transpiration) controller

Table 20: NW Natural Yard Days Sales Data 2003

Sales Items	Store Sales 2001	2002 Event & Store Sales	2003 Event & Store Sales	Total Increase
Electric Mowers	447	1,966	2,114	148
Push Mowers	246	811	* 325	- 486
Bags of Compost	14,496	41,039	65,215	24,176
Weed Puller	1,027	2,189	2,454	265
Soaker Hoses	632	2,073	2,076	3
Insecticidal Soap	163	799	1,963	1,164
Water Timers	343	1,077	624	- 453
Bags of Organic Fertilizer	2,019	3,849	3,544	- 305
Rain Barrels	0	100	** 0	- 100
Overall Items Sold	19,373	53,903	78,315	24,412

* Home Depot and Lowe's did not discount push mowers in 2003

** Rain barrels were not sold by an independent vendor in 2003

Note: In 2003 Northwest Natural Yard Days (NWNVD) was a collaboration of the Saving Water Partnership, KC Solid Waste, KC Hazardous Waste, the City of Tacoma, Puget Sound Clean Air Agency, Washington State Department of Ecology and a number of suburban cities to promote sales of natural yard care products. The promotion consisted of fourteen special sales events (with deeper discounts) and a full month of regular in-store discount sales at 30 hardware stores and home improvement centers in King and Pierce Counties.

Table 21: Water Efficient Irrigation Commercial Audits in 2003

Water Provider	Name of Business/Company	Facility_Name
Cedar River Water & Sewer District	CDC Management	Red Mill 1
Cedar River Water & Sewer District	Allied Group	Fairwood Apartments
Cedar River Water & Sewer District	Tahoma National Cemetery	Tahoma National Cemetery
Cedar River Water & Sewer District	Sherron Associates	Fairwood Landing
Cedar River Water & Sewer District	Morris Management	Molasses Creek Condominiums
City of Bellevue	Equity Residential Property Management	Bellevue Meadows
City of Bellevue	Lakes South Apartments	Lakes South Apartments
City of Bellevue	Allied Group	Cascadian Apartments
City of Bellevue	Allied Group	Somerset Gardens
City of Bothell	Equity Residential Property Management	North Creek Heights
City of Mercer Island	City of Mercer Island	Park on the Lid
City of Redmond	Equity Residential Property Management	Gates of Redmond Apartments
City of Redmond	Equity Residential Property Management	Olde Redmond Place Apartments
City of Redmond	Allied Group	Village at Overlake Station
City of Tukwila	Washington Holdings	Southcenter Corporate Square
City of Tukwila	GVA Kidder Mathews	Southcenter South Industrial Park
City of Tukwila	Equity Residential Property Management	Newport Heights Apartments
Coal Creek Utility District	Archstone Communities	Newport Crossing
Coal Creek Utility District	City of Newcastle	Lake Boren Park
Coal Creek Utility District	HSC Real Estate	Parterra at Newcastle
Coal Creek Utility District	City of Newcastle	Highlands Parks
Coal Creek Utility District	Kappes Miller Management	Olympic Ridge Townhomes
Highline Water District	GVA Kidder Mathews	Airport Commerce Center
King County Water District No. 49	Highline School District 401	Sunnydale Elementary
Northshore Utility District	Kirkland Springs Apartments	Kirkland Springs Apartments
Northshore Utility District	First Wellington Corporation	Ivorywood Apartment
Northshore Utility District	Springbrook Condominium Association	Springbrook Condominiums
Northshore Utility District	Equity Residential Property Management	Woodlake Apartments
Northshore Utility District	Griffin Properties	Griffin Apartments
Olympic View Water & Sewer District	Edmonds School District	Old Woodway High School
Olympic View Water & Sewer District	Edmonds School District	Madrona School K-8
Seattle Public Utilities	Low Income Housing Institute	Low Income Housing Institute
Seattle Public Utilities	Greenwood Home	Greenwood Home
Seattle Public Utilities	Hanna Co.	Hilcon Apartments
Seattle Public Utilities	Lorig Management	Wallingford Center
Seattle Public Utilities	Hope Lutheran Church	Hope Lutheran Church
Seattle Public Utilities	802 Newton Condominiums	802 Newton Condominiums
Seattle Public Utilities	Sherron Associates	Mt. Constance View Apt.
Seattle Public Utilities	Lorig Management	Lake City Professional Center
Soos Creek Water & Sewer District	Palm Court Homeowners Association	Palm Court Townhomes
Woodinville Water District	Equity Residential Property Management	Edgewood Apartments
Woodinville Water District	TRF Management Corporation	Downtown Woodinville LLC
Woodinville Water District	Woodland Hills Homeowners Association	Woodland Hills Condominiums
Woodinville Water District	Wilcoxon Properties	Woodinville West
Woodinville Water District	Cascade Ridge HOA	Cascade Ridge
Woodinville Water District	GVA Kidder Mathews	Greenbaum Building

