

TESTIMONY OF KATE REES

Prepared for:

**STATE WATER RESOURCES CONTROL BOARD
CACHUMA PROJECT HEARING**

**URBAN WATER CONSERVATION PROGRAMS FOR THE
CACHUMA PROJECT MEMBER UNITS**

TABLE OF CONTENTS

INTRODUCTION 1

OVERVIEW OF REGIONAL WATER CONSERVATION PROGRAMS 3

Water Conservation Programs in the 1970’s 3

Drought Planning 4

Drought Response Report 4

Regional Drought Management Plan 4

Water Conservation Programs in the 1980’s 7

Water Rates 9

DEVELOPMENT OF LONG-TERM CONSERVATION PROGRAMS 10

Water Conservation Plans and Related Reports/Updates 10

System Improvements, Water Surveys, and Audits 11

System Water Audits, Leak Detection and Repair 11

Water Survey Programs for Single-Family and Multi-family Residential Customers 11

Recycled Water Programs 11

Household Water Use Efficiency Programs 12

Residential Plumbing Retrofit 12

Residential Ultra-Low Flow Toilet Replacement Programs 13

Promoting Use of Graywater 13

Landscape and Irrigation Water Use Efficiency Programs 13

Santa Barbara County ET Controller Distribution and Installation Program 13

Green Gardener Certification Program 14

California Irrigation Management Information System (CIMIS) 15

Sustainable Landscape Fair and Brochures 15

Large Landscape Conservation Programs and Incentives 16

Water Wise Demonstration Gardens 16

Commercial Conservation Programs 16

Green Awards Consortium 16

Lodging Industry Brochures for Water and Energy Efficiency 17

Rinse and Save Program 17

2003 Proposition 13 Urban Water Conservation Program Grant 17

Public Information Programs 17

Be Water Wise Advertising Campaign	17
Water Awareness Month	18
Earth Day Fair	18
Girl Scouts Water Drop Patch Event	18
Water Resources Poster	18
County Water Connection Newsletter	19
Water Conservation Literature	19
Water Bill Inserts	19
Water Education and Water Conservation Web Sites	19
Educational Programs	19
Workshop: Protect WET	20
Summer Teacher’s Conference	20
Classroom Presentations	20
Teacher’s Guide to Free Resources	20
Water Awareness High School Video Contest	20
Committees, Conferences, and Workshops	20
Water Audit Training Workshop	20
Santa Barbara/San Luis Obispo Counties Water Conservation Committee	21
Department of Water Resources Education Advisory Committee	21
American Water Works Association National Water Conservation Committee	21
California Urban Water Conservation Council Plenary Sessions	21
CONCLUSION	21
REFERENCES	23

**URBAN WATER CONSERVATION PROGRAMS FOR THE
CACHUMA PROJECT MEMBER UNITS**

Written Testimony of Kate Rees
Cachuma Conservation Release Board and
Santa Ynez River Water Conservation District, Improvement District No. 1

I am the Manager of the Cachuma Conservation Release Board (CCRB), which is comprised of the Goleta Water District (GWD), the City of Santa Barbara (City), the Montecito Water District (Montecito), and the Carpinteria Valley Water District (CVWD). The members of CCRB and the Santa Ynez River Water Conservation District, Improvement District No. 1 (ID No. 1) are the Cachuma Project Member Units. My areas of responsibility include management of all water rights related activities for the Member Units, and implementation of the steelhead monitoring program and enhancement/restoration management actions on the Lower Santa Ynez River.

My past experience includes managing the Residential Water Conservation Section for the Los Angeles Department of Water and Power. In this position, I participated in developing the residential water conservation program for the City of Los Angeles, which required mandatory water reduction due to severe drought conditions. The program included the introduction of water use efficiency practices for household and landscape water use, public information and outreach, a school education program, close monitoring of water demand relative to water supply for all residential accounts for the City of Los Angeles, changing the water rate structure to a tiered block rate with an increase in water rates, and drafting a Drought Preparedness Manual based on the City's experience in the mid 1970s. I have completed a Bachelor of Science in Geology from California State University, Northridge, a Master of Science in Hydrology/Geography from University of California, Los Angeles, and all but my dissertation in a Ph.D. Program for Hydrology/Geography at University of California, Santa Barbara.

