

# ***Regional 1% Water Conservation Program 2002 Annual Report***

March 2003



***Saving Water Partnership***  
*A service of your local water utility*

# ***Regional 1% Water Conservation Program 2002 Annual Report***

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## 1. SUMMARY OF 2002

The regional 1% Water Conservation Program (1% Program) sponsored by the Saving Water Partnership (SWP) brought new programs on line, established new program directions, and exceeded water savings targets for 2002. For several program components, 2002 efforts represented a major expansion from 1% Program implementation to date. New elements such as rebates for multifamily toilets and retailer discounts for natural yard care products were designed and implemented, while increased promotion of mature programs such as Wash Wise and Water Smart Technology produced significant customer participation and savings. A variety of program development efforts are contributing to program direction for 2003 and beyond.

The 2001 drought and water use curtailment messages produced a significant carry-over effect on 2002 regional water consumption. In addition, Seattle Public Utilities (SPU) experienced a revenue shortfall as a result of the drought, which impacted 2002 1% Program implementation. Low regional water consumption and customers' continuing high awareness of both curtailment and conservation messages enabled the program to de-emphasize overall conservation messages compared to prior years. In November and December of 2002, water shortage conditions occurred again, garnering media attention on curtailment and conservation messages at no cost to the 1% Program. The added media attention provided a boost to 1% Program behavioral savings.

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 conservation behaviors and equipment replacement that produced 1.2 million gallons per day (MGD) in new long-term savings, surpassing 2002 targets by 8%, but 29% below the ten-year average annual savings target of 1.7 MGD. 0.5 MGD of these conservation savings were from new fixtures and equipment. The remaining 0.7 MGD were generated by new permanent conservation behaviors. Carry-over from the 2001 drought curtailment efforts, combined with the impacts of an economic downturn that affected commercial water use, produced an estimated 4 MGD of transitory savings that are expected to erode over the next few years. Of the 4 MGD, 2.3 MGD is estimated to be drought carry-over, which is roughly the amount that was expected, while 1.7 MGD is estimated to be the impact of the economic downturn. Non-1% Program savings included an additional 1.25 MGD from the impacts of water rates and plumbing codes (predicted in existing demand forecasts).

### ***The Regional 1% Program***

This report reviews annual progress of the regional 1% Program. For this review, the 'region' refers to all customers served by the Seattle Public Utilities (SPU) water supply system. Twenty-six local water providers initiated the regional 1% Water Conservation Program in 2000, targeting water conservation savings of 1% per capita per year through 2010, for a total savings goal of 18 MGD. The regional program includes expansion of existing programs and development of new cost-effective conservation programs from measures identified in the 1998 regional *Conservation Potential Assessment*.<sup>1</sup> Section 2 of this report reviews the short and long-term program design for the 1% Program. A *Ten Year Water Conservation Program Plan*<sup>2</sup> was completed in 2002, detailing program budgets, savings targets and implementation strategies through 2010.

## 2002 Goals and Strategies

The 2002 1% savings goal was 1.12 MGD. This goal was lower than 2001, reflecting lower available funding following the 2001 drought. Average annual targets for subsequent years are expected to be near 1.7 MGD and provide 18 MGD in total program water savings by 2010. Annual budgets and targets are included in the *Ten Year Water Conservation Program Plan*<sup>3</sup>.

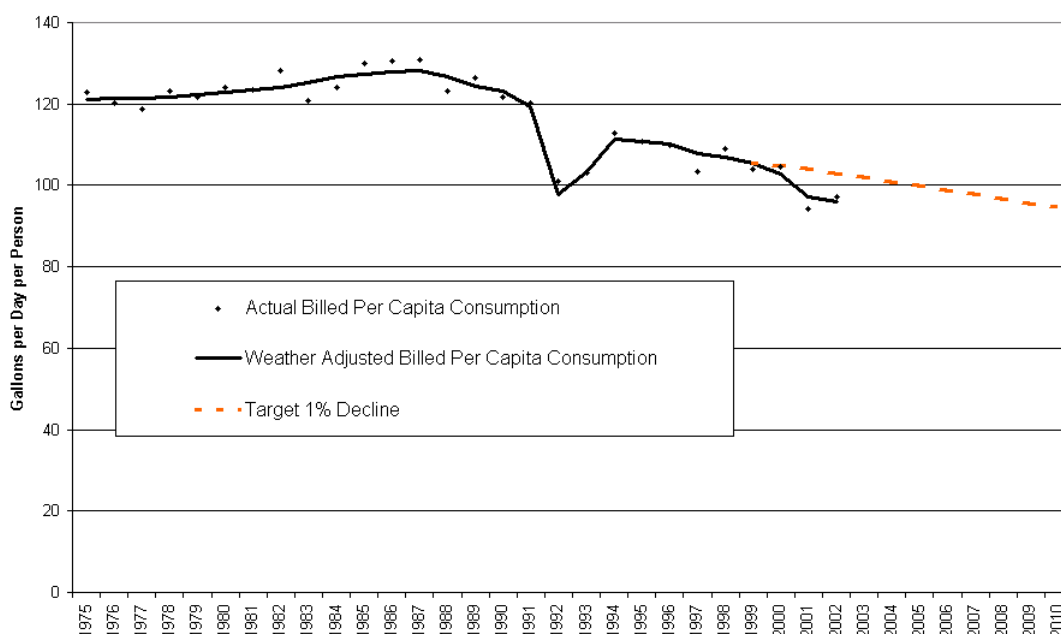
The 1% Program fixture and equipment rebate programs for residential and commercial customers were designed to expand on previous success with residential washing machines and with a variety of commercial fixtures and technologies. In addition the 1% Program undertook development of new residential multifamily toilet rebates and residential landscape audits and irrigation hardware testing. 1% Program outreach and technical assistance was focussed on delivering permanent behavior changes. Specific sector goals for conservation efforts are presented in Table 2.

Marketing strategies to increase rebates and long-term conservation behaviors 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. Customer research showed high recall of the water shortage messages of 2001, so overall messaging efforts to reinforce the 'conservation ethic' were reduced compared to 2000 and 2001. Instead, advertising focused primarily on attracting participation in specific rebate promotions and behavioral practices.

## 2002 1% Program Performance

Water use for 2002 was significantly below the original 1% Program target set in 1999, due to a combination of factors. According to initial modeling and analysis, weather-adjusted per capita water use was about 7% below the 1% Program target for 2002. Chart 1 shows how weather and the 1% Program have affected per capita use. The carry-over of drought curtailment impacts from 2001 and continuing economic slowdown have contributed a large share to the reduced water use. A more detailed description of Chart 1 is provided in Section 4, page 37.

**Chart 1: Regional Per Capita Customer Use**



New water savings achieved in 2002 include long-term savings and transitory, or temporary savings. **Long-term** savings include both the direct and indirect impacts from incentives, education and promotion of the 1% Program – these savings are the focus of this report. Long-term savings also include savings that would come from higher water rates and plumbing fixture codes. All long-term savings are included in SPU's demand forecast, whereas transitory savings are not. **Transitory** savings come from above-normal system (non-revenue) savings and from temporary drought curtailment actions, as well as from the 2002 slowing of economic activity in the regional service area. Table 1 below provides estimates for long-term and transitory savings from 2002, with more detailed analysis provided in Chapter 4.

**Table 1: New Water Savings Achieved in 2002 (MGD)**

	New Long-Term Customer Savings						Transitory Savings			Total <sup>6</sup>
	1% Conservation Program		Rates	Code	Seattle Low Income <sup>3</sup>	Total	Curtailment & Economy <sup>4</sup>	System	Total	
	Hardware <sup>2</sup>	Behavior								
Residential Indoor <sup>1</sup>	0.29	0.1	0.3	0.5	0.3	1.5	0.7	-	0.7	2.1
Residential Landscape	<0.01	0.3	0.1	-	-	0.4	0.6	-	0.6	1.0
Commercial Domestic	0.04	0.2	0.0	0.3	-	0.5	0.9	-	0.9	1.4
Commercial Process	0.15	0.1	0.1	-	-	0.4	1.6	-	1.6	2.0
Commercial Landscape <sup>1</sup>	0.01	<0.1	<0.1	-	-	0.1	0.2	-	0.2	0.3
2002 Total <sup>7</sup>	0.5	0.7	0.5	0.8	0.3	2.8	4.0 <sup>5</sup>	2.0	6.0	8.8

<sup>1</sup>Includes Multifamily

<sup>2</sup>Savings from fixture replacement and equipment upgrade programs can be measured with greater precision than other sources of savings in this table.

<sup>3</sup>Seattle low-income savings are separate from and in addition to the 1% Program as required by Seattle Ordinance 120532. These savings resulted from toilet retrofits completed in low-income housing in 2002.

<sup>4</sup>Includes impact of curtailment carry-over from 2001 drought (2.3 MGD) and temporarily depressed economic conditions (1.7 MGD) in 2002.

<sup>5</sup>4.0 MGD in 2002 indicates that 1 MGD of the 2001 transitory savings has eroded and that 4 MGD of transitory savings are still expected to erode as time passes.

<sup>6</sup>Savings are weather-adjusted from 2002 forecast.

<sup>7</sup>Some totals may not add due to rounding.

Long-term savings remain slightly ahead of target in relation to the 10 year 1% Program plan. However, savings are below the average annual target of 1.7 MGD and will need to be made up in later years as shown in the *Ten Year Water Conservation Program Plan*<sup>4</sup>. Table 1 shows the transitory savings that occurred in 2002, and that the 5 MGD of curtailment savings from 2001 has eroded by 1 MGD. SPU estimates that 1.7 MGD of the remaining 4 MGD of curtailment savings is attributable to the economic slowdown in the commercial sector. This indicates that the remaining 2.3 MGD of curtailment savings from the 2001 drought is eroding in line with previous projections. Together, the total 2002 transitory and long-term savings add up to 8.8

MGD, which is the difference between the “no-conservation” forecast and actual demand for 2002. Again, more detailed analysis is provided in Chapter 4.

Conservation goals and estimated new savings for each sector are summarized in Table 2 below. For each sector, savings are estimated for behavioral incentives and outreach efforts, hardware incentives and curtailment messages:

**Behavioral Incentives and Outreach savings** include permanent conservation achieved with and without incentives to invest primarily in new behaviors. These savings are estimated to be 0.7 MGD in 2002. These estimates are based on information presented in Section 4.

**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 0.48 MGD in 2002.

**Table 2: 2002 Performance**

PROGRAM SECTOR	EXPENDITURES (\$1,000)	2002 WATER SAVINGS (1,000 GPD)		
		Goal	Conservation Achieved	Curtailment & Economy
<b>Residential Indoor</b>	<b>\$1,310</b>	<b>610</b>	<b>386</b>	<b>700</b>
Behavioral & Outreach			100	700
Hardware Incentives			286	
<b>Res. Landscape</b>	<b>\$704</b>	<b>100</b>	<b>304</b>	<b>600</b>
Behavioral & Outreach			300	600
Hardware Incentives			4	
<b>Comm Domestic</b>	<b>\$166</b>	<b>41</b>	<b>245</b>	<b>900</b>
Behavioral & Outreach			200	900
Hardware Incentives			45	
<b>Comm Process</b>	<b>\$567</b>	<b>328</b>	<b>246</b>	<b>1,600</b>
Behavioral & Outreach			100	1,600
Hardware Incentives			146	
<b>Comm Landscape</b>	<b>\$149</b>	<b>41</b>	<b>34</b>	<b>200</b>
Behavioral & Outreach			25	200
Hardware Incentives			9	
<b>Umbrella Messaging<sup>1</sup> Youth Education,<sup>1</sup> Customer Research, 684-SAVE, Savingwater.org, CPA, Other</b>	<b>\$681</b>			
<b>Totals</b>	<b>\$3,577</b>	<b>1,120</b>	<b>1,214<sup>2</sup></b>	<b>4,000</b>
Behavioral & Outreach			725	4,000
Hardware Incentives			490 <sup>2</sup>	
<sup>1</sup> Umbrella and Youth elements are considered drivers for other elements and do not have savings targets tied directly to them. <sup>2</sup> Some totals may not add due to rounding.				

**Curtailment and economy savings** include transitory behavior or operational changes, as well as savings from other temporary impacts such as slower economic activity. These savings were estimated to be about 5 MGD in 2001 and 4 MGD in 2002. Much of the 2001 drought messaging stressed temporary curtailment actions, but some of these behaviors can become long-term conservation actions if reinforced through long-term conservation program efforts

## **Sector Highlights**

**Residential indoor** programs continued to ramp up in 2002. Multifamily toilet rebates expanded to a full-scale program and achieved double their savings goal. WashWise rebates matched last year's output despite a slow economy and despite lowering the rebate from \$100 to \$75. Increased materials at retailers, increased advertising, and a special fall promotion that offered higher rebates for the most efficient machines all contributed to meeting rebate goals. Articles were published in utility newsletters and new materials were developed to support new behavior changes.

**Residential landscape** efforts included development of new incentives for behavior change, including NW Natural Yard Days, and programs to test on-site audits and new irrigation devices. Educational efforts expanded successful outreach partnerships with 29 nurseries across the service region, who distributed 33,000 educational fact sheets — double the participation of 2001. Three new Natural Lawn & Garden guides on Choosing the Right Plants, Natural Pest Control, and Composting provided regional residents with tools to reduce outdoor water use while creating a healthy landscape. Training for home gardeners and landscape professionals reached thousands of citizens and professionals. Radio and print ads promoted landscape conservation messages, program opportunities at local nurseries, and regional events.

**Commercial, industrial and institutional** facilities implemented more than 65 financial incentive projects in 2002. Major projects were completed at the University of Washington, Group Health Hospital and Lake Washington School District. Nearly 20 smaller projects provided rebates to eliminate pass-through cooling in refrigeration and ice machines. Free technical assistance, seminars and irrigation audits were provided to hundreds more through the Water Smart Technology and Water Efficient Irrigation Programs. New promotion partnerships were created with trade groups, other utilities and agencies, and other service providers.

**Youth and education** programs offered new school resources and training in 2002, including distribution of new conservation kits, one "Water Matters" teacher training workshop, and development of an on-line interactive map of the regional water system. The program also produced an educational TV ad for kids, featuring Bert the Salmon, and supported the ad with a significant presence at KOMO Kids Fair.

**Six purveyor working groups** met throughout the year to guide the implementation of Residential Indoor, Residential Landscape, Marketing, Commercial, Education and Evaluation efforts.



## 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*<sup>5</sup>.

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

	"Ramp-Up" 2-Year Total <sup>2</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Residential Indoor <sup>1</sup>	1,150	386									1,536
Residential Landscape	400	304									704
Commercial Domestic, Process, Landscape <sup>1</sup>	1,250	525									1,775
<b>Actual Savings Total<sup>3</sup></b>	<b>2,800</b>	<b>1,215</b>									<b>4,015</b>
<b>Target Savings</b>	<b>2,100</b>	<b>1,120</b>	<b>1,730<sup>4</sup></b>	<b>1,710</b>	<b>1,710</b>	<b>1,660</b>	<b>1,730</b>	<b>1,790</b>	<b>1,890</b>	<b>1,950</b>	<b>17,390</b>
<sup>1</sup> Includes Multifamily. <sup>2</sup> Two-year total includes actual savings reported in the 2001 Annual Report plus actual savings from 2000. <sup>3</sup> Some totals may not add due to rounding. <sup>4</sup> Budget reductions in 2003 are expected to lower 2003 savings targets. The reductions will be restored in later years.											