Table 22: Water Efficient Irrigation Commercial Incentives in 2003

Water Provider	Business/Company	Facility Name	Estimated Savings (GPD)	Install Rain Sensor	Irrigation Scheduling	Maintenance of Turf	Irrigation System Performance	Low Water Use Plants	Weather Based Controller
City of Bellevue	Equity Residential Property Management	Bellevue Meadows	1170	YES	YES	YES	YES		
City of Bellevue	Pinnacle HOA	Pinnacle HOA	214				YES		YES
City of Bellevue	Equity Residential Property Management	Surrey Downs	1349	YES	YES	YES	YES	YES	
City of Bothell	Equity Residential Property Management	North Creek Heights	2372	YES	YES		YES		
City of Bothell	SUHRCO Residential Properties	Woodinview Condominium	588	YES					
City of Redmond	Equity Residential Property Management	Olde Redmond Place Apartments	5038	YES	YES		YES		
City of Redmond	Avignon Townhomes	Avignon	1541	YES					
City of Redmond	Equity Residential Property Management	Gates of Redmond Apartments	818	YES	YES		YES		
City of Tukwila	Equity Residential Property Management	Newport Heights Apartments	535	YES	YES		YES		
Coal Creek Utility District	Bentall Capital	Newport Corporate Center	2090	YES					YES
Northshore Utility District	Equity Residential Property Management	Woodlake Apartments	3090	YES	YES		YES		
Northshore Utility District	SUHRCO Residential Properties	Chadwick Farms Condominiums	674	YES					
Northshore Utility District	SUHRCO Residential Properties	Enclave at Stratford Lane	781	YES					
Olympic View Water & Sewer District	Equity Residential Property Management	Firdale Village	9760	YES	YES		YES		
Seattle Public Utilities	Seattle University	Championship Field	656	YES	YES		YES		YES
Seattle Public Utilities	Seattle University	Administration Building	656	YES	YES		YES		YES
Seattle Public Utilities	University of Washington	Meany Hall	921		YES		YES		YES
Seattle Public Utilities	City of Seattle Parks and Recreation	Green Lake Park & Playfield (NC)	11900		YES		YES		YES
Seattle Public Utilities	Seattle University	Chapel of St. Ignatius	656	YES	YES		YES		YES

Table 22 (continued): Water Efficient Irrigation Commercial Incentives in 2003

Water Provider	Business/Company	Facility Name	Estimated Savings (GPD)	Install Rain Sensor	Irrigation Scheduling	Maintenance of Turf	Irrigation System Performance	Low Water Use Plants	Weather Based Controller
Seattle Public Utilities	Seattle University	Piggott Building and Union Green	656	YES	YES		YES		YES
Seattle Public Utilities	Fred Hutchinson Cancer Research Ctr	Fred Hutchinson Cancer Research Ctr	645	YES					
Seattle Public Utilities	Seattle University	Archbishop Murphy Apartments	656	YES	YES		YES		YES
Seattle Public Utilities	Seattle University	Logan Field	0	YES	YES		YES		YES
Seattle Public Utilities	Royal Richmond Condominium Association	Royal Richmond Condominiums	62	YES					
Seattle Public Utilities	Fred Hutchinson Cancer Research Ctr	Fred Hutchinson Cancer Research Ctr	512						
Seattle Public Utilities	Charthouse Condos	Charthous Condos	0				YES		
Seattle Public Utilities	St. Charles Place Condominiums	St. Charles Place Condominiums	318	YES			YES		
Seattle Public Utilities	Seattle University	Services Building and Sullivan Law School	656	YES	YES		YES		
Soos Creek Water & Sewer District	Equity Residential Property Management	Indigo Springs Apartments	2231	YES	YES		YES		
Woodinville Water District	SCH Properties	SCH Properties	31	YES					
Woodinville Water District	Equity Residential Property Management	Edgewood Apartments	973	YES	YES		YES		