INTRODUCTION

The Cachuma Project Member Units have been leaders in developing and implementing water conservation programs for more than 30 years. The City of Santa Barbara and the Goleta Water District, who together hold entitlement to approximately 70% of the Cachuma Project yield, understandably have the most comprehensive water conservation programs in place among the Cachuma Member Units. The Santa Barbara County Water Agency (Water Agency) has also developed a Regional Water Efficiency Program. All Member Units actively participate in the County's program, which implements several water conservation best management practices on a regional level. This testimony is a description of the collective water conservation programs established by the Cachuma Member Units and the Water Agency working collaboratively to achieve and maintain long-term regional water use reduction.

The Goleta Water District is the largest consumer of Cachuma Project water (36.25%), and started one of the first water efficiency programs in the country in 1973, after adoption of a water shortage ordinance and imposition of a moratorium on new service connections. Throughout the 1980s and early 1990s GWD was far ahead of most California urban water purveyors in

implementing water conservation programs. GWD lead the adoption of the first gray water standards, began the first toilet rebate program, and was instrumental in major changes towards water conservation in the landscape and nursery industry on the south coast of Santa Barbara County.

The City of Santa Barbara is also a long-time leader in water conservation, and is the second largest consumer of Cachuma Project water (32.19%). The City's water conservation program began as a response to the drought in the late 1970's. The original program consisted mainly of public information. In 1988, the water conservation program was expanded as a result of recommendations from the City's Five-Year Water Policy Action Plan. These measures were designed to achieve a permanent 5% annual reduction in demand in the five-year period of the plan. As a result of the 1986-1991 statewide drought, the City accelerated implementation of its water conservation program. During this time, the City joined with GWD to work with the landscape industry, implement a toilet rebate program, adopt gray water standards, as well as additional water conservation best management practices. The City's current Long-term Water Conservation Program is a combination of the program developed in the 1992 Long-term Water Supply Program and the City's commitment to carrying out the California Urban Water Conservation Council's (CUWCC) Best Management Practices.

The Water Agency established a Regional Water Efficiency Program in 1990 to promote the efficient use of urban and agricultural water supplies in Santa Barbara County, and to provide information and assistance to the eighteen local water purveyors within the county, including the Cachuma Member Units. This program provides coordination for cooperative efforts to implement water conservation best management practices among purveyors, acts as a clearinghouse for information on water efficiency technology, and assists the Member Units in applying for water conservation grants and implementing regional grant funded water conservation programs. The program serves around 400,000 county residents. Three program specialists dedicate approximately 65 hours of staff time per week in support of this regional program.

Each of the Member Units has established a water conservation program to implement the CUWCC best management practices, and all are signatories to the CUWCC Memorandum of Understanding Regarding Urban Water Conservation in California (MOU). The City and GWD have full time Water Conservation Coordinators devoted to development and implementation of their water conservation programs. The other Member Units, being much smaller water districts, have more limited resources and, therefore, dedicate less than full time staff to water conservation activities. The City, GWD, and County staff also provide regional assistance to the smaller Member Units in developing cooperative programs, particularly in the area of public information, school educational resources, landscape water efficiency programs, improved agricultural irrigation practices, and industrial, commercial, and institutional efficiency. Many of the water conservation programs initiated by the GWD and the City became regional efforts with the support of the other Member Units. These programs include public events such as the Sustainable Landscape Fair, media campaigns, Water Awareness Month, Water Awareness High School Video Contest, Green Gardener Certification Program, teacher training workshops, and distribution of public information materials. ID No. 1 is the only Member Unit within the Cachuma watershed providing water to a portion of the Santa Ynez Valley. It has, therefore,

established a conservation program similar to the other Member Units that is tailored to this region.

In 1995 when the Cachuma Project Water Supply Contract was renewed, the Bureau of Reclamation (Reclamation) determined that all the Cachuma Member Units must implement Water Conservation Plans that met or exceeded Federal standards. In conjunction with Reclamation, the Member Units prepare 5-year updates to those plans to ensure that they continue to meet or exceed all Federal Standards, including those developed in cooperation with the CUWCC.

Collectively, the Cachuma Member Units form a water community that is in the forefront in the state in implementing effective water conservation programs and practices. As illustrated in the following discussion, they have developed an integrated, regional water conservation program that encourages and brings about efficient urban water use.

OVERVIEW OF REGIONAL WATER CONSERVATION PROGRAMS

Water Conservation Programs in the 1970's

In the early 1970's it became apparent that the average annual demand for water in the Goleta Valley was outstripping the area's firm water supplies. To make up the water supply deficit, the GWD resorted to overdrafting the Goleta Groundwater Basin. Accordingly, a water shortage emergency was declared in 1972, and a moratorium on new water service connections was enacted. In 1974, GWD adopted an ordinance that required the use of water saving fixtures in all new construction, including remodels and additions. This ordinance was updated in 1983 to require ultra low flow (ULF) toilets, low-flow showerheads, self-closing faucets, and drought tolerant landscaping. Also in 1974, GWD adopted an ordinance that prohibited the waste of water. During the 1970's, GWD began using billing inserts to reach customers with information on water efficiency and related topics.