## Looking Ahead

The 1% Program will continue to build on the success of current efforts, supported by overall messaging as needed. Residential indoor efforts will emphasize multifamily and low-income customers in 2003 where savings tend to be higher and more cost-effective. For single family customers, indoor efforts will focus on promoting washing machine rebates, developing a toilet flapper incentive program, and providing education and support materials to help customers replace toilets and find and fix leaks. A new landscape incentive program will be developed, and landscape outreach will continue to target lawn and garden audiences with an integrated message, including retailer and nursery partnerships and promotions focussing on a comprehensive package of products and written materials.

Commercial targets and resources in 2003 will be increased over last year, consistent with the long-term plan of emphasizing commercial incentives in the early years of the 1% Program. The program will continue to support a spectrum of cost-effective commercial measures through targeted recruiting, technical assistance and incentives.

## Ongoing Performance Monitoring

The 1% Program regional ten-year conservation goal requires conservation expenditures of more than \$50 million during the current decade – about \$5 million per year. 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 second of an annual series of reports designed to inform and guide the program toward its goal.

## End Notes

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<sup>1</sup> Conservation Potential Assessment, Seattle Public Utilities, 1998, <http://www.ci.seattle.wa.us/util/RESCONS/CPA/default.htm>.

<sup>2</sup> Ten Year Conservation Program Plan, Seattle Public Utilities, 2002, [www.cityofseattle.net/util/RESCONS/papers/tenyearplan.pdf](http://www.cityofseattle.net/util/RESCONS/papers/tenyearplan.pdf).

<sup>3</sup> Ten Year Conservation Program Plan, Seattle Public Utilities, 2002, [www.cityofseattle.net/util/RESCONS/papers/tenyearplan.pdf](http://www.cityofseattle.net/util/RESCONS/papers/tenyearplan.pdf).

<sup>4</sup> Ten Year Conservation Program Plan, Seattle Public Utilities, 2002, [www.cityofseattle.net/util/RESCONS/papers/tenyearplan.pdf](http://www.cityofseattle.net/util/RESCONS/papers/tenyearplan.pdf).

<sup>5</sup> Ten Year Conservation Program Plan, Seattle Public Utilities, 2002, [www.cityofseattle.net/util/RESCONS/papers/tenyearplan.pdf](http://www.cityofseattle.net/util/RESCONS/papers/tenyearplan.pdf).

## 2. Program Design

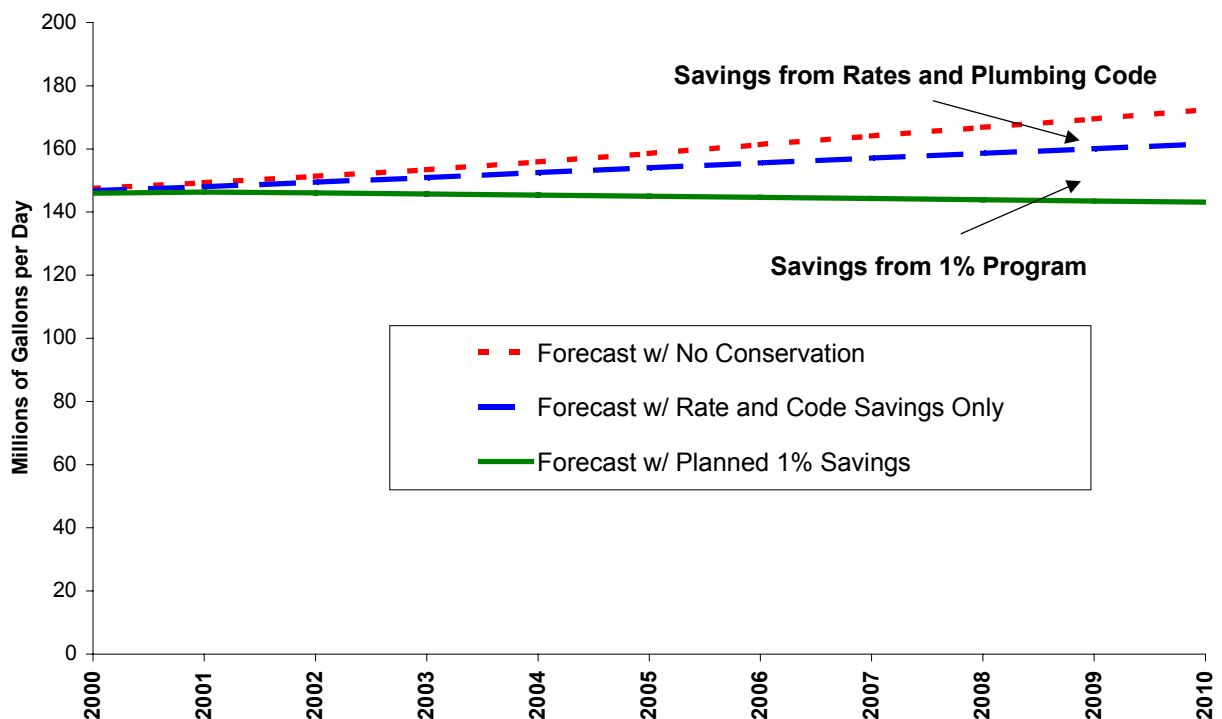
### **Regional 1% Program and 10-year Goal**

The Saving Water Partnership is committed to an ambitious effort to reduce per capita water use in the regional service area by 1% every year through 2010. To accomplish the ten-year goal, local water providers will reduce per capita water use by about 1% each year for the next ten years. More detailed strategies and goals for the 10-year program and beyond are presented in the *Ten Year Water Conservation Program Plan*<sup>6</sup>.

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.

This report is focussed on the performance of the 1% Program. The conservation savings shown below from rates and code are those that would be achieved without the 1% Program efforts. Unless otherwise stated, all references to conservation in this report are to those arising from the 1% Program.

**Chart 2: Water Demand and Conservation**



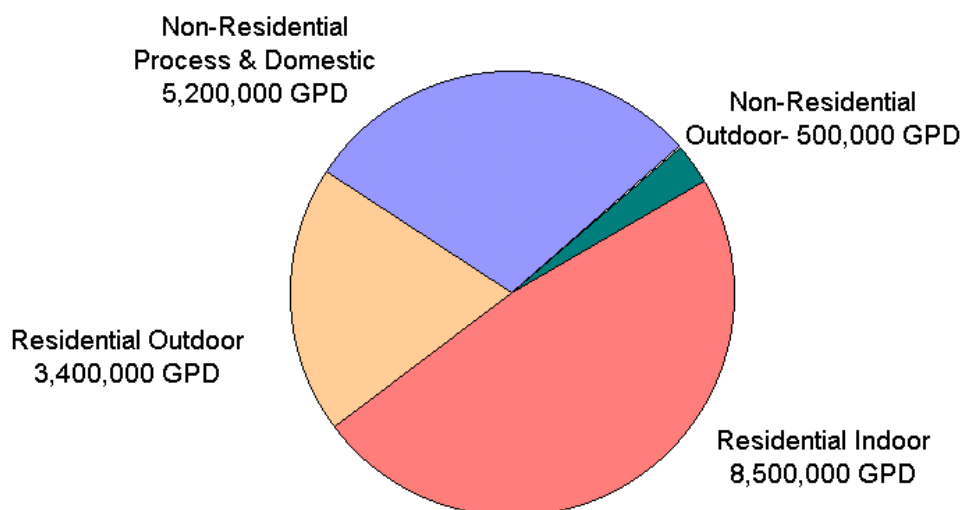
In 1998, SPU completed a water Conservation Potential Assessment<sup>7</sup> (CPA). The CPA provides a rigorous analysis of the cost, volume, and reliability of conservation opportunities available within Seattle's wholesale and direct service areas through 2020. The CPA found that substantial water savings, up to 31 MGD or 16% of water use in the peak season, could be

achieved 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 as described in the SPU *2001 Water System Plan Update*<sup>8</sup>. 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\***

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.

The conservation savings will result from an improvement in water use efficiency in the residential, commercial, industrial, institutional and landscape sectors. The 1% Program will rely on conservation programs to improve customer water use efficiency through a strategy that integrates information, education, incentives, rates, codes and regulations.

### **10-Year Measures and Strategies**

Supported by public information and education, programs promoting and encouraging the use of efficient water-using equipment, behavior, and technology are the backbone of the 1% Program conservation strategy. Overall conservation messaging and outreach supports specific targeted program elements.

Since the early 1990's, the SWP has designed and successfully conducted several ongoing targeted programs. The success of these programs during the 1990's is quantified in Section 4. These programs are being continued and expanded, including: Water Smart Technology commercial incentives, Water Efficient Irrigation Program 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 have been designed and are being implemented for residential landscape and residential indoor uses. These new programs are discussed in more detail in Section 3.

The initial years will concentrate on getting additional savings from the expansion of ongoing programs, and gearing up implementation of new programs. Later years will reap savings from new programs as well as continued savings from ongoing program elements. Major savings 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 plans, see the *Ten Year Water Conservation Program Plan*<sup>9</sup>,

**Table 4: 10-year Program Measures and Strategies**

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

### Supporting Elements

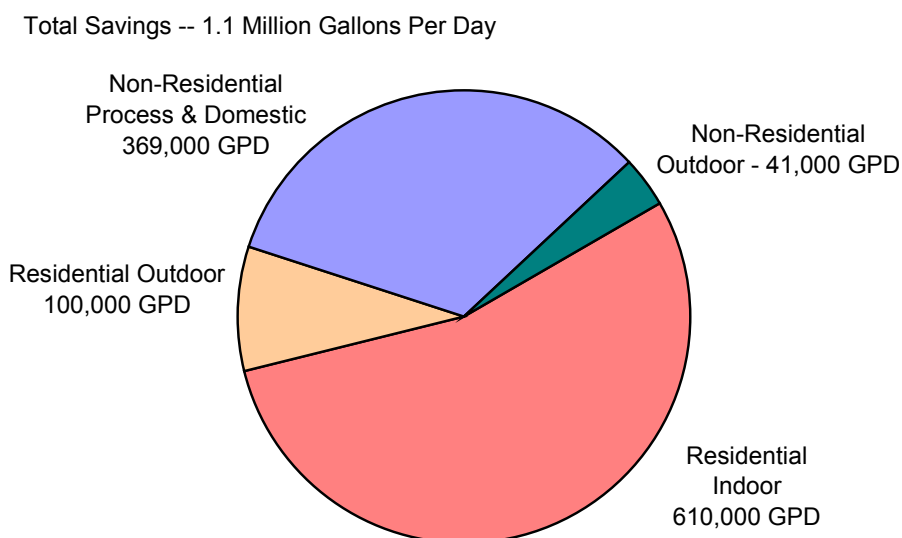
Sector	Types of Measures	Types of Strategies
<b>Youth Education</b> Supports savings in other sectors	<ul style="list-style-type: none"> <li>Conservation awareness and residential measures</li> </ul>	<ul style="list-style-type: none"> <li>Educator training and resources</li> <li>Classroom and take-home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

## 2002 Program and Goals

Due to budget constraints, an overall savings target of 1.1 MGD was set for 2002, which is less than the 2001 target of 1.3 MGD. For all sectors, new conservation efforts fell into two categories: 1) hardware incentives – primarily financial incentives to replace fixtures or equipment, also including accelerated fixtures (beyond rates and code) that were upgraded without rebates; and 2) behavioral incentives and outreach - assistance to change behaviors or upgrade equipment, usually without financial incentives. This year, established incentive programs were intended to build on past success, while new residential indoor and residential and commercial landscape incentives were introduced, and other assistance and outreach programs were expanded.

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

**Chart 4: 2002 Savings Targets by Sector\***



\* Umbrella or schools elements are considered drivers for other elements and do not have savings targets tied directly to them.

## 2002 Measures and Strategies

The residential indoor sector expanded multifamily toilet rebates from a small-scale program begun in 2001 to a full-scale effort. This sector also initiated a tiered clothes washer rebate, implementing a special promotion that offered higher rebates for the most efficient machines. The residential outdoor sector partnered with nurseries on a soaker hose rebate offer and distribution of new educational guides. This sector also partnered with retailers for the month of April to increase sales of natural yard care products, and for the month of September to promote the use of compost. In the commercial sector a series of workshops generated interest in efficient technologies, collaboration with public agencies and trade organizations increased, and

outreach efforts were targeted to specific commercial business categories such as medical facilities and schools.

**Table 5: 2002 Measures and Strategies**

Types of Measures		Types of Strategies	
RESIDENTIAL INDOOR (2002 Target = 0.61 MGD)			
<ul style="list-style-type: none"><li>▪ Replace washing machines</li><li>▪ Replace toilets &amp; faucets (single family &amp; multifamily)</li><li>▪ Fix leaks</li><li>▪ Change behaviors (flushes, faucet use, shower time, full loads)</li></ul>		<ul style="list-style-type: none"><li>▪ WashWise rebates</li><li>▪ Recruit multifamily owners</li><li>▪ Behavior messaging</li><li>▪ Collaboration with energy utilities</li><li>▪ Promotion through media, mailing</li><li>▪ Distribution of results of <i>Toilet Performance Testing</i><sup>10</sup> conducted by the National Association of Homebuilders Research Center</li></ul>	
RESIDENTIAL LANDSCAPE (2002 Target = 0.1 MGD)			
<ul style="list-style-type: none"><li>▪ Improve watering efficiency<ul style="list-style-type: none"><li>➢ Irrigation system performance</li><li>➢ Landscape watering behaviors</li><li>➢ Practices that affect watering (e.g. mulch and soil prep)</li></ul></li></ul>		<ul style="list-style-type: none"><li>▪ Media promotions</li><li>▪ Regional sales event</li><li>▪ Retailer partnerships (nurseries and home and garden centers)</li><li>▪ Technical materials</li><li>▪ Target high peak users</li><li>▪ Personal Water Use Assessment pilot program</li></ul>	
COMMERCIAL PROCESS/DOMESTIC (2002 Target = 0.37 MGD)			
<ul style="list-style-type: none"><li>▪ Upgrade toilets and equipment for cooling, process other uses</li><li>▪ Improve cooling performance</li></ul>		<ul style="list-style-type: none"><li>▪ Technical assistance, assessments, workshops</li><li>▪ Financial incentives (custom projects and set rebates)</li><li>▪ Targeted promotion through vendors, trade groups, agencies</li><li>▪ Recruit large customers</li></ul>	
COMMERCIAL LANDSCAPE (2002 Target = 0.04 MGD)			
<ul style="list-style-type: none"><li>▪ Upgrade irrigation equipment (controls, rain sensors, drip)</li><li>▪ Improve scheduling &amp; maintenance</li></ul>		<ul style="list-style-type: none"><li>▪ Assessments, workshops and technical assistance</li><li>▪ Financial incentives (custom projects and set rebates)</li><li>▪ Targeted recruiting and promotion</li></ul>	

### Supporting Elements

Types of Measures		Types of Strategies	
YOUTH EDUCATION		(Supports savings in other sectors)	
<ul style="list-style-type: none"><li>Conservation awareness and residential measures</li></ul>	<ul style="list-style-type: none"><li>Educator training and resources</li><li>Classroom and take-home materials</li><li>Educational TV PSA for kids</li></ul>		
OVERALL MESSAGING		(Supports savings in other sectors)	
<ul style="list-style-type: none"><li>Conservation awareness and residential and commercial measures</li></ul>	<ul style="list-style-type: none"><li>Targeted marketing</li><li>Collaboration with Puget Sound regional water utilities</li></ul>		

## End Notes

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<sup>6</sup> Ten Year Conservation Program Plan, Seattle Public Utilities, 2002, [www.cityofseattle.net/util/RESCONS/papers/tenyearplan.pdf](http://www.cityofseattle.net/util/RESCONS/papers/tenyearplan.pdf).