Table 23: Water Smart Technology Incentives in 2003

Utility	Name of Business/Company	Facility Name	Measure Group Type	Final Savings (GPD)
City of Bellevue	Bellevue Community College	Bellevue Community College	Bathroom	1000
City of Bellevue	Jones Lang LaSalle	Bank of America	Cooling/Refrigeration/Ice	5123
City of Bellevue	Nickols Realty L.L.C.	N-144	Bathroom	120
City of Bellevue	Plaza 520	Plaza 520	Bathroom	178
City of Bothell	Power Cleaners, Inc	Laundry Basket, The	Washers	576
City of Kirkland	Kirkland Park Place	Kirkland Cinemas	Cooling/Refrigeration/Ice	600
City of Kirkland	Lake Washington Technical College	Lake Washington Technical College	Bathroom	1063
City of Kirkland	Northstream Properties, Inc.	Rose Hill	Bathroom	50
City of Kirkland	Northstream Properties, Inc.	Houghton Plaza LLC	Bathroom	200
City of Kirkland	Northstream Properties, Inc.	Northstream Building	Bathroom	150
City of Kirkland	Northstream Properties, Inc.	D.A.M. Properties, Inc.	Bathroom	50
City of Redmond	70th Center	70th Center	Bathroom	150
City of Redmond	Overlake Christian Church	Overlake Christian Church	Bathroom	150
City of Tukwila	Northstream Properties, Inc.	Fosteria Park	Bathroom	400
Highline Water District	LSG Sky Chefs	LSG Sky Chefs	Cooling/Refrigeration/Ice	3000
King County Water District No. 20	Smokey's Inc.	Smokey's Inc.	Cooling/Refrigeration/Ice	175
Northshore Utility District	Evergreen Park NW	Evergreen Park NW	Bathroom	285
Seattle Public Utilities	9709 Third Avenue Investors	Northgate Plaza Building	Bathroom	1275
Seattle Public Utilities	Bacchus Restaurant	Bacchus Restaurant	Cooling/Refrigeration/Ice	300
Seattle Public Utilities	City of Seattle - Seattle Center	Marion Oliver McCaw Hall	Bathroom	450
Seattle Public Utilities	City of Seattle Parks and Recreation	Arboretum - Japanese Garden	Custom Projects	13698
Seattle Public Utilities	City Team Ministries	City Team Ministries	Washers	300

Table 23 (continued): Water Smart Technology Incentives in 2003

Utility	Name of Business/Company	Facility Name	Measure Group Type	Final Savings (GPD)
Seattle Public Utilities	College Inn Pub	College Inn Pub	Cooling/Refrigeration/Ice	250
Seattle Public Utilities	Cushman & Wakefield	Key Tower	Bathroom	7900
Seattle Public Utilities	D-S Car Wash Inc.	Aurora Village BP	Custom Projects	2423
Seattle Public Utilities	DeLaurenti Speciality Food & Wine	DeLaurenti Speciality Food & Wine	Cooling/Refrigeration/Ice	5000
Seattle Public Utilities	Dragonfish Café	Dragonfish Café	Cooling/Refrigeration/Ice	800
Seattle Public Utilities	General Recycling of Washington	General Recycling of Washington	Custom Projects	4631
Seattle Public Utilities	Kidd Valley Restaurant	Kidd Valley Restaurant	Cooling/Refrigeration/Ice	400
Seattle Public Utilities	Kindred Hospital Seattle	Kindred Hospital Seattle	Bathroom	1750
Seattle Public Utilities	King County Administration	Administration Building	Custom Projects	8000
Seattle Public Utilities	King County Courthouse	King County Courthouse	Custom Projects	25000
Seattle Public Utilities	King County Facilities	King County Facilities	Bathroom	21200
Seattle Public Utilities	Lombardi's Restaurant	Lombardi's Restaurant	Cooling/Refrigeration/Ice	425
Seattle Public Utilities	Martin Smith Real Estate Services	Occidental Mall	Bathroom	960
Seattle Public Utilities	Martin Smith Real Estate Services	83 King Building	Bathroom	1920
Seattle Public Utilities	Metropolitan Grill	Metropolitan Grill	Cooling/Refrigeration/Ice	1800
Seattle Public Utilities	Our Redeemer Lutheran Church	Our Redeemer's Lutheran Church	Bathroom	195
Seattle Public Utilities	Photographic Center School	Photographic Center School	Custom Projects	674
Seattle Public Utilities	Pinnacle Realty Management	Dexter Horton Building	Cooling/Refrigeration/Ice	1200
Seattle Public Utilities	Puget Sound Blood Center	Puget Sound Blood Center	Bathroom	1200
Seattle Public Utilities	Qwest Communications	Bell Plaza	Bathroom	8302
Seattle Public Utilities	Rainier Avenue Cleaners	Polar Cleaners	Washers	864