In 1973 Montecito determined that the safe yield of the District's water supplies was not sufficient to meet the normal demands of its existing customers. In an effort to limit usage and stretch existing supplies, Montecito declared a water shortage emergency in January 1973, and established a moratorium on new water connections. Soon thereafter, an allocation system limiting water usage by individual accounts was implemented. Through various allocation ordinances, Montecito kept this program in effect until it was suspended in March 1992. Soon after declaring the water shortage emergency, Montecito began a water conservation program. The initial conservation efforts, which began in 1974, included public information and making toilet bags and dams available to District customers. The first part-time conservation employee was hired in 1974.

The drought in the late 1970's created the need for a water conservation program in the City of Santa Barbara. The original program consisted mainly of public information, which included educational brochures and literature as well as seminars. A similar approach was established by the CVWD Board in 1977.

Although ID No. 1 did not have a formal water conservation program during the 1970s, the District informed customers on how to read their meters and check for leaks, and gave water conservation advice on how to lower monthly water bills. Meters were also replaced or recalibrated as necessary to minimize water waste. ID No. 1 adopted its water shortage policy in 1977.

Drought Planning

In Santa Barbara County, water conservation has long been a necessary practice because of limited water supplies and shortages due to drought conditions. Throughout Southern California, drought is a common occurrence and is cyclical in nature. A prolonged drought with extremely low rainfall levels has serious impacts on water users and on the environment. The Central Coast region was particularly hard hit by the most recent drought, which began in late 1986 and did not abate locally until the winter of 1991-92.

Drought Response Report

Based on knowledge and experiences gained during the drought, the City, GWD, and Montecito prepared the Santa Barbara County South Coast Water Agencies Drought Response Report (1993). The purpose of the report was to: (1) document drought response efforts; (2) evaluate the effects of water conservation programs implemented during the drought; (3) determine which programs should be maintained as part of a long-term effort to promote efficient water use; and (4) attempt to predict the demand patterns following the end of a drought. The report included suggestions for future efforts, the current status of water efficiency programs, and recommendations for further study.

Regional Drought Management Plan

During 2000-2001, strategic planning sessions were held among the water purveyors in Santa Barbara County. The Water Agency received requests to coordinate the development of a regional drought management plan to utilize the experience gained during the 1986-1992 drought, and to prepare for droughts that may occur in the future while addressing changes in water demand due to population increases, newly developed water supplies, and on-going conservation efforts. In addition, Reclamation contacted the Water Agency for assistance with the development of a model Drought Management Plan as part of a comprehensive irrigation research and education program, which included the development of a Drought Preparedness Program.

In response to these requests, Water Agency staff secured grant funding for the project from Reclamation, and prepared a Draft Drought Planning Handbook for Water Purveyors. This handbook was distributed for comments to Reclamation, Department of Water Resources, and selected water agencies. Reclamation has contributed additional funding for Water Agency staff and a local consultant to incorporate the comments received, and to assist water agencies with the completion of the drought handbook during 2003 (Santa Barbara County Water Agency, 2002).

Below is a table excerpted from the Drought Response Report (1993) and supplemented with information provided by CVWD, ID No. 1, and Montecito that gives an overview of historic water conservation practices in the Cachuma Project service area.

TABLE 1: Regional Overview of Conservation/Water Supply Management Events

1924	Montecito Water District installs meter for first customer.
1930's-40's	Montecito begins voluntary water conservation program to reduce water usage prior to and during the construction of Bradbury Dam.
March 1951	Montecito adopts water rationing ordinance and building moratorium.
1960	ID#1 incorporates in its Rules and Regulations, discontinuation of water service for waste of water.
1972	Goleta Water District declares Emergency Water Shortage and moratorium on new connections.
1973	Montecito Water Shortage Emergency and moratorium on new connections declared; water rationing allocations established for each account and customer surveys performed.
1976-77	Critically dry years in northern California.
1977	Carpinteria Valley Water District establishes first water conservation program authorizing direct mailings to each customer about water supplies and the promotion of shower and toilet flow restriction measures.
1977	ID#1 adopts drought emergency actions.
1982	Annual South Coast Xeriscape™ Seminar initiated.
1986	Santa Barbara water conservation promotion conducted by the Community Environmental Council.
1986	Goleta's ULF toilet rebate program begins.
April 1986	Santa Barbara's temporary suspension of development applications declared.
1987	Goleta's free low-flow showerhead distribution program began.
July 1987	Joint Santa Barbara/Goleta water conservation promotion began.
1987-88	Critically dry years in northern California.
April 1988	Adoption of Santa Barbara's Comprehensive Water Conservation Program.
August 1988	Santa Barbara ULF toilet rebate and low-flow showerhead distribution programs initiated.