<sup>7</sup> Conservation Potential Assessment, Seattle Public Utilities, 1998, <http://www.ci.seattle.wa.us/util/RESCONS/CPA/default.htm>.

<sup>8</sup> 2001 Water System Plan Update, Seattle Public Utilities, 2001, <http://www.ci.seattle.wa.us/util/watersystemplan/default.htm>

<sup>9</sup> Ten Year Conservation Program Plan, Seattle Public Utilities, 2002, [www.cityofseattle.net/util/RESCONS/papers/tenyearplan.pdf](http://www.cityofseattle.net/util/RESCONS/papers/tenyearplan.pdf).

<sup>10</sup> Water Closet Performance Testing, National Association of Homebuilders Research Center, September, 2002, <http://www.savingwater.org/toilettest.htm>.



### 3. PERFORMANCE BY SECTOR

Some program customer sectors exceeded their performance targets in 2002 largely as a result of exceptional behavior savings owing to the 2001 drought carry-over, the 2002 fall drought, and the local economic downturn. Hardware rebate components of the program saw mixed results in 2002, in part due to the economic downturn.

- The Water Smart Technology and Water Efficient Irrigation programs did not meet their performance targets in 2002, but when these programs are viewed in combination with commercial domestic and behavioral measures, the commercial sector overall exceeded its target by 28%. The Water Smart Technology program experienced a surge in completed projects in late 2002 that will be included in 2003 performance.
- The residential indoor programs saw mixed results. The WashWise program exceeded goals, while Multifamily Toilet Rebates spent much of the year ramping up, and did not complete as many projects as planned. Residential indoor programs achieved 63% of the total savings targets for this sector. Multifamily Toilet Rebate costs were higher than planned in 2002, as higher rebates were offered in response to property managers' feedback expressed during focus groups. The higher rebates successfully attracted customers to this new program. Costs are expected to decrease in future years as the program design evolves and as confidence in the new toilets increases among customers.
- The residential landscape sector undertook development of on-site landscape audits and irrigation hardware, both potential key components of achieving the long-term goal. An initial evaluation found very little savings from the audits and found 27% peak savings from a combination of a rain sensor and a controller that automatically adjusts its schedule according to historical evapotranspiration rates.

#### *Residential Indoor Use*

##### **PROGRAM DESCRIPTION**

The residential indoor sector focuses on single and multifamily customers, delivering conservation savings through accelerated fixture upgrades and permanent behavior changes. The program provides rebates, technical assistance, and education. The rebates and information are promoted through print and broadcast advertising and through targeted outreach in the form of direct mail, workshops and displays at local festivals and regional events and trade shows.

##### **2002 GOALS AND STRATEGY**

Residential indoor conservation services were tasked with achieving 610,000 gallons per day (GPD) in new permanent water savings, through a combination of rebated fixtures and behavior changes. Emphasis shifted from primarily single family in 2001 to a mix of single and multifamily in 2002. Given low regional consumption and carry-over of savings from the 2001 drought, less emphasis was placed on obtaining savings from new behaviors than in 2001. Program strategies focused on boosting ongoing rebate programs, developing new rebates and educating customers about long-term behavior changes. Specific elements included:

- **Washing machine rebates** – the program continued to promote and administer WashWise rebates for high efficiency residential machines and support the LaundryWise rebates



*Mayor Rosemarie Ives, City of Redmond, and David Broustis, Indoor Conservation Specialist, SPU, "flush check" a newly installed toilet.*

administered by Seattle City Light for common-area multifamily building machines. These programs leverage water and energy conservation messages and energy utility dollars to educate about and encourage the installation of efficient machines. Advertising for WashWise expanded significantly in 2002 compared to 2001, in order to maintain participation rates despite a lower rebate amount of \$75 per machine in 2002, down from \$100 per machine in 2001.

- **New utility collaboration** – SWP coordinated with Seattle City Light and Puget Sound Energy (PSE) for a special WashWise promotion during the months of October and November. The promotion introduced tiered rebates based on the efficiency of the machines. This promotion was the first time that PSE has assisted the Saving Water Partnership with customer rebates.
- **Toilet rebates** – SWP staff expanded a small-scale multifamily toilet rebate program that began in 2001, to a full-scale effort. The program was designed to motivate customers who were not already planning on upgrading old fixtures. The toilet rebates were advertised in publications targeted to property owners and managers and promoted through direct contact with property management firms.
- **Toilet performance** – In order to raise customer awareness and knowledge about replacing inefficient toilets with 1.6 gallon models, SWP, in collaboration with East Bay Municipal Utility District in Oakland, CA, sponsored toilet performance testing conducted by the National Association of Homebuilders' Research Center. The final report rated the flushing performance of 49 locally available toilet models. Data was also collected regarding the amount of water used by toilets when the original flapper was replaced with a universal model. The information was announced in a press release, and made available on the SWP web site, Savingwater.org.
- **Toilet flapper replacement** – The SWP conducted a regional survey and two focus groups to explore customer barriers to fixing toilet leaks, and in particular replacing toilet flappers. This baseline information will be used to plan a flapper incentive program for 2004.
- **Outreach** – SWP staff published articles regularly in newspapers targeted to multifamily property owners and managers. The program developed new printed materials for tenants and provided them to owners and managers for distribution upon request. Articles about efficient washing machine rebates, toilet replacement and efficient behaviors were provided to SWP utility newsletters. Existing fact sheets on identifying and fixing leaks, replacing toilets, replacing washing machines and practicing efficient behaviors were distributed at festivals and trade shows and upon request through the regional conservation phone line.



## 2002 PERFORMANCE

Residential indoor conservation produced an estimated 381,400 GPD in new long-term savings. Despite getting off to a slow start due to budget uncertainty at the beginning of the year, residential indoor fixture replacement (WashWise and Multifamily toilets) showed great progress

**Table 6: 2002 Residential Indoor Savings**

	Major focus	Estimate GPD
Outreach & education	Toilets, leaks, behaviors	100,000
Rebates & promotion	Washing machines, toilets, faucet aerators	281,400
Total		381,400

for the year. Multifamily toilet rebates were expanded and gained significant participation. By year-end, 239 properties replaced inefficient toilets with water-saving models. This number was approximately 50% of the total number who applied to the program. Publication of articles and research findings continued to educate residents and property managers about the importance of conserving water. The number of WashWise washing machine rebate applicants slightly exceeded last year's levels, despite a 25% reduction in the rebate level.

**Washing machine rebates** increased by 1% over 2001, with more than 60% of WashWise incentive dollars expended in purveyor areas. Over 50% of all the rebates were in Purveyor areas, a key goal for 2002. Noteworthy is that Washington currently has the 2<sup>nd</sup> highest market share of any state for sales of efficient clothes washers, largely driven by the Saving Water Partnership market transformation program. Increased materials in retail venues, a new radio ad campaign, and a fall promotion that offered higher rebates for the most efficient machines all contributed to increased rebates.

**Table 7: Fixture Rebates in 2002**

Rebated Fixtures	Fixture Targets	Fixture Totals	GPD
Multifamily Toilets	3,000	4,448	164,600 <sup>1</sup>
Washing Machines	8,000	8,337	116,500
Coin Operated Washers	-	217	4,600
<b>TOTAL</b>			<b>285,700</b>

<sup>1</sup>Preliminary savings estimate of 37 gpd per toilet is derived from billing analysis and includes savings from showerheads, aerators and leaks. Savings will be formally evaluated in 2003.

**A multifamily toilet replacement program** was initiated in fall of 2001, completing a dozen projects by year-end. With a goal of 3,000 rebates for 2002, the program needed to increase participation significantly. The program initially recruited customers through a series of free luncheon workshops. The workshops drew low attendance, so focus groups were conducted with property managers and owners, and the program was revised based on the findings. In July, the program offered a \$75 per toilet rebate for projects completed by the end of November. This offer, along with free recycling of old toilets and assistance with calculating paybacks for customers significantly increased participation. At the end of 2002, participants were finding out about the program via 'word-of-mouth' in addition to advertisements. An evaluation of the multifamily toilet program will be completed in early 2003.



*Toilet replacement in progress at the 55-unit El Nor Apartments in Seattle.*

**Program messages and materials** included articles, fact sheets and advertising about conservation behaviors and incentives. Messages were delivered through joint SWP and retailer radio and print advertising, press releases, public festivals and events, website and phone hotline information requests. SWP staff worked closely with the Water Conservation Coalition of Puget Sound to plan a messaging campaign for 2003 that will leverage SWP efforts in obtaining new savings from behavior change, particularly from fixing leaks.

## LOOKING AHEAD

Residential indoor efforts will emphasize multifamily and low-income customers in 2003, where savings tend to be higher and more cost-effective. SWP staff laid groundwork in 2002 for outreach to large and small low-income housing providers. Multifamily assistance will focus on reaching housing providers and property managers to deliver water savings across many areas such as toilets, showerheads, faucets, clothes washers, and landscaping.

**Rebates Help You Lower Operating Costs**

These water efficiency rebates are available to multifamily properties in the Saving Water Partnership service area shown on the map.

**\$60 Toilet Rebates**  
Get a \$60 rebate for each old, water-wasting (pre-1992) toilet you replace with a new efficient model. Participating buildings have decreased their water use by 15-25%. Receive four showerheads and aerators if needed.

**\$50 Laundry Rebates**  
Receive a \$50 rebate for each efficient coin-op clothes washer purchased or leased. Receive an extra \$50 if you use electrically heated hot water in Seattle City Light's service area.

**\$100 Rain Sensor Rebates**  
Rain sensors shut off automatic irrigation systems while it's raining. If you purchase and install a qualified rain sensor on a working irrigation system, you can receive a \$100 rebate.

**Free, No Obligation Irrigation Audits and Assessments**  
An expert irrigation professional will review your irrigation system and make written recommendations to improve efficiency.

**Saving Water Partnership**  
A member of the local water utility

For more information, call (206) 684-7283.

[www.savingwater.org](http://www.savingwater.org) (206) 684-SAVE

For single family customers, 2003 efforts will focus on promoting washing machine rebates and providing education and support materials to help customers replace toilets and find and fix leaks. With new clothes washer standards beginning to take effect in 2004, the WashWise program is beginning to wind down. After 2003, the program is likely to focus on limited rebates for only the most efficient machines. Planning is taking place for a single-family toilet effort later in 2003, possibly an incentive program or a strong educational push. Program development efforts will enable launch of a toilet flapper replacement program in 2004. Program information will target savings through behavior change. Outreach efforts will continue to look for opportunities to partner where it makes sense, to leverage our presence and cost-effectiveness, and seek efficiencies by integrating messages.

## ***Residential Landscape Use***

### **PROGRAM DESCRIPTION**

This customer sector targets water used for single family landscapes. The target audience is primarily those who use water inefficiently in their landscapes. To effectively reach the target audience, an integrated resource conservation concept of the *Natural Lawn & Garden (NLG)* was developed. The NLG program aims at encouraging practices that are environmentally friendly, including not only water use, but also solid waste and surface water management practices. This holistic approach has created efficiencies by leveraging resources from other utilities and agencies. Program efforts focus on ecological landscape management, outreach and education, program incentives and evaluation. The desired behaviors are described in a series of six publications called the Natural Lawn & Garden Guides (titles with an asterisk were developed in 2002):

- Choosing the Right Plants for a Beautiful, Trouble-Free Garden\*
- Natural Pest, Weed & Disease Control\*
- Composting at Home\*
- Growing Healthy Soil
- Smart Watering
- Natural Lawn 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. Conservation measures focus on practices and choices that are compatible with site conditions to provide a beautiful and healthy landscape requiring limited care, reduced use of inputs such as water, fertilizer, and pesticides, and generating less organic waste that must be disposed of off-site.

### **2002 GOALS AND STRATEGY**

Residential landscape conservation was targeted to reduce long-term water use by 100,000 GPD in 2002. The strategy to achieve these savings focussed on delivering an integrated message, increasing awareness, providing educational materials, and creating incentives:

- Raising awareness among targeted customers through media and industry partnerships on water efficient landscape practices.
- Educating targeted consumers about best landscape practices with new Natural Lawn & Garden guides and numerous training workshops and presentations. The SWP partnered



with local nurseries to obtain their assistance in distributing the guides, offering space for classes, and participating in the soaker hose discount/rebate program.

- Creating behavior change incentives to draw attention to conservation messages, education materials and resource efficient behavior. Incentives occurred through three primary promotions and one targeted audit program. First, in partnership with nurseries, SWP offered soaker hose rebates to encourage customers to learn more about efficient watering. Second, Northwest Natural Yard Days provided discounts on a variety of landscaping products and tools that help customers use more ecologically-based practices. And third, SWP partnered with King County Solid Waste Division and area retailers to promote discounted compost. Adding compost to garden beds creates healthier soil that ultimately needs fewer additional inputs such as water, fertilizer, and pesticides. Each of these promotions served three objectives: encouraging efficient watering; highlighting program educational messages about best practices; and building upon industry partnerships. In addition to these promotions, SWP piloted a targeted audit called the Personal Water Savings Program. This provided customers with on-site recommendations for more efficient irrigation and indoor water use. Rather than offering a specific product as an incentive, customers received personalized recommendations based upon an on-site assessment of their landscape to give them motivation for immediate and long-term change.

## 2002 PERFORMANCE

Residential landscape savings exceeded targets in 2002 with increased behavioral messaging and continuing customer attention to water shortage messages created in 2001. The consumption analysis detailed in Section 4 shows new residential landscape practices produced 304,000 GPD in long-term conservation savings - triple the 2002 target. These savings are annual averages – peak season savings are triple those levels.

**Table 8: 2002 Residential Landscape Savings**

	Major focus	Estimate GPD
Behavioral incentives & outreach	Radio and print ads, nursery partnerships, retailer partnerships, soaker hoses <sup>1</sup> , compost, water timers, educational materials	300,000
Hardware incentives & promotion	Customer testing of irrigation devices and on-site assessments	4,400
Total		304,400

<sup>1</sup>Soaker hoses attract customers to educational materials that produce future behavior savings.