Table 23 (continued): Water Smart Technology Incentives in 2003

Utility	Name of Business/Company	Facility Name	Measure Group Type	Final Savings (GPD)
Seattle Public Utilities	Ray's Boathouse	Ray's Boathouse	Cooling/Refrigeration/Ice	1000
Seattle Public Utilities	Residence Inn by Marriott	Residence Inn by Marriott-Lake Union	Laundry Systems	1438
Seattle Public Utilities	Seattle Central Community College	Seattle Central Community College-Campus Wide	Bathroom	5184
Seattle Public Utilities	Seattle University	SU - Multi-facility	Bathroom	2575
Seattle Public Utilities	Seattle University	Bellarmine Resident Hall	Bathroom	1879
Seattle Public Utilities	Swedish Medical Center	Swedish Medical Center/all sites	Custom Projects	46000
Seattle Public Utilities	Swedish Medical Center/Ballard	Swedish Medical Center/Ballard	Cooling/Refrigeration/Ice	3211
Seattle Public Utilities	Swedish Medical Center/Main Campus	Swedish Medical Center/Main	Cooling/Refrigeration/Ice	2000
Seattle Public Utilities	Trident Seafoods	Trident Seafoods Bread & Batter Plant	Custom Projects	3000
Seattle Public Utilities	University of Washington	Balmer Hall	Bathroom	4000
Seattle Public Utilities	University of Washington	Haggett Hall Dormitory	Bathroom	600
Seattle Public Utilities	University of Washington	UW - Multi-facility	Bathroom	25000
Seattle Public Utilities	University of Washington	UW - Multi-facility	Custom Projects	42000
Seattle Public Utilities	University of Washington	Magnuson Health Science Center	Custom Projects	7500
Seattle Public Utilities	V A Medical Center	V A Medical Center	Custom Projects	3800
Seattle Public Utilities	Virginia Mason Medical Center	Virginia Mason Buck Pavilion	Bathroom	5492
Seattle Public Utilities	West Seattle Admiral Laundry	West Seattle Admiral Laundry	Washers	1152

Select Commercial Project Descriptions

Aurora Village BP, Shoreline - Car Wash

The project installed a car wash water reclaim system. The project site encompasses two gas pump islands, a convenience store, a three-bay auto service shop, and a “hands-free” car wash housed in it’s own stand alone building. A Panametrics ultra-sonic data-logger was installed to measure water flow to the car wash. A second meter was installed by Michael Laurie of Watershed, a consultant to the Business and Industry Resource Venture, for the purposes of cross verification of meter accuracy. Water flow was recorded for 9 days. Daily car wash totals were calculated at 128 cars washed using an average of 27 gallons per car. This amounted to 3,462 GPD daily average.

The estimate for savings on a reclaim system is 70% or about 19 gallons per car. Using 128 as a daily average number of cars washed will yield 2,432 GPD of savings. Savings will be easily verified utilizing the sites regular water meter, and/or using the sonic meter for post project analysis.

Bank of America, Bellevue - Water Cooled Air-Conditioning

Seattle Public Utilities Resource Conservation staff has reviewed this project over many years. The project proposal involves replacement of a water-cooled condenser providing air conditioning to a two-story branch bank building of approximately 15,000 square feet with a rooftop mounted air-cooled condenser. The existing water-cooled air conditioning system is submetered. Water use as recorded over approximately five cooling seasons totaled 12,281 CCF. The annual average then is close to 2,500 CCF. All of this water use will be eliminated with the completion of this project.

Equity Residential Properties, Ten Locations - Irrigation

In 2002 and 2003, WEIP audited twelve Equity Residential Properties that resulted in ten projects in eight purveyor areas. Most of the projects consisted of removing irrigation heads, upgrading controllers and adding rain sensors. The estimated amount of water saved is over 27,000 gallons per day or 13,175 CCF annually; more than a quarter of the 2003 annual water savings goal for WEIP.