December 1988	Montecito adopts stricter monetary penalties for chronic over-users.
May 1989	Montecito begins comprehensive water conservation program, including the distribution of low-flow showerheads. Requests voluntary reduction of 16% below allocation.
February 1989	Goleta opens a water conservation office and initiates a water conservation hotline.
March 1989	Santa Barbara Stage I Drought Condition declared; voluntary conservation of 10% requested.
May 1989	Goleta begins water rationing aimed at 15% reduction.
June 1989	Carpinteria begins voluntary water conservation program calling for 15% reduction from previous year.
July 1989	Santa Barbara block rate billing initiated. Goleta raises water rates by approximately 25%.
November 1989	Gibraltar Reservoir emptied. (City of Santa Barbara water supply)
1990	Critically dry year in northern California.
January 1990	Carpinteria declares water shortage emergency and passes ordinance establishing drought regulations and water conservation standards.
January 1990	Santa Barbara Stage II Drought Condition declared and Water Conservation Hotline initiated.
February 1990	Santa Barbara Stage III Drought Emergency Condition declared; Lake Cachuma projected to be empty by spring 1992 without significant rainfall, causing Cachuma allotments to be reduced to 55% of entitlements.
March 1990	Notice of Stage III water rates mailed to all Santa Barbara customers.
1990	Montecito establishes penalty rates, penalties for wasting water, and places flow restrictors on water lines of users chronically exceeding allocations.
April 1990	ID#1 adopts and establishes water shortage emergency rules and regulations implementing water conservation measures.
April 1990	Carpinteria establishes a mandatory 20% reduction in water use from previous year and prohibits the issuance of "can and will serve" letters.
May 1990	Santa Barbara Stage III rates (steeply inclining block rates) take effect.
July 1990	Goleta water rates increased and block pricing eliminated.

July 1990	Montecito begins block rate pricing for the domestic billing classification.
January 1991	Montecito raises water rates 300%.
February 1991	Lake Cachuma drops to 14% of capacity.
March 1991	"March Miracle" rainfall occurs, dropping 22 inches of rain at Lake Cachuma; Gibraltar Reservoir spills.
April 1991	Santa Barbara lifts lawn watering ban.
June 1991	State water importation approved by voters in Goleta, Santa Barbara, Montecito, Carpinteria, and ID#1 service areas; Santa Barbara voters also approve desalination plant.
June 1991	Carpinteria increases water allocations for one year.
August 1991	Montecito suspends allocation program.
October 1991	Santa Barbara Stage III Drought Condition downgraded to Stage II.
February 1992	Goleta suspends water rationing.
February 1992	"Fantastic February" - rainfall during February and March sufficient to bring Lake Cachuma to approximately 90% storage capacity.
March 1992	Montecito authorizes a limited number of new service connections.
March 1992	Emergency desalination plant completed; Santa Barbara suspends Stage II Drought Condition.
March 1992	Carpinteria suspends mandatory water reductions and prohibition of "can and will serve" letters initiated in 1990.
March 1992	Montecito terminates water shortage emergency which suspends water allocation program that has been in effect since 1973.
October 1997	Montecito terminates water shortage emergency.

Water Conservation Programs in the 1980's

The City's water conservation program from 1988 to 1991 consisted primarily of recommendations from the Five-Year Water Policy Action Plan (FYWPAP) adopted in 1988, and emergency measures required as a result of the severe 1986-1992 drought. The measures from the FYWPAP set a goal of achieving a 5% long-term water conservation savings within five years. Emergency drought response measures were adopted in February 1990, when the severity of the drought necessitated a reduction in demand of 45%, and accelerated implementation of the recommendations of the FYWPAP. These were achieved through a

combination of water efficiency programs and Stage III Drought Emergency Condition measures.