New retailer partnerships and expanded nursery partnerships achieved broad customer exposure to key messages. In addition, carry-over from 2001 curtailment and the 2002 fall drought conservation messages provided a 'free' program boost for increased savings without additional resources.

**New Natural Lawn & Garden Guides** were completed. These guides are designed to educate readers on landscape practices that lead to a healthier garden and a healthier environment. Three new guides were created in 2002: *Choosing the Right Plants for a Beautiful, Trouble-Free Garden*; *Natural Pest, Weed & Disease Control*; and *Composting at Home*. These new guides complemented the existing *Growing Healthy Soil*, *Smart Watering*, and *Natural Lawn Care*, and completed the Natural Lawn & Garden Guide series begun in 2001. The guides were distributed all year through various means including the Natural Lawn & Garden Hotline, the Northwest Flower and Garden Show, 29 retail nurseries, and in conjunction with incentive programs and other events.



**Advertising & media outreach** supported each incentive program offered in 2002. In addition, summer ads appeared in the Seattle PI, Seattle Times, Eastside Journal, and South County Journal promoting the Natural Lawn & Garden Guides and the Natural Lawn & Garden Hotline. One hundred print media ads and over 200 radio ads ran in 2002. 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 produced real savings. For a detailed breakdown of print and radio advertising, please see the *2002 Natural Lawn & Garden Summary Notebook*<sup>11</sup>.

**Nursery partnerships** were expanded and strengthened in 2002. The Saving Water Partnership established nursery partners as key distribution points for the Natural Lawn & Garden Guides, training nursery staff on these Guides, expanding nursery participation in the spring soaker hose and fall compost campaigns, and building relationships through ongoing nursery communication. At a minimum, partnering nurseries were asked to distribute the Naturals Guides. Nurseries throughout King County were invited to be partners. 29 nurseries across the Saving Water Partnership service area agreed to partner, as compared to 12 nurseries in 2001.

**Table 9: 2002 Customer Outreach**

Contacts	Targets	Actual
Naturals guides	50,000	100,000
Soaker hose rebates	3,500	2,402
Nursery class attendees	-	150
Public class attendees	-	455
Attendees at training for professionals	-	445
Compost sold	1,219	2,656
(increase by 20% over 2001 sales)	cubic yards	cubic yards
Natural lawn & garden hotline questions answered	-	9,347

Overall, the 2002 landscape campaign succeeded in meeting its intended goals: relationships were strengthened, nursery staff were trained, a brochure distribution network was set up, and nursery participation in the soaker hose promotion increased. Many nurseries did not distribute the volume of brochures expected, but the cumulative effect of 29 nurseries distributing brochures resulted in 33,000 brochures reaching customers. At year-end site visits, all nurseries expressed satisfaction and an interest in continuing the partnership in 2003.

**Soaker hose rebates** were designed to attract customers into the nurseries where they would receive educational materials. Nurseries offered a 25% discount and the Saving Water Partnership offered an instant \$5 rebate to the customer. Nursery participation increased in 2002, and overall, nursery partners were very pleased with the promotion. Eighteen nurseries at 20 retail locations participated in the promotion, which ran during May and June. This is an increase from 12 nurseries participating in 2001. A total of 2,402 hoses were sold (down from 4,065 during the same period in 2001). The wet spring and the absence of drought conditions (with accompanying media attention and consumer awareness) contributed to the lower sales. It is likely the Saving Water Partnership will not rebate soaker hoses in 2003. Instead, soaker hose sales will occur as a part of the 2003 Northwest Natural Yard Days month-long retail promotion. The Saving Water Partnership will identify other incentives to promote water savings and other ways to partner with nurseries in order to inform customers about Natural Lawn & Garden practices.



*Soaker hoses save water by delivering it directly to plant roots, avoiding evaporation.*

**Northwest Natural Yard Days (NWNYYD)** was a collaboration between the Saving Water Partnership, 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. NWNYYD evolved from annual "Mower For Less" sales of mulching

lawn mowers 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 added to the goals of the promotion. In addition, the program format changed from a series of outdoor sales events to a single kickoff event followed by three weeks of retail discounts at 33 locations.



*Retail display of soaker hoses, compost, weed pullers and other products discounted during NW Natural Yard Days.*

Primary promotion for the event was through newspaper ads (both those placed by the program sponsors and co-op ads placed by the retailers), direct mail, utility bill inserts, two media events and a Ciscoe Morris radio program broadcast from the kickoff event held at Seattle Center. Education was provided at both the kickoff event and at selected stores at selected times. Of those surveyed at the kickoff event, 82% rated the event “Helpful” (the highest rating) and 17% rated it “Okay.” In-store sales on the featured products were up significantly over April 2001 numbers. See Table 22 in Chapter 5 for in-store sales increases over 2001. While only three of these products are associated directly with water conservation, the increase in sales of these products and distribution of educational materials would not have occurred without the integrated approach of NWNYPDs.

**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. Business cards and magnets promoting the Hotline were printed and distributed. 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 nearly 7,000 questions from 6,800 calls in 2002.

**Training for home gardeners & landscape professionals** took place throughout the year, reaching thousands of citizens and professionals. The SWP collaborated with King County’s Green Gardening program to present 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 (approximately 200 attended), to horticulture students at local community colleges, and on-site training to agency grounds crews around the county. In addition, each fall the program presents an Integrated Pest Management Seminar that has drawn approximately 350 attendees each of the past three years.

In addition to the Green Gardening Program offerings, SWP staff and consultants 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 extend 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 resources in addition to SWP support.

SPU staff and consultants 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.

In collaboration with the Washington Association of Landscape Professionals (WALP) and King County Hazardous Waste, SPU has helped design a training in environmentally-sound lawn maintenance practices, and helped to provide the actual **training to WALP Certified Landscape Professionals** for the past three years. Topics include: assessing site and soil conditions; mowing; irrigation; fertilization; weed and pest control; lawn renovation and installation; aeration; overseeding and other maintenance practices; and customer education. The number of professionals seeking certification has been disappointing, and SPU and King County Hazardous Waste are considering incentives for participation, including advertising that promotes those who achieve certification.

**Building Healthy Soil (fall compost promotion)** was designed to educate customers about, and promote the use of, compost as a component of building healthy soil. Promoting compost as either a soil amendment or as a mulch is a proactive step in getting gardeners to

improve the water-holding capacity of their soil and to thereby reduce their need for supplemental irrigation.

The SWP and King County offered incentives to retailers to participate in the promotion, and in turn, retailers were required to offer bagged and/or bulk compost at a minimum 25% discount. In all, 18 retailers, with 29 locations, participated in the promotion. The number of retailers doubled over 2001's participants, and the promotion resulted in a 161% increase in cubic yards of compost sold over the 2001 compost promotion. 2002's promotion was further enhanced over 2001 through market research, enhanced customer education, and expansion of bulk sales of compost. Surveys conducted at retail locations during the sale showed that more education is needed to ensure that customers make the connection between using compost and using less water in the summer.



*Compost can reduce water use by helping the soil retain moisture.*

**Landscape program development and field tests** were conducted with customers to test new devices for saving water, further evaluate on-site residential assessments and discover the barriers that customers may have to adopting conservation behaviors. The following is a description of the three programs conducted in 2002.

*The Personal Water Saving Program* offered on-site, one-on-one water use assessments targeted to high water use customers. In the past, the assessments primarily addressed outdoor conservation. However, in 2002, indoor water assessments were added. Assessments were conducted with 100 homeowners in Seattle and Highline Water District with the goal of better determining if these assessments were a cost-effective approach to gaining water savings. 2002 goals included the following:

- Test the logistics of a combined indoor-outdoor assessment
- Determine the water savings achieved
- Evaluate viability of continuing the assessments in 2003



To determine if participants saved water, they were matched up with customers who had similar historical consumption, but did not participate in the program. These customers were used as “controls.” Based on 2002 summer consumption, Seattle participants used 0.15 CCF per customer per day less than their controls. The change in consumption with Highline customers was not statistically significant. Customer surveys and continued evaluation work will bring forth further information that will be incorporated into program planning.

*Irrigation hardware customer research* took place during the summer of 2002. The SWP worked with customers to determine the savings potential of several irrigation devices: an irrigation controller that automatically adjusted scheduling according to historic weather factors; a wireless and hardwired rain sensor; and an irrigation scheduling service. One hundred-fifteen customers participated. Each participating customer was matched with a control that had similar water use patterns, property size and household characteristics. The Study results showed a 27% reduction in water use for those participants who had both the controller and rain sensor installed. In 2003, a savings evaluation will continue for those participants with the rain sensor because 2002’s unusually warm and dry weather provided limited results about the rain sensor’s savings potential.

*A landscape behavior barriers analysis* was conducted to help determine what prevents high-peak-use customers from adopting landscape behaviors that would save water. A series of focus groups was held in late fall of 2002 to assess barriers encountered in three topic areas: automatic irrigation; plant selection; and watering and maintenance. Some of the key findings include:

- Automatic irrigation system users lack awareness about the efficiency of these systems, and believe that they are in fact efficient;
- Many gardeners believe that resource efficient landscapes are less attractive than other landscapes;
- Participants believe that “right plant/right place” is a useful concept relating to aesthetic concerns such as size and color, but not to conditions of the landscape itself, such as sun, soil type, etc.;
- Participants lack awareness of how much water plants actually need, and of how much water they actually do apply;
- When participants were made aware of their relative water use and, for example, the higher water use associated with automatic systems, they were much more interested in learning how to increase efficiency;
- Participants want feedback about how much water they use relative to what they should use and relative to others in similar situations.

The results of the research will be integrated into program planning and will be reflected in the Landscape Strategic Plan that will be drafted during the first half of 2003.

## **LOOKING AHEAD**

Program efforts will continue to target lawn and garden audiences with an integrated message in 2003, using distribution of the Natural Lawn & Garden guides as a foundation. One of the first tasks in the 2003 campaign will be to develop a comprehensive strategy that reaches a broader audience, takes into account findings from the Barriers Analysis, continues the successful work of 2002, and finds new partners to help deliver conservation messages.

## Commercial Process and Domestic Use

### PROGRAM DESCRIPTION

The Water Smart Technology program provides free technical assistance and financial incentives to reduce water use at commercial, industrial and institutional facilities. Conservation opportunities include replacing toilets and urinals, converting ice machines and refrigeration equipment from water to air-cooled, 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 site assessments, technical review, product evaluation and program materials. Program financial incentives provide standard rebates or custom incentives of up to 50% of the installed costs of any cost-effective measure. Most program participants have a simple payback period of less than two years on their investment.

### 2002 GOALS AND STRATEGY

The Water Smart Technology Program had a water savings target of 369,000 GPD for 2002, less than the 2001 target due to budget constraints.

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;
- Workshops designed to address selected end uses.

These strategies and priorities are described in the *Commercial Delivery Strategy*<sup>12</sup> completed in May 2001.

### 2002 PERFORMANCE

Improvements at commercial facilities produced estimated long-term water savings of 490,300 GPD in 2002, exceeding savings targets by 33%. Rebate projects produced about 150,300 GPD savings, while technical assistance resulted in an estimated 40,000 GPD. The remaining 300,000 GPD were from new behaviors and operational changes at commercial facilities. Significant outreach and assistance was provided by the Business & Industry Resource Venture (Resource Venture) and contributed to these non-rebate 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.

**Table 10: 2002 Commercial Process and Domestic Savings**

	Major Focus	Estimate GPD
Outreach & information	Customer assistance, workshops	300,000
Rebates & administration	Toilets, cooling, process, technical assistance	190,300
Total		490,300

2002 program accomplishments included:

- Completed major incentive projects at the University of Washington (cooling, medical equipment, no-flush urinals), Lake Washington School District (cooling, ice-making, shower-room, and bathroom fixtures), and Pike Place Fish (ice-making).

- Increased customer focus on emerging conservation technologies such as ozone laundry water systems 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 first 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.



*One hundred business and community leaders, including Mayor Greg Nickels of Seattle, attended the first annual BEST awards ceremony.*

- Increased partnerships with the Washington Department of Ecology, Restaurant and Hotel Associations, Medical Industry Roundtable, Chamber of Commerce (Business and Industry Resource Venture), International Facility Managers Association, and other trade groups.

- Held successful workshops for facilities managers and targeted trade group audiences on water conservation in public restrooms and cooling tower efficiency.

- Undertook significant outreach: conducted more than 20 audits and assistance visits at commercial facilities such as the Boeing Company, Northshore School District, Husky Trucks International in Tukwila, Judson Park Retirement Community in Highline, and Amtrak and Northwest Hospital in Seattle. Made six promotional presentations to business organizations such as the Des Moines Chamber of Commerce and the WA State Hotel and Lodging Association. Published articles in eight newsletters and maintained a presence on three regional web sites.



*Cornell Amaya of SPU and Tom Nance, Chief Engineer of Group Health Hospital, inspect a new medical air compressor that replaced a once-through liquid ring compressor.*

- Evaluated Water Smart Technology program savings. The completed evaluation report, titled *Impact and Process Evaluation: 2001 Commercial Water Conservation Programs*,<sup>13</sup> found that estimates of savings were lower than actual savings for some

**Table 11: 2002 Commercial Incentive Projects**

Process Measures	Projects	GPD
Washing Machines/Laundry Sys	5	16,700
Refrig./ Ice Machines/ Cooling	18	42,300
Medical Equipment	4	29,000
Process Water	5	17,600
2002 Total	32	105,600
2002 Target	75	
<b>Domestic Measures</b>		
Toilets	11	16,000
Urinals	13	28,700
2002 Total	24	44,700
2002 Target	40	

measures, and higher than actual for others. For the Water Smart Technology program overall, the estimated savings were very close to evaluated savings.

## LOOKING AHEAD

Commercial targets and resources in 2003 will be similar to 2002. Reaching the high levels of participation necessary to achieve target goals is a continuing challenge. The program will continue to support a spectrum of cost-effective measures through technical assistance and incentives. Outreach will include specialized training and workshops including a workshop on efficient laundry technologies for commercial laundries. Recruiting and assistance will continue with many of the targeted sectors from 2002 including large users (Port of Seattle, UW and others), purveyor customers, office and property management, hotels and restaurants, hospitals and medical research, manufacturing and processing, and education.

## Commercial Landscape and Irrigation Use

### PROGRAM DESCRIPTION

The Water Efficient Irrigation Program (WEIP) focuses on increasing landscape and irrigation efficiency at commercial, institutional and multifamily facilities. WEIP provides professional site assessments, workshops, other technical assistance, and financial incentives to help commercial customers upgrade systems and reduce 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.

### 2002 GOALS AND STRATEGY

New commercial landscape efficiencies produced 34,000 GPD average savings in 2002, 83% of the target of 41,000 GPD.