Fred Hutchinson Cancer Research Center, Seattle - Irrigation

The research center continued to expand in 2003, adding three more buildings to its South Lake Union campus. The campus is located over a sizable groundwater source, requiring each of the buildings to pump water 24 hours a day, 365 days per year from large storage vaults in the basements out to Lake Union. This unique feature of the campus presented the facilities engineers with an opportunity to access ground water to irrigate their new landscapes. Working with the Washington State Department of Ecology, the facility was approved to use ground water for irrigation. The estimated water savings for this project is over 500 GPD or 1024 CCF per year.

Lake Union Residence Inn, Seattle - Ozone Laundry System

The Seattle Lake Union Residence Inn is an existing downtown Marriott owned Seattle hotel. The facility has 234 hotel rooms with an average annual occupancy of 55%. The in-house laundry processes approximately 0.75 millions pounds of laundry in a year. This in one of many facilities that have made the decision to install an ozone laundry system. The potential savings in hot and cold water, chemical, linen replacement, and labor are compelling and offer an extremely good return on investment.

Nucor Steel Mill, Seattle - Steel Scrapyard

This has been a targeted project for many years, as historical records demonstrate the site has been a large consumer of water during peak season. The project site encompasses 18 total acres bordering the Duwamish River, with 12 acres within the project site drainage basin. The site functions as storage and a sorting yard for recycled metal. This material, once sorted, is transported to the Nucor Steel Mill (formally Birmingham Steel) to be used as raw material for the manufacturing of new steel products. Because of the high potential for dust formation, especially when the material is being moved during dry conditions, the site is required by regulation to perform dust control. Dust control has historically been achieved with what amounts to an irrigation system. Spray heads are distributed around the material and kept watered as is necessary to minimize any dust migration off site. The water source for this activity has been SPU delivered potable water. Any runoff has to be subsequently treated before discharge is allowed into the Duwamish River.

A water recycling system was installed that captures stormwater and dust control runoff, stores this water in six (6) 20,000 gallon tanks, and reuses this water for ongoing dust control on the site. It is expected to reduce potable water use by close to 50% based on historical water use records, total drainage area, storage capacity, and typical rainfall patterns throughout the year.

Seattle University, Seattle - Irrigation

The highly landscaped Seattle University campus in Capitol Hill completed 11 irrigation incentive projects in 2003. The entire campus irrigation system was upgraded with a new central control system, added flow sensors and rain shut-offs components to save an estimated 6060 GPD or almost 3000 CCF per year of irrigation water.

Swedish Medical Center, Seattle - All Campus Sterilizer Retrofit

This project proposal has greatly benefited from the momentum generated by the University of Washington's research and evaluation into sterilizer use and water conservation, and their product evaluation conducted on all available conservation technologies. Swedish Medical Center recognized the opportunity to save significant quantities of water and money off their water and sewer bills.

Like the UW, there has been some metering of individual sterilizers, though not to the extent of the total number UW metered. Swedish did select the product that received the highest ratings in the UW evaluation; ratings achieved through advantages in unit cost, performance, ease of installation, and maintenance. With the retrofit of all campus sterilizers, Swedish Medical Center will reduce their water and sewer costs up to an estimated \$200,000 per year.

Trident Seafoods, Seattle - Microwave Oven Cooling System

The project involves a microwave oven cooling system that uses once through potable water for cooling. Operating time has been estimated at 8 hours/day, 13 days per month. Use tends to be somewhat sporadic however, so the annual estimate for daily savings is being conservatively calculated at expected use during a low business cycle. With the conversion to an air-cooled system, the plant will reduce water and sewer costs, and should be able to lower their sewer strength charges from King County.

Veterans Administration (VA) Hospital, Seattle - Dishwasher

A VA Hospital project engineer submitted a WST application for a proposed project to install a new water efficient conveyor type dishwasher serving the main dietetics kitchen. The existing dishwasher was outfitted with in-line water meters, cold and hot lines, provided by Seattle Public Utilities Resource Conservation staff. Installation was performed in house by VA Hospital staff. Meters are $\frac{3}{4}$ inch cubic feet meters manufactured by Metron out of Boulder, CO. Average daily use came in at just below 5,000 GPD.

The customer determined that the existing machine operates four hours per day. The new machine will operate a like number of hours, as capacity is equal to the existing machine. Water use is rated at 198 gallon/hour plus rinsing. Savings should be in the 4,000 GPD range and is conservatively estimated at 3,800 GPD. Customer will also benefit from energy savings, as nearly all metered water use was hot water coming in at over 140 degrees. The meters currently on the existing machines will be left to record meter use on the new machine for evaluation and verification purposes.

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