In 2002 the program emphasized customer landscape assessments and audits, and rain sensor rebates for eligible customers. A professional irrigation auditor reviewed the performance of participating customers' irrigation systems and made recommendations for improving efficiency. To increase program awareness in 2002, the WEIP conducted a collaborative outreach effort with the Water Smart Technology (WST) program as well as other efforts directed toward irrigation-specific audiences, including:

- Workshops for landscape 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.
- Advertising of \$100 Rain Sensor Rebates and other WEIP incentives.
- Promotion and technical assistance through sector targeting conducted by the Business and Industry Resource Venture.



**Table 12: 2002 Commercial Landscape Savings**

	Major focus	Estimate GPD
Outreach and education	Audits, rain sensor promotion	25,000
Rebates & administration	Irrigation upgrades, rain sensor rebates	8,600
Total		33,600

Saving Water Partnership Staff work continually to improve partnerships with landscape and irrigation professionals to promote a water conservation ethic in businesses and to increase awareness of WEIP incentives for customers.

## 2002 PERFORMANCE

In 2002, this sector produced conservation savings somewhat below sector targets, including 8,600 GPD from rebate projects and another 25,000 GPD from technical assistance. These savings are annual averages - long-term peak savings are triple those levels.

New promotions increased program participation compared to last year. Though the savings targets were not met, more customers applied for and received incentives for irrigation system upgrades than in 2001. Program accomplishments included:

- Conducted 33 irrigation system audits and provided specific efficiency recommendations. Established contact with an additional 40 customers.
- Held workshop targeted to public sector landscape staff.
- Provided rebates to 10 multifamily customers.
- Provided rebates to University of Washington and Seattle University for upgraded systems at five sites for replacing controllers, irrigation heads, and master valves to reduce leaks.

A comprehensive review of commercial programs and savings can be found in the report titled *Impact and Process Evaluation: 2001 Commercial Water Conservation Programs*, completed in 2002.<sup>14</sup>

## LOOKING AHEAD

The Water Efficient Irrigation Program will continue to expand audits and financial incentives and support events that promote the design, installation and maintenance of efficient irrigation systems. In 2003, the program will sponsor Irrigation Association training for landscape and irrigation professionals, produce a new brochure and fact sheet, continue outreach efforts with purveyors and irrigation professionals and develop a new marketing strategy. The program will also continue to reach customers through Business and Industry Resource Venture (BIRV) outreach to various sector groups and trade associations, and through the BIRV newsletter.

## Overall Messaging

### PROGRAM DESCRIPTION

The overall messaging effort is designed to build the ethic of water conservation in the region over a sustained period of ten years to support the residential, commercial, indoor, outdoor and school components of the Saving Water Partnership. The target audience for this messaging is all SWP water utility customers.

**Table 13: Landscape Assistance**

Technical assistance	2002
Initial Contacts/ Assessments	40
Audited Sites	33
Rebated measures <sup>#</sup>	
Schedule & weather controls	4
System performance	4
Install rain sensor	20
Install drip system	1
Improve turf maintenance	1
Soil amendment	1
Rebate projects	
Total projects	22
Target	50
<sup>#</sup> Many projects have multiple measures	





## 2002 GOALS AND STRATEGY

Overall messaging supports conservation savings achieved primarily in the residential indoor and landscape sectors. The messaging work does not have a separate savings target. The major components of the 2002 outreach strategy included:

- Partnerships with TV media targeting kids.
- Targeted marketing to promote specific conservation events and special rebate offers.
- Consistent branding and program materials under the Saving Water Partnership and 'What Will You Save Today?' logos.
- Partnership with the Water Conservation Coalition of Puget Sound to plan a Puget Sound area media campaign.

## 2002 PERFORMANCE

**Kids television advertising** was developed and broadcast through a partnership with KOMO-4 TV station. An animated TV ad was created featuring Bert the Salmon as part of a larger resource conservation campaign that included SPU solid waste and drainage utility funding. The ads targeted kids ages 6-14 to build awareness of the importance of conserving water and other resources. The water conservation ad aired throughout August and September and in addition was featured during targeted programming such as the Wonderful World of Disney. Bert the Salmon was found to be hugely popular with kids ages 6-11. In surveys, 81% of 4th and 5th graders recognized Bert the Salmon, and 62% could correctly recite one of his environmental messages. SWP plans to continue running this successful ad in 2003.



*Phil Dumpster and Bert the Salmon tell kids why it's important to conserve water.*

**New regional campaign** - The Saving Water Partnership teamed up with the Water Conservation Coalition of Puget Sound to undertake testing for a new region-wide marketing campaign. Five focus groups were held with homeowners and renters at a variety of locations around Puget Sound. Participants were asked to react to two sample ad campaigns. Results of the research allowed the group to select a campaign — “Water, Use It Wisely” — which will begin running in 2003.

**Festivals** - Water conservation messages were highlighted at KOMO Kids’ Fair; Highline Festival; Sammamish Watershed Festival; Redmond Derby Days; Olympic View Festival; Skyway Festival and a number of smaller neighborhood events.

**Savingwater.org** - Savingwater.org continued to be the central repository for regional water conservation information on the web. Application forms for some programs were added to the site. Near the end of 2002, a number of web management tools were incorporated into Savingwater.org to improve our knowledge of visitors to the site. A new management tool called Web Trends allows us to monitor daily hits and visits to the site.

**684-SAVE** - The regional 684-SAVE phone line continued to offer people answers to their questions about saving water. Fact sheets were distributed by 684-SAVE operators to help people answer questions regarding such topics as how to fix leaks, how to purchase water efficient clothes washers, efficient toilets, rain barrels, and how to pursue other conservation opportunities.

**Residential water conservation customer research** - a benchmark survey that has been conducted systematically every two to three years since 1990 took place in fall of 2001, and was completed in 2002.<sup>15</sup> This 1,000 participant survey provided quantitative and qualitative customer research to track indicators over time to assess program effectiveness. The survey measured current attitudes and behaviors of residential customers with respect to water conservation. The 2001 survey also gathered insights about the effects of the regional drought on changes in attitudes and behaviors. The survey found that customer beliefs that it is important to conserve water and that their actions can help solve water supply problems have generally intensified since 1999. 94% believe it is important for their households to actively conserve water. 89% of customers feel their individual actions can greatly affect or somewhat affect whether we have enough water. Table 14 shows four of the indicators identified in the evaluation, and how customer water use habits and attitudes toward conservation and have changed since 1999.

**Table 14: Selected Water Conservation Indicators from Residential Survey Data**

Indicator	1999* Survey (N=1,223)	2001* Survey (N=1,032)
Importance to actively conserve water: ▪ Very Important	49%	58%
Ability of individuals to affect supply: ▪ Greatly affect/make supplies last a lot longer	42%	47%
Use compared to two years ago: ▪ Use less than two years ago	NA	56%
How much more can you save? ▪ A great deal/somewhat/a little more ▪ No more	76% 21%	73% 24%
* Margin of error is +/-2.9% for 1999 survey and +/-3.2% for 2001 survey.		

## LOOKING AHEAD

SWP messaging will primarily focus on program-specific advertising in 2003. The Water Conservation Coalition of Puget Sound with funding support from the SWP will launch a print and radio "Water – Use It Wisely" campaign in summer of 2003.

## 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 Regional Education Committee. Resources and program elements for students, teachers and associated parent groups are developed through partnerships with their respective school districts. Materials and services are produced that directly meet the needs articulated by the districts. An advisory group, consisting of school district staff, is consulted on a biannual basis for their input.

### 2002 GOALS AND STRATEGY

Activities developed for use in schools support the savings achieved by the residential indoor and landscape programs, and to a lesser extent this work also influences commercial savings. In 2002, youth education strategies included:

- Developing and distributing conservation kits and other educational resources for use by school groups.
- Providing professional development opportunities for school staff.



*Students on a field trip to the Cedar River Watershed.*

- Developing, sponsoring and staffing educational booths at children's events.
- Developing and refining on-line activities and information for students and teachers.
- Including school staff in regional strategy meetings.

## 2002 PERFORMANCE

The number of students and classrooms participating in SWP activities exceeded 2002 targets. Accomplishments included a new version of home water savings kits, professional development opportunities, information/activity booths at community events, on-line activities, and child-oriented TV messaging.

**Table 15: Youth Resources in 2002**

Activity	Target	Totals
Conservation kits	8,000	9,260
Posters distributed	1,000	2,150
Purveyor field trips	8	18

**A revised Home Water Saver Kit**, based on the previous Student Water Saver Kit was produced and distributed. The new version includes an information sheet on the water system, improved and simplified activity instructions, a toilet volume measurement device and a specially designed ruler for measuring irrigation water use. Several versions of the kit were distributed to purveyors. In all, approximately 10,000 kits have been distributed directly to schools, as event booth giveaways, and directly at utility payment centers.

**A third "Water Matters" teacher workshop** was held in Bellevue, based on the successes of the previous workshops. Twenty-two educators attended and gave very positive reviews of the content and usefulness of the workshop. Teachers learned about their water sources and strategies for saving water.

**An on-line interactive map of the Regional Water System** will be completed in 2003, the culmination of several years' discussion and planning. 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. It provides, for the first time, immediate access to information about the water system in one convenient package for any person interested in knowing about their water. Future components will include conservation information and fish habitat protection.

To take advantage of the growing number of children's events related to water, a **display booth** was created that provided information and activities on water supply and conservation. Staff from the Partnership were involved with the H2O 2002 Festival, The Sammamish Watershed Festival and the KOMO Kid's Fair. Conservation kits, *Your Clean Water Connection* posters and *Shared Waters* activity books were distributed to customers. Bert the Salmon made guest appearances to underscore the importance of water for fish and people.

As mentioned in Overall Messaging, above, an **educational cartoon television ad** was created and aired on KOMO-4 featuring Bert the Salmon and friend Phil Dumpster. The ad highlighted important water conservation behaviors in a light-hearted, but effective way. The ad aired from July to September on prime time including Disney time periods. Market research with kids showed a high recognition of Bert and what he stands for.

## LOOKING AHEAD

Based on the successes of activities introduced this year, the 2003 program will continue development of resources and services that meet the needs of students and teachers in schools throughout the service region. A refined "Water Matters" teacher workshop is being planned for



summer at the new Cedar River Watershed Education Center. Additions to the new Regional Water System Map and improvements to the “For Schools” link to the Savingwater.org web site will provide users with better and more attractive options. A new version of the popular “Your Clean Water Connection” map will be developed and distributed. Work will continue on the development of the Tolt Filtration Plant tour for high school and teacher groups. Interactive exhibits will be developed for use in educational display booths for kids. This booth will again be staffed at three school-sponsored regional events. A sequel is planned for the Bert the Salmon cartoon ad for summer and fall in partnership with KOMO-4 TV. Development and sponsorship of a revised middle school program will be studied. Participation in the development of programs as part of a new Cedar Watershed Institute will provide continuity to regional education efforts.

## **Evaluation and Monitoring**

### **PROGRAM DESCRIPTION**

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.



*Reading meters is an integral part of program impact evaluation.*

The *Conservation Potential Assessment*<sup>16</sup> is an overarching conservation evaluation that guides effective program implementation by identifying potential conservation opportunities and costs.

### **2002 GOALS AND STRATEGY**

Evaluation efforts in 2002 focussed on six major areas to support comprehensive review and improvement of conservation services:

- Improve tracking and reporting systems to support regular **monitoring** of conservation efforts, including construction and maintenance of a database to include purveyor customer data on a voluntary basis (Purveyor Billing and Research Database), quarterly reports on all hardware incentive programs and annual reports on the entire conservation program.
- Complete the comprehensive **residential conservation evaluation** begun in 2001, focussing on regional 'tracking' survey of residential awareness and behaviors; participant surveys for service satisfaction; and program data for quantifying fixture upgrades.
- Complete the **commercial conservation evaluation** begun in 2001, incorporating field monitoring of sampled sites to revise saving estimates; regional business survey for awareness and barriers; and participant surveys for service satisfaction.
- Continue to improve interactive capabilities for the **Conservation Potential Assessment** to allow more dynamic modeling by program managers of program costs, alternatives, and savings potential.

- **Evaluate new program directions** by verifying savings potential of new measures, determining customer satisfaction with new program offerings, and analyzing barriers to customer participation in 1% Program indoor and outdoor residential services.
- Complete the first **annual report** of 1% Program savings and accomplishments

## 2002 ACCOMPLISHMENTS

SWP staff and consultants designed and implemented new evaluation components in 2002 to build the comprehensive program review, including:

- Issued the first Annual Report for the 1% Program.
- Constructed a database for analysis of purveyor customer consumption and initiated annual collection of data.
- Refined the existing integrated database for all commercial audits and incentives.
- Introduced new quarterly reports on commercial and multifamily incentive projects.
- Designed interactive capabilities for the Conservation Potential Assessment (developed but not completed until 2003).

**Residential Sector** - The 1% Program completed the *Residential Conservation Evaluation*<sup>17</sup> which provided comprehensive process and impact evaluation of the 2001 program, including detailed water savings estimates, program satisfaction, barriers to participation, and opportunities for delivery improvement. The *Residential Water Conservation Survey*, which is Volume 3 of the comprehensive evaluation, analyzed change in customer attitudes toward conservation, adoption of conservation behaviors and receptiveness to various conservation measures.

In addition to the comprehensive evaluation of the 2001 program, several residential landscape program efforts were evaluated in 2002. Process evaluations were conducted for both the soaker hose and compost promotions. Northwest Natural Yard Days (NWNYYD) surveyed customers at retail stores to determine the effectiveness of media strategies and to learn which products they intended to purchase. In addition, retailers provided sales data on products sold.

Impact and process evaluation for the residential landscape audits and irrigation hardware testing included the following components: control groups, meter reading before and after the audits or devices were provided, and customer surveys. Participating customers were matched up with “control” customers who had similar water use patterns but did not receive any conservation information or assistance from the SWP. Comparing the controls’ water use to participants’ water use helped to indicate whether savings could be attributed to these programs. The meter readings provided timely consumption data that enabled the program to be evaluated in 2002. Customer surveys for the audits provided information on customer satisfaction and whether or not customers implemented the recommendations they received. Surveys for irrigation hardware testing provided information on customer satisfaction and motivations for participating.

**Commercial Sector** - Similar to the residential indoor customer sector, the commercial program completed a *Commercial Conservation Evaluation*,<sup>18</sup> which provided comprehensive process and impact evaluation of the 2001 program, including detailed water savings estimates, program satisfaction, barriers to participation, and opportunities for service delivery improvement. The commercial program has implemented a strategy of voluntary ongoing monitoring of participants’ water savings, in order to refine estimates of Water Smart Technology program savings.

## LOOKING AHEAD

In addition to the 2003 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, as will new single family toilet and flapper replacement start-up programs. Tenants and low-income toilet rebate participants will be surveyed about their satisfaction with the Low-Income Toilet Rebate.
- 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 two years of implementation.
- In 2003 NWNYP will gather information similar to what was collected in 2002, as well as store intercept surveys to find out customer awareness of the program and secret shopper surveys of the helpfulness and awareness of store staff. A survey of 2002 participants will also be conducted, primarily to find out about their use of the non-mower products. As a part of the Northwest Natural Yard Days promotional package with KING-TV, an automated pre- and post-sale phone survey of 500 area residents will be conducted in 2003.
- New programs coming on-line, such as Natural Neighborhoods, will survey participants to determine customer satisfaction.
- 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.
- SPU will begin updating the Conservation Potential Assessment in 2003. This update will not be completed until 2004. The new Conservation Potential Assessment will revise estimates for savings potential and costs based on new research, technology improvements, survey and program data.

## End Notes

<sup>11</sup> 2002 Natural Lawn & Garden Summary Notebook, Seattle Public Utilities, 2002.

<sup>12</sup> Commercial Program Design Strategy, Seattle Public Utilities, 2001,  
[http://www.ci.seattle.wa.us/util/RESCONS/papers/Comm\\_Program\\_Design\\_Strategy.PDF](http://www.ci.seattle.wa.us/util/RESCONS/papers/Comm_Program_Design_Strategy.PDF).

<sup>13</sup> Impact and Process Evaluation of the 2001 Commercial Water Conservation Programs:

- Volume 1: Program Evaluation Report, Seattle Public Utilities, 2002,  
[http://www.ci.seattle.wa.us/util/RESCONS/papers/2001\\_Commercial\\_Water\\_Vol1.PDF](http://www.ci.seattle.wa.us/util/RESCONS/papers/2001_Commercial_Water_Vol1.PDF).
- Volume 2: Participant and Population Surveys, Seattle Public Utilities, 2002,  
[http://www.ci.seattle.wa.us/util/RESCONS/papers/2001\\_Commercial\\_Water\\_Vol2.PDF](http://www.ci.seattle.wa.us/util/RESCONS/papers/2001_Commercial_Water_Vol2.PDF).
- Volume 3: Measure-Specific Evaluation Reports, Seattle Public Utilities, 2002.

<sup>14</sup> Impact and Process Evaluation of the 2001 Commercial Water Conservation Programs:

- Volume 1: Program Evaluation Report, Seattle Public Utilities, 2002,  
[http://www.ci.seattle.wa.us/util/RESCONS/papers/2001\\_Commercial\\_Water\\_Vol1.PDF](http://www.ci.seattle.wa.us/util/RESCONS/papers/2001_Commercial_Water_Vol1.PDF).
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- Volume 3: Measure-Specific Evaluation Reports, Seattle Public Utilities, 2002.

<sup>15</sup> 2001 Residential Programs Evaluation Report: Volume 3: 2001 Residential Water Conservation Survey Results, Seattle Public Utilities, 2002,  
[http://www.ci.seattle.wa.us/util/RESCONS/papers/Res\\_Eval\\_2001\\_Vol3.pdf](http://www.ci.seattle.wa.us/util/RESCONS/papers/Res_Eval_2001_Vol3.pdf).

<sup>16</sup> Conservation Potential Assessment, Seattle Public Utilities, 1998,  
<http://www.ci.seattle.wa.us/util/RESCONS/CPA/default.htm>.

<sup>17</sup> 2001 Residential Programs Evaluation Report:

- Volume 1: Findings, Seattle Public Utilities, 2002,  
[http://www.ci.seattle.wa.us/util/RESCONS/papers/Res\\_Eval\\_2001\\_Vol1.pdf](http://www.ci.seattle.wa.us/util/RESCONS/papers/Res_Eval_2001_Vol1.pdf).
- Volume 2: Back Up Reports and Data, Seattle Public Utilities, 2002,  
[http://www.ci.seattle.wa.us/util/RESCONS/papers/Res\\_Eval\\_2001\\_Vol2.pdf](http://www.ci.seattle.wa.us/util/RESCONS/papers/Res_Eval_2001_Vol2.pdf).
- Volume 3: 2001 Residential Water Conservation Survey Results, Seattle Public Utilities, 2002, [http://www.ci.seattle.wa.us/util/RESCONS/papers/Res\\_Eval\\_2001\\_Vol3.pdf](http://www.ci.seattle.wa.us/util/RESCONS/papers/Res_Eval_2001_Vol3.pdf).

<sup>18</sup> Impact and Process Evaluation of the 2001 Commercial Water Conservation Programs:

- Volume 1: Program Evaluation Report, Seattle Public Utilities, 2002,  
[http://www.ci.seattle.wa.us/util/RESCONS/papers/2001\\_Commercial\\_Water\\_Vol1.PDF](http://www.ci.seattle.wa.us/util/RESCONS/papers/2001_Commercial_Water_Vol1.PDF).
- Volume 2: Participant and Population Surveys, Seattle Public Utilities, 2002,  
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- Volume 3: Measure-Specific Evaluation Reports, Seattle Public Utilities, 2002.

## 4. Consumption Analysis

### Historical Data

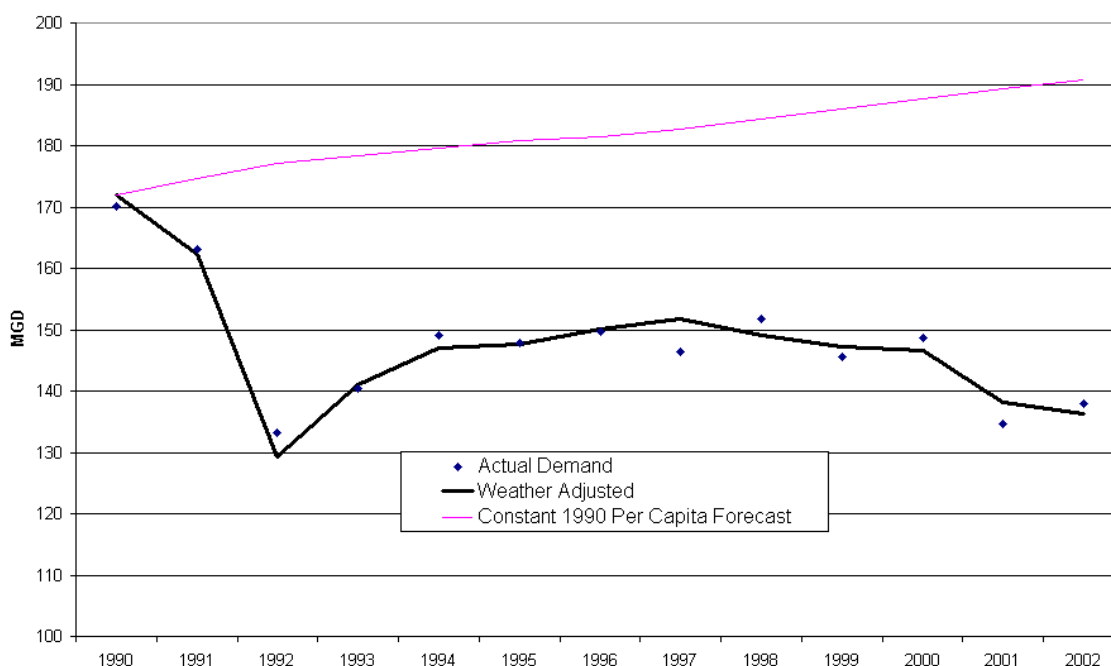
To put the 2002 experience into context and better understand the Saving Water Partnership's program performance in 2002, a review of historical water use patterns is useful. The years 1992, 2001 and 2002 produced three "drought" responses in the last 10 years. These years exhibit peculiar water use patterns in that customers were asked to temporarily curtail their water use. In 1992, water use was severely restricted, and drought actions included a mandatory ban on lawn watering. In contrast during 2001, customers were only asked to voluntarily reduce their water use by 10%. Again in late 2002 customers were asked to voluntarily reduce their use, but not given a numerical target to shoot for. Table 16 compares 2002 and 2001 to the previous drought and the 1994-2000 average water use.

**Table 16: Recent and Historical Demand**

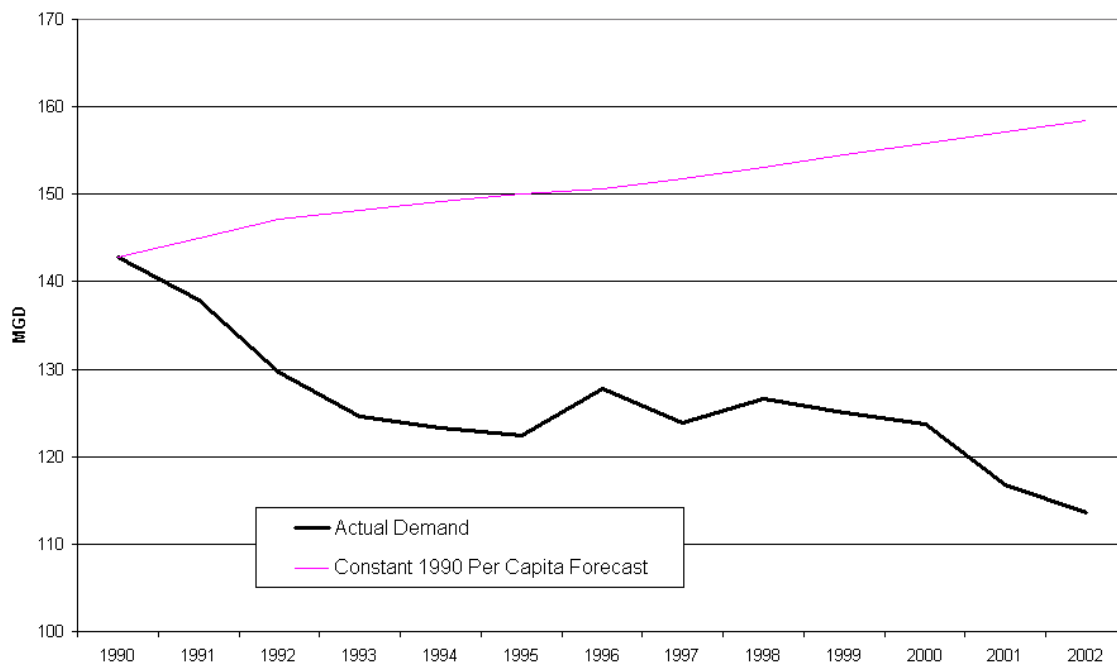
	2002	2001	'94-'00 Avg	1992
Average Annual Daily Demand - MGD	137	135	148	132
Average Summer Daily Demand - MGD	172	159	182	137
Average Winter Daily Demand - MGD	112	117	125	129
Annual Per Capita Daily Demand – GPD Per Person	102	101	117	108

Consumption in 2002 closely followed the pattern of decreased use seen in 2001. Warmer drier summer weather contributed to higher summer use but this was offset by lower winter use so that average annual use was not increased significantly. While average annual use in 2001 was slightly higher than in 1992, use per person was lower than the more extreme drought of 1992. The following Charts illustrate how demand has changed historically.

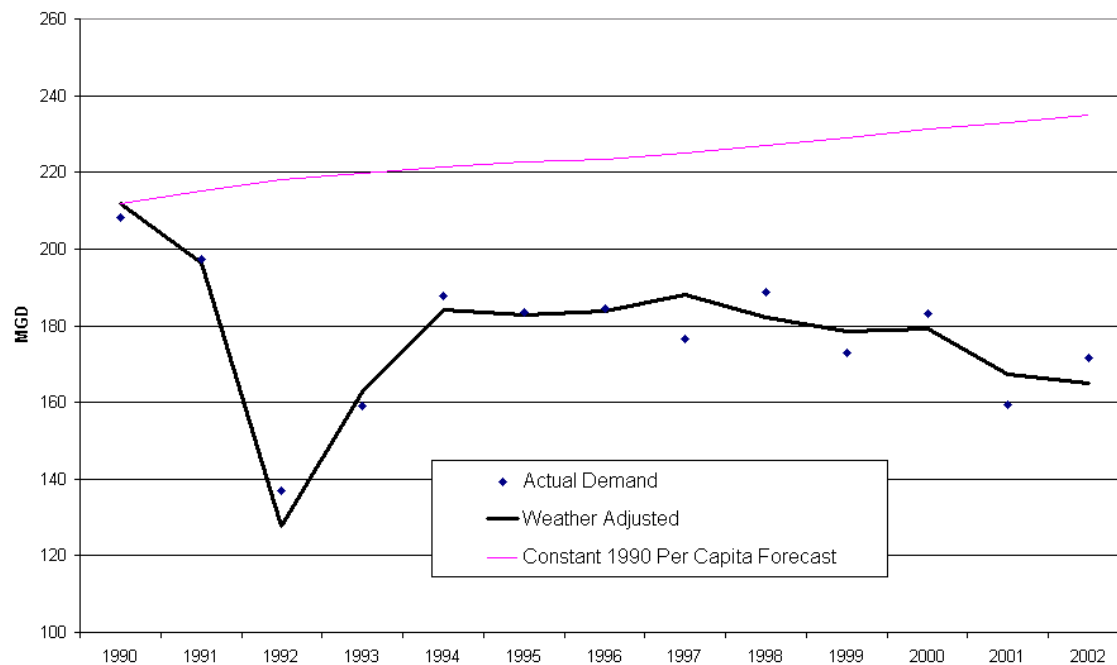
**Chart 5: Regional Annual Average Water Demand**



**Chart 6: Regional Winter Water Demand**



**Chart 7: Regional Summer Water Demand**





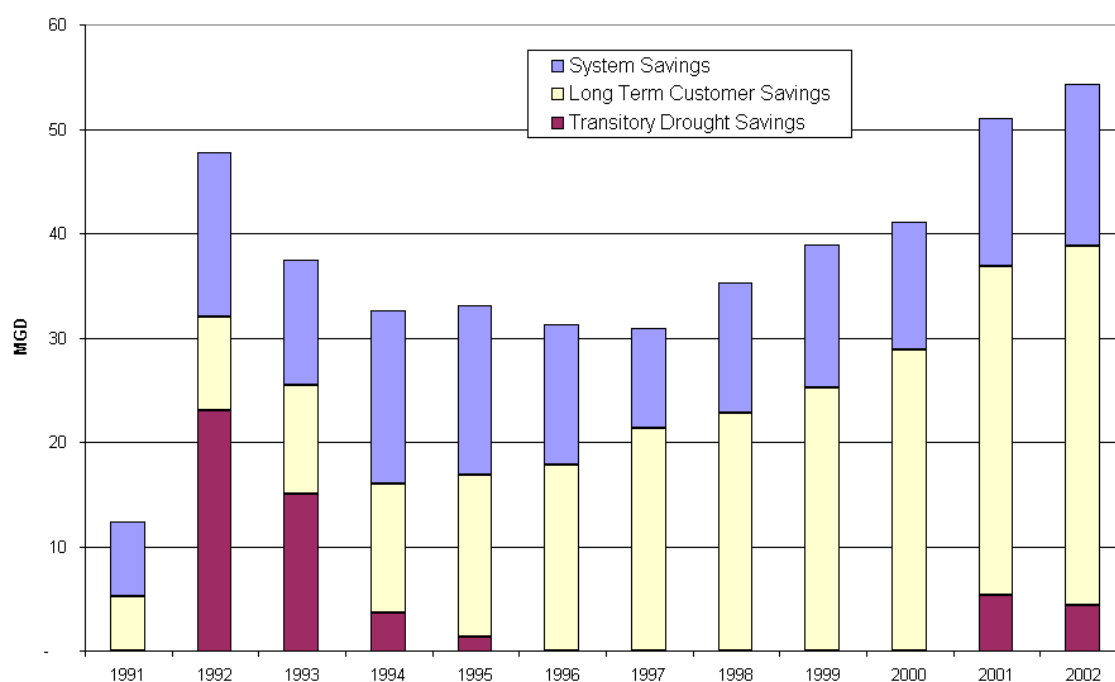
Two things to note in Charts 5, 6 and 7: first, a demand “projection” using constant per capita use (equal to 1990 per capita use) -- the upper line -- is compared to actual demand. Second, the weather’s year-to-year effect on demand has been accounted for using a regression model to adjust actual demand to a level associated with “normal” weather. This model “normalizes” demand -- downward in a year that had a hot, dry summer, and upward when there was a cool, wet summer. For instance, because 2002 experienced a warm and very dry summer, “weather-adjusted” demand in 2002 is somewhat lower than actual demand in 2002. The weather-adjusted demand is the solid black line.

Average annual water use has departed steadily from constant per capita demand since the mid-1990’s. Summer water demand has fallen significantly from the 1990 level of about 210 MGD. The reduction in water use in 1992 was nearly to the level of early 1990’s winter-time demands. After re-bounding in 1993 and 1994, summer demand has remained at about 180 MGD, until the drought of 2001. The reduction in 2001 was not as severe as 1992, falling from a lower initial level, and not falling to the low 1992 levels. Unlike 1992, customers continued to irrigate in 2001 without mandatory lawn watering restrictions, albeit less than during a typical summer in the late 1990’s. A warm and very dry summer in 2002 caused actual summer demand to increase from 2001 actual demand. However, this increased use was still below average summer consumption in 2000 and before, and when adjusted for weather, represents a continued decline in summer demand. Regarding winter demand, 2002 continued the steep decline in winter use visible since 2000. The three main factors contributing to the decline are the 1% Program, drought curtailment, and a regional economic downturn.

## Conservation Savings

Chart 8 depicts the sources of historically achieved water savings, defined as the difference between the constant per capita demand forecast and the weather adjusted actual demand in each year. Total savings in Chart 8 correspond to the growing difference between the “constant per capita” line and the “weather adjusted actual” line in the Average Annual Demand Charts 5, 6 and 7 above.

**Chart 8: Cumulative Annual Water Savings since 1990**



System savings (the top bar) are reductions in non-revenue water use. After the initial savings in 1991 and 1992, system savings have not increased over time, fluctuating from year to year, but averaging about 12 MGD. (In the coming years system savings should grow by another 3 MGD on average as in-town Seattle reservoirs are covered.)

On the other hand, long-term customer savings including rate and code effects, (the middle bar) have grown steadily to nearly 40 MGD in 2002.

The bottom bar shows transitory savings from the 1992, 2001, and 2002 drought curtailments. The 1992 transitory drought curtailment savings diminished and finally disappeared after about four years. It is expected that the transitory curtailment savings from 2001 will gradually diminish over the next few years, in a fashion similar to 1992. However, the nature of the latest transitory savings is different than 1992. In 2002, transitory savings included not only drought carry-over from 2001, but also the effects of the local economic downturn, estimated to be 1.7 MGD of the total 6 MGD transitory savings. Since peaking in 2000, regional employment declined 1% in 2001 and 2.7% in 2002. This was the first time total employment in the Puget Sound region had fallen since 1982. The estimated impact of this employment decline was to reduce water demand half a million gallons per day in 2001 and an additional 1.7 MGD in 2002. In addition, the 2002 transitory savings are smaller than in 1992 because the curtailment was voluntary rather than mandatory.

Table 17 shows estimates of the sources of savings in 2002, over and above the cumulative long-term savings achieved through 2001. The savings are for “weather adjusted” demands. The weather regression model estimates that actual demand in 2002 was about 1.5 MGD higher than normal weather demand, reflecting the warm and very dry summer.

**Table 17: Estimates of Savings**

	<b>New Savings in 2002</b>
Transitory Drought Curtailment and Economic Slowdown	4.0 MGD
Transitory Above-normal Non-revenue Savings	2.0 MGD
New Long-term Customer Savings	2.8 MGD
<b>Total New 2002 Savings</b>	<b>8.8 MGD</b>

Based on the 1992 experience, the 4 MGD of transitory drought curtailment savings will gradually diminish and the 2 MGD of above-normal non-revenue savings will not be sustained in 2003 and beyond.

Table 18 gives further detail on the sources of 2002 conservation savings. Long-term savings include savings that would come from higher water rates and plumbing fixture codes, without the 1% Program. The other sources of long-term savings includes both the direct and indirect impacts from incentives, education and promotion of the 1% Program – these savings are the focus of this report's other sections.

Transitory savings come from above-normal system (non-revenue) savings and from temporary drought curtailment actions, as well as 2002's temporary slowing of economic activity in the regional service area.

**Table 18: New Water Savings Achieved in 2002 (MGD)**

	New Long-Term Customer Savings						Transitory Savings			Total <sup>6</sup>
	1% Conservation Program		Rates	Code	Seattle Low Income <sup>3</sup>	Total	Curtailment & Economy <sup>4</sup>	System	Total	
	Hardware <sup>2</sup>	Behavior								
Residential Indoor <sup>1</sup>	0.28	0.1	0.3	0.5	0.3	1.5	0.7	-	0.7	2.1
Residential Landscape	<0.01	0.3	0.1	-	-	0.4	0.6	-	0.6	1.0
Commercial Domestic	0.04	0.2	0.0	0.3	-	0.5	0.9	-	0.9	1.4
Commercial Process	0.15	0.1	0.1	-	-	0.4	1.6	-	1.6	2.0
Commercial Landscape <sup>1</sup>	0.01	<0.1	<0.1	-	-	0.1	0.2	-	0.2	0.3
2002 Total <sup>7</sup>	0.5	0.7	0.5	0.8	0.3	2.8	4.0 <sup>5</sup>	2.0	6.0	8.8

<sup>1</sup>Includes Multifamily

<sup>2</sup>Savings from fixture replacement and equipment upgrade programs can be measured with greater precision than other sources of savings in this table.

<sup>3</sup>Seattle low-income savings are separate from and in addition to the 1% Program as required by Seattle Ordinance 120532. These savings resulted from toilet retrofits completed in low-income housing in 2002.

<sup>4</sup>Includes impact of curtailment carry-over from 2001 drought (2.3 MGD) and temporarily depressed economic conditions (1.7 MGD) in 2002.

<sup>5</sup>4.0 MGD in 2002 indicates that 1 MGD of the 2001 transitory savings has eroded and that 4 MGD of transitory savings are still expected to erode as time passes.

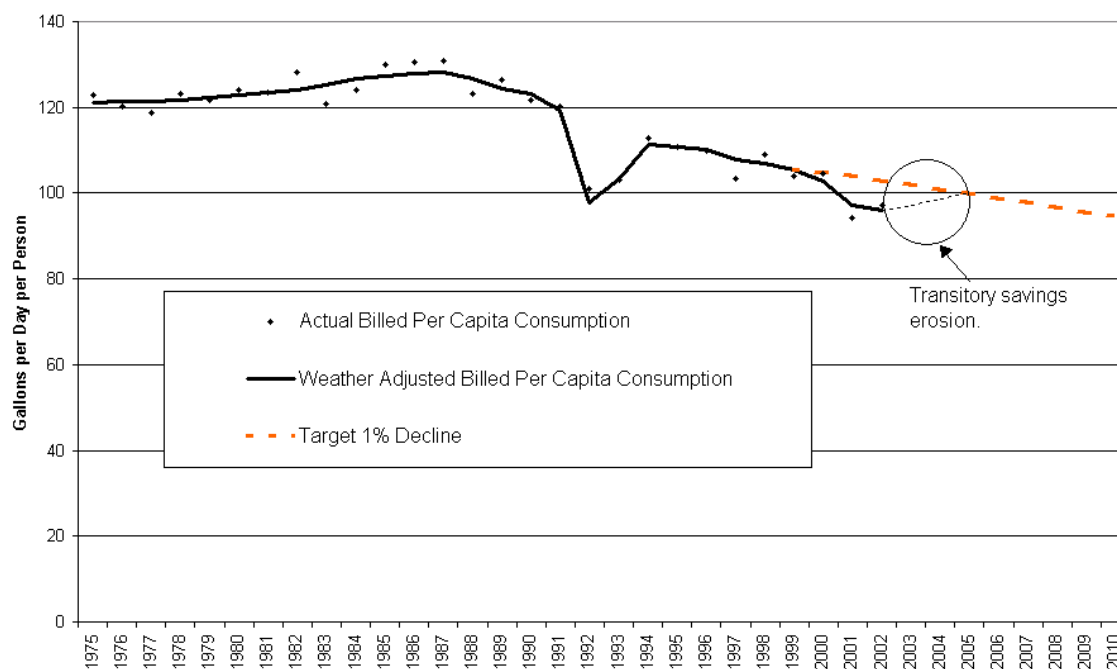
<sup>6</sup>Savings are weather-adjusted from 2002 forecast.

<sup>7</sup>Some totals may not add due to rounding.

The savings breakout in Table 18 was estimated as follows: Rates – price elasticity parameters from SPU’s econometric model forecast; Code – natural replacement of plumbing fixtures as forecast in SPU’s Conservation Potential Assessment model; 1% Program Hardware – see individual program estimates from Section 3 of this report; System – analysis of 2002 system use; Drought Curtailment – analysis of 1992 post-drought experience; Economy – statistical analysis of the impact of changes in employment on commercial water consumption over the period 1987 through 2002; 1% Program Behavior – residual savings derived from all other savings.

Chart 9 shows per capita use back to 1975, illustrating that until the late 1980’s, per capita use was on the rise. Since then, with increased emphasis on conservation, per capita use has been steadily decreasing. As in 1992, the year 2001 saw a dramatic (though not of 1992 magnitude) one-year decline in water use. However, as again was the case in 1992, a good part of those savings are short-term transitory reductions in use which will erode over a few years’ time. The estimate of the future of those transitory savings is shown on Chart 9 (dotted line in circle). The 1% Program target for per capita consumption is shown as the dashed line. As the chart shows, the 2002 per capita consumption is well below the 2002 Target for the 1% Program.

**Chart 9: Regional Billed Per Capita Consumption**



From a long-term conservation perspective, the transitory savings from the 2001 and 2002 droughts may be viewed as achieving some of the behavioral savings that were to be gradually obtained over the next ten years. Continuation of long-term behavior programs will convert some of those transitory savings to long-term customer savings. In addition, investments in long-lived hardware, fixture and technology programs can continue to be emphasized in order to proceed toward the 1% Program long-term water use goals.

## 5. Rebated Equipment by Water Provider

Tables 19 to 25 summarize incentives provided to customers in the SWP service area listed by utility partner.

**Table 19: WashWise Rebates**

<i>Utility</i>	<b>2001</b>	<b>2002</b>	<b>% Increase from 2001 to 2002</b>	<b>Total Rebates 1997 - 2002</b>
Cedar River	139	146	5%	482
City of Bellevue	800	820	3%	3,072
City of Bothell	82	110	34%	371
City of Duvall	51	54	6%	170
City of Edmonds	114	116	2%	463
City of Kirkland	317	343	8%	1,231
City of Mercer Island	162	199	23%	703
City of Redmond	613*	395	-36%	1,335
City of Tukwila	19	26	37%	91
Coal Creek	117	148	26%	510
Highline	186	198	6%	813
K.C. #20	51	82	61%	292
K.C. #45	5	13	160%	34
K.C. #49	51	41	-20%	196
K.C. #85	8	15	88%	48
K.C. #90	93	101	9%	373
K.C. #119	15	23	53%	95
K.C. #125	24	26	8%	123
Lake Forest Park	26	32	23%	81
Northshore	344	406	18%	1,432
Olympic View	54	59	9%	208
Seattle Public Utilities	4229	4143	-2%	17,739
Shoreline	175	187	7%	793
Skyway	35	32	-9%	156
Soos Creek	236	283	20%	1,109
Woodinville	328	339	3%	1,317
<b>Totals: all utilities</b>	<b>8,274</b>	<b>8,337</b>	<b>1%</b>	<b>33,237</b>

\* The City of Redmond had 272 washers rebated at the Redmond Ridge Development.

**Table 20: Multifamily Toilet Rebates in 2002**

<i>Utility</i>	<i>% of Total Toilets</i>	<i>Number of Customers</i>	<i>Total # of Toilets</i>
Cedar River	0.4%	1	20
City of Bellevue	4.1%	5	184
City of Bothell	0.5%	2	21
City of Duvall	0.0%		
City of Edmonds	0.0%		
City of Kirkland	0.1%	1	4
City of Mercer Island	0.2%	1	9
City of Redmond	2.5%	1	110
City of Tukwila	0.0%		
Coal Creek	0.0%		
Highline	2.2%	6	98
K.C. #20	0.0%		
K.C. #45	0.3%	1	12
K.C. #49	0.2%	2	11
K.C. #85	0.0%		
K.C. #90	0.0%		
K.C. #119	0.0%		
K.C. #125	2.9%	3	127
Lake Forest Park	0.0%		
Northshore	1.7%	4	75
Olympic View	1.0%	1	46
Seattle Public Utilities	79.9%	205	3,552
Shoreline	1.7%	5	77
Skyway	0.0%	1	2
Soos Creek	0.4%	1	20
Woodinville	1.8%	1	80
<b>Totals: all utilities</b>	<b>100%</b>	<b>241</b>	<b>4,448</b>



**Table 21: Soaker Hoses Sold at Nurseries in 2002**

Nurseries	Location	Hoses Sold
Alpine Nursery	Renton	15
Bellevue Nursery	Bellevue	96
City People's Garden Store	Seattle	208
Classic Nursery and Landscape Co	Redmond	77
Cottage Creek Nursery	Woodinville	19
Furney's Nursery	Des Moines	472
Gray Barn Garden Center	Redmond	22
Gray Barn Garden Center - Bella Location	Redmond	151
Hayes Nursery	Issaquah	52
Hopkins Nursery Lawn & Garden Store	Bothell	29
Julius Rosso Nursery	Seattle	47
Magnolia Garden Center	Seattle	49
Molbak's - Seattle Garden Center	Seattle	30*
Molbak's - Woodinville	Woodinville	121*
Olympic Nursery	Woodinville	83
Sky Nursery	Seattle	485
Squak Mountain Greenhouse & Nursery	Issaquah	34
Swansons Nursery	Seattle	268
West Seattle Nursery	Seattle	121
Wright's Home & Garden	Lynnwood	23
<b>Total</b>		<b>2,402</b>

**Note:** Twenty-eight nurseries throughout the regional service area were invited to participate. Eighteen nurseries with a total of twenty locations signed up to participate, up from 12 nurseries with 14 locations in 2001. Four nurseries were located in South and Southeast King County, nine nurseries were located in East and Northeast King County and seven nurseries were in Seattle. While a few are located just outside the service area, they were included in the promotion since they tend to draw customers from the Saving Water Partnership.

\* Molbak's reported a total of 151 rebates for the two stores. The allocation of rebates between the two stores is an estimate.

**Table 22: NW Natural Yard Days Sales Data**

<b>Sales Items</b>	<b>Store Sales 2001</b>	<b>Store Sales 2002</b>	<b>2002 Event</b>	<b>Total Sales</b>	<b>Total Increase</b>
Electric Mowers	447	1,586	380	1,966	1,519
Push Mowers	246	571	240	811	565
Bags of Compost	14,496	38,097	2,942	41,039	26,543
Weed Puller	1,027	1,725	464	2,189	1,162
Soaker Hoses	632	853	1,220	2,073	1,441
Insecticidal Soap	163	308	491	799	636
Water Timers	343	487	590	1,077	734
Bags of Organic Fertilizer	2,019	3,255	594	3,849	1,830
Rain Barrels	0	0	100	100	100
<b>Overall Items Sold</b>	<b>19,373</b>	<b>46,882</b>	<b>7,021</b>	<b>53,903</b>	<b>34,530</b>

**Note:** 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 and a number of suburban cities to promote sales of natural yard care products. The promotion consisted of a kickoff event followed by three weeks of retail sales at 33 hardware stores and home improvement centers in King and Pierce Counties. Nineteen of the 33 retail locations were in the SWP service area.

**Table 23: Water Smart Technology Incentives in 2002**

<b>Utility</b>	<b>Customer</b>	<b>Type of Project</b>	<b>GPD</b>
City of Bellevue	St. Thomas School	Tank-Type Toilets	60
City of Bellevue	Silver Cloud Inn - Bellevue	Cooling/Refrigeration/Ice	500
City of Kirkland	JBP Kirkland LLC	Tank-Type Toilets	200
City of Redmond	Lake Wash. SD - Rush Elem	Bathroom	191
City of Redmond	Lake Wash. SD - Support Center	Aerators	110
City of Redmond	Lake Wash. SD - Support Center	Urinals	110
Highline	Airport Plaza Hotel	Bathroom	1,500
Highline	Highline SD 401 - Memorial Field	Urinals	1,440
Highline	Sea-Tac Marriott Hotel	Urinals	240
Highline	Viva Mexico	Cooling/Refrigeration/Ice	1,500
Northshore	Lake Wash. SD - Frost Elem	Aerators	144
Northshore	Lake Wash. SD - Muir Elem	Aerators	118
Northshore	Lake Wash. SD - Sandburg Elem	Aerators	149
Northshore	Lake Wash. SD - Juanita HS	Aerators	408
Northshore	Lake Wash. SD - Frost Elem	Urinals	186
Northshore	Lake Wash. SD - Sandburg Elem	Urinals	186
Northshore	Lake Wash. SD - Juanita HS	Urinals	670
Northshore	Lake Wash. SD - Juanita HS	Custom Project - Urinals	3,752
SPU	The Westin Hotel	Aerators	891
SPU	Bishop Blanchet High School	Flush-Valve Toilets	1,025
SPU	Northwest Building Corporation	Flush-Valve Toilets	5,920
SPU	Seattle Center House	Flush-Valve Toilets	390
SPU	Trammell Crow Co. – Union Bank of CA Center	Flush-Valve Toilets	1,050
SPU	WXIII/SVC Real Estate Ltd. Partnership - 720 Olive Way Bldg	Flush-Valve Toilets	2,562
SPU	Best Western Executive Inn	Tank-Type Toilets	264
SPU	Sorrento Hotel	Tank-Type Toilets	1,368
SPU	Aristocrat's Club Bar & Grill	Urinals	100
SPU	Mithun	Urinals	137
SPU	Northwest Building Corporation	Urinals	5,920
SPU	Pacific Science Center	Urinals	450
SPU	U of W Urinals	Urinals	14,000
SPU	B & G Machine, Inc.	Cooling/Refrigeration/Ice	500
SPU	Cake House	Cooling/Refrigeration/Ice	150
SPU	Cristwood	Cooling/Refrigeration/Ice	1,330
SPU	Ivar's Pier 54 Fish Bar	Cooling/Refrigeration/Ice	1,000
SPU	Masala of India Cuisine	Cooling/Refrigeration/Ice	716
SPU	PEMCO Financial Services	Cooling/Refrigeration/Ice	1,000
SPU	Pike Place Fish	Cooling/Refrigeration/Ice	6,531
SPU	Seattle Central Community College	Cooling/Refrigeration/Ice	5,437
SPU	The Hearthstone	Cooling/Refrigeration/Ice	400
SPU	The Rainier Club	Cooling/Refrigeration/Ice	1,550
SPU	UW - Magnuson Health Science Center	Cooling/Refrigeration/Ice	10,000
SPU	UW - McMahon Hall	Cooling/Refrigeration/Ice	10,000

Utility	Customer	Type of Project	GPD
SPU	Wallingford Texaco	Cooling/Refrigeration/Ice	300
SPU	Westin Hotel	Cooling/Refrigeration/Ice	700
SPU	Barrett Dental Offices	Custom Project – Dental Vacuum	370
SPU	Group Health Central Campus Hospital	Custom Project - Medical Air Compressor	6,854
SPU	Quiring Monuments	Custom Project - Process Water Recycling	200
SPU	Sunset Bowl	Custom Project - Cooling/Refrigeration/Ice; Hands-Free Faucets; Flush-Valve Toilets	1,153
SPU	Swedish Medical Center-Providence Campus	Custom Project - Commercial Dishwasher	5,568
SPU	The Westin Hotel	Custom Project - Dishwashers	4,400
SPU	Todd Pacific Shipyards Corp.	Custom Project - Air Compressor	3,211
SPU	Trammell Crow-Union Bank of CA Center	Custom Project – Domestic Water Pump	4,267
SPU	UW - Medical Center	Custom Project – Medical Air Compressor & Steam Sterilizers	21,782
SPU	Anamarie's Coin Laundry	Laundry Systems	1,152
SPU	Seattle Hilton Hotel	Laundry Systems	2,654
SPU	The Westin Hotel	Laundry Systems	7,912
SPU	Washington Athletic Club	Laundry Systems	2,679
SPU	Westwood Maytag Laundry	Laundry Systems	2,305
Woodinville	Lake Wash. SD-Kamiakin Jr. High	Aerators	213
Woodinville	Lake Wash. SD-Kamiakin Jr. High	Urinals	261
Woodinville	Lake Wash. SD-Kamiakin Jr. High	Cooling/Refrigeration/Ice	200
		<b>Total</b>	<b>150,336</b>

**Table 24: Water Efficient Irrigation Incentives in 2002**

Utility	Customer	Schedule & Weather Control	System Performance	Install Rain Sensor	GPD
City of Bellevue	Brookstone HOA			Yes	98
City of Bellevue	ERA Care, Inc. - Meydenbauer Retirement			Yes	205
City of Bellevue	ERA Care, Inc. - Garden in Bellevue			Yes	159
City of Bellevue	Innisfree Condo Association			Yes	96
City of Redmond	Archstone Communities - Redmond Campus	Yes	Yes	Yes	1,234
City of Redmond	Lions Gate Townhomes			Yes	43
Highline	Royal Skies	Yes	Yes	Yes	1,578
Northshore	Stonehaven Townhouses			Yes	74
SPU	6th North Apartments			Yes	22
SPU	9709 3rd Av NE Investors			Yes	66
SPU	ERA Care, Inc. – University House			Yes	1,005
SPU	ERA Care, Inc. - Lakeshore			Yes	480
SPU	ERA Care, Inc. - Ida Culver House Ravenna			Yes	382
SPU	ERA Care, Inc. - Broadview			Yes	1,481
SPU	Garden on QueenAnne			Yes	95
SPU	Larch Properties, LLC – El Cerrito Apartments			Yes	25
SPU	Royal Richmond Condominiums			Yes	276
SPU	University of Washington - Suzzallo Library South	Yes	Yes		340
SPU	Western Homes - Camella House Apartments	Yes	Yes	Yes	283
SPU	Woodland Place HOA			Yes	221
Soos Creek	Petro Benson L.P. – North Benson Center			Yes	448
	<b>Total</b>				<b>8,611</b>

**Table 25: Water Efficient Irrigation Audits in 2002**

<b>Utility</b>	<b>Name of Business/Company</b>	<b>Audited Sites</b>
City of Bellevue	City of Bellevue - NE 24th St.	2
City of Bellevue	Bellevue Community College	1
City of Bellevue	City of Bellevue - 114th Av. NE	1
City of Bellevue	City of Bellevue - 100th Av. NE	1
City of Bellevue	City of Bellevue - Newport Way SE	1
City of Bellevue	City of Bellevue - Richards Road	1
City of Bellevue	City of Bellevue - 108th Av. NE	1
City of Bellevue	City of Bellevue - NE 8th St.	2
City of Bellevue	City of Bellevue - 112th Av. NE	1
City of Bellevue	City of Bellevue - 148th Av. N	1
City of Bellevue	City of Bellevue - NE 10th St.	1
City of Bellevue	Equity Residential Prop. Mgmt - Surrey Downs	1
City of Bellevue	City of Bellevue - 148th Av. SE	1
City of Redmond	Equity Residential Prop. Mgmt - Chardonnay Park	1
Highline Water District	Judson Park Retirement Community	1
Highline Water District	Equity Residential Prop. Mgmt -Waterstone Place	1
Northshore Utility District	Willina Ranch Development	1
Northshore Utility District	MorrisPiha Real Estate - Cambridge HOA	1
Northshore Utility District	Essex Portfolio, LP-Evergreen Heights Apts	1
Northshore Utility District	Bridlewood Apartment Homes	1
Northshore Utility District	Madison House Totem Lake	1
Northshore Utility District	Totem Lake Heights Apartments	1
Northshore Utility District	Inglewood Forest	1
Northshore Utility District	Aegis Assisted Living	1
Northshore Utility District	Coventry Place Apartments	1
Northshore Utility District	Inglewood Shores Condominium Assoc.	1
Northshore Utility District	Totem Creek Apartments	1
Olympic View Water & Sewer District	Equity Residential Prop. Mgmt-Firdale Village	1
Seattle Public Utilities	Bailey-Boushay House	1
Seattle Public Utilities	KC Metro Transit - North Base Facility	1
Soos Creek Water & Sewer District	Equity Residential Prop. Mgmt - Indigo Springs	1
<b>Total</b>		<b>33</b>



## **Select Commercial Project Descriptions**

### **Lake Washington School District (Air-Cooled Ice Machines, Air Conditioning and Refrigeration, Water Controls, Flush Valves)**

*City of Redmond, Northshore Utility District, Woodinville Water District, City of Kirkland*

Lake Washington School District performed an extensive amount of water conservation that involved work in 19 different schools and four water districts. Measures completed were replacing water-cooled ice machines, converting water-cooled refrigeration and air-conditioning to air-cooled, installing efficient showerheads and water controls, new individual urinal flush-valves replacing continuous flushing urinals, low-flow aerators, and low volume flush-valves in toilets and urinals. Cumulative savings in excess of 20,000 gpd is expected.

### **Pike Place Fish (Air-Cooled Ice Machine)**

*Seattle Public Utilities*

One more, maybe the last large water-cooled ice maker in the Seattle direct service area, was eliminated when a project at Pike Place Fish was completed early in 2002. Nearly 10,000 pounds of ice, using up to 8,000 gallons of water per day, was being produced with the existing water-cooled ice maker at this landmark facility. A new air-cooled machine was installed that eliminated nearly all this water consumption.

### **University of Washington (UW) (Waterless Urinals, Vacuum Pump, Cooling Tower, Dry Cooler, Restroom Pilot)**

*Seattle Public Utilities*

Over the past two years, UW, with technical assistance from the Water Smart Technology Program and the Water Efficient Irrigation Program, has embarked on a comprehensive water conservation program. This has resulted in a reduction in average daily use from over 2.2 MGD in 2000, to approximately 2.0 MGD in 2001, and 1.8 MGD in 2002. Major projects completed in 2002 with assistance from the 1% Program are outlined below. Additional savings were realized, without direct financial assistance from the 1% Program, through leak reduction, repair of malfunctioning equipment, and improved irrigation practices.

UW Facilities installed 100 no-water urinals at a wide variety of locations across the main campus. The installations have been well accepted by students, faculty, and custodial and maintenance staff. Following a year's experience with these units, the UW is considering additional installations of no-water urinals for 2003. Total water savings from this project is projected at 14,000 GPD.

UW Health Sciences replaced an existing liquid ring water-cooled vacuum producer serving the Magnuson Health Science Center with an air cooled model. The original equipment had also been installed with a constant air bleed into the vacuum system to keep the system from cycling on and off. The new vacuum producer was installed without the air bleed but with new controls which should result in substantial energy savings as well as water savings. Water savings from this project are projected at 7,500 GPD.

As part of a project to replace a malfunctioning cooling tower in Magnuson Health Science Center, UW also installed additional piping to allow the new tower to serve a number of additional cooling loads in the building which had been using single pass water. The new cooling tower was also specified with a variable speed motor to save energy. Total water savings from connection of the additional loads is projected at 10,000 GPD.

A dry cooler was installed to serve existing water-cooled refrigeration equipment in the McMahon Hall Kitchen. This equipment had previously been cooled with single pass water. Water savings from this project are projected at 10,000 GPD.

A pilot restroom retrofit project was completed in Balmer Hall. Results from this pilot will be used by UW in selecting equipment for a campus-wide restroom retrofit program scheduled to begin in 2003. Sample wall mount toilets were obtained from eight different manufacturers and installed in restrooms on the same floor. These toilets were then subjected to a variety of standardized tests to document relative flushing effectiveness. Various flush valve models from three different manufacturers were also tested for average volume per flush as well as flushing effectiveness. Existing urinals were tested with lower flow flush valve retrofit kits. Hand sinks were retrofitted with 0.5 gpm aerators. Total water savings for the building from retrofitting of 29 toilets, 40 urinals, and 29 hand sinks, as documented by a meter installed in the building, is approximately 4,600 GPD.

### **King County Office Buildings (Audits, Toilet Replacement)**

#### *Seattle Public Utilities*

During early 2002 King County expressed an interest in taking a serious look at reducing costs for water and sewer at their facilities. With help from the Water Smart Technology Program, consumption records were reviewed at their various facilities within the program service area, and the (5) most promising facilities were chosen for detailed audits. Audits were then conducted and reports with recommendations were prepared through Water Smart for the following Buildings: King County Administration Building, Yesler Building, King County Courthouse, King County Correctional Facility, and the King County South Transfer Station. Primary recommendations for the various buildings included restroom upgrades and retrofit of single pass cooling systems.

By the end of 2002 King County had completed replacement of all high flow toilets in the Administration Building and the Yesler Building with new low consumption wall hung toilets and flush valves. One no-water urinal was installed in the Administration Building for evaluation purposes. Total water savings for toilet upgrades for these two buildings is projected at 5,000 GPD. Retrofits to single pass cooling systems and restroom upgrades to additional buildings are now underway with a number of these projects expected to be completed in 2003.