Montecito's moratorium/allocation program remained in effect from 1973 until suspended in March 1992. By 1988, the smaller Member Units had put many of the conservation measures listed in Table 1 above into effect to reduce demand, such as providing low-flow showerheads, offering water audits to customers to evaluate the water efficiency on their property, participating in the regional Water Awareness Month and Landscape Seminars, and installing demonstration gardens to illustrate how customers might utilize drought tolerant plants, subsurface drip, and mini or low volume sprayers.

In the 1980's, the City and GWD expanded their conservation programs to include many different efforts. The programs listed below were all in effect prior to the drought or when water rationing began in 1989. The majority of these programs are still in place and several have been expanded. ID No. 1, CVWD, and MWD also participate in many of these activities.

- ULF Toilet Rebate Program
- Residential Plumbing Retrofit Program (low-flow showerheads, toilet displacement devices, faucet aerators, drip gages, and leak detection tablets.)
- Public Information, Advertising, Brochures/Handouts
- Speakers Bureau
- Sustainable Landscape Fair
- Water Awareness Month
- School Education
- California Irrigation Management Information System (CIMIS) Station
- Large Landscape Audits
- Water Efficient Landscape Promotion
- Low-water Using Plant Tagging Program
- Water Wise Demonstration Gardens
- Exhibits at Community Events including Earth Day

The City Council adopted the City's Drought Contingency Plan in November 1988. The purpose of the plan was to identify the necessary actions the City would take during a water shortage. The plan defined three stages of water shortage that might occur during periods of reduced precipitation or supply interruptions. It outlined strategies and enforcement to be employed in response to each of these stages to assure that water demand did not exceed available supplies, with priority given to uses associated with human consumption, sanitation, and fire protection.

The GWD's water rationing program began in May 1989 when the District's allocation from Lake Cachuma (which provides 55% of the District's supply) was cut by 20%. The program was based on enforced water allocations for all accounts, and was designed to reduce demand by 15%. The program also called for provisions to further reduce allocations if the water supply situation worsened. The other Member Units all experienced similar extreme reductions in water supply during this time period. The effects of the short-term strict conservation measures are still contributing to a significantly lower than normal water demand.

In addition to conservation programs that had been in place prior to the drought emergency, new programs were implemented to assist customers with the requirements of the rationing program. The new programs implemented were:

- Significant Increase in Water Rates
- Water Use Restrictions
- Allotment Appeal Process
- Water Audit Program
- Conservation Hotline
- Promoting Use of
- Development Standards
- Reduction on Water Served in Restaurants
- Water Bill Inserts
- New Public Information Workshops

Water Rates

All of the Member Units raised their water rates during the 1986-92 drought, for some districts - several times, as an incentive for their customers to conserve as much water as possible. Some districts initiated a block structure or tiered water rates during the drought, and others relied on substantial rate increases within a uniform rate structure. For example, the City changed its water rate structure from a uniform rate to an inclining block rate, as did GWD: the more water an account used, the higher its cost per hcf. GWD’s water rates increased again in 1990 as a result of the worsening water supply shortage, and the block rate structure was replaced by a uniform rate. For Montecito, rates were increased substantially to offset the costs of emergency supplies that were needed. As a conservation measure, the domestic billing classification was changed to a two-tier structure.

Since the early 1920s, all urban and agricultural customers in the Cachuma Project service area have been metered. The Member Units have very high water rates, which have encouraged efficient water use. The rate structure among the Member Units varies, however, they all continue to consider other types of conservation-oriented rate structures. Higher water rates have been a major contributing factor to lowering overall water demand. Exactly how much rates have affected usage is not possible to determine. The higher water prices, however, have made customers aware of their water usage, which in turn has encouraged them to implement water conservation measures.

Current urban water rates for the Cachuma Member Units are shown in Table 2 below.

TABLE 2: Urban Water Rates for Cachuma Member Units

MEMBER UNIT	WATER RATES/HUNDRED CUBIC FEET			TYPICAL WATER BILL
	SINGLE FAMILY	MULTI-RESIDENTIAL	COMMERCIAL	Based on SF rates for 10 HCF used in a one month period

MEMBER UNIT	WATER RATES/HUNDRED CUBIC FEET						TYPICAL WATER BILL
	SINGLE FAMILY		MULTI-RESIDENTIAL		COMMERCIAL		Based on SF rates for 10 HCF used in a one month period
CARPINTERIA VALLEY WATER DISTRICT	Per HCF	1.95	Same as SF		Per HCF	2.20	10 HCF @ 1.95 = 19.50 <u>meter charge = 23.86</u> TOTAL = 43.36
GOLETA WATER DISTRICT	Per HCF	3.29	Same as SF		Same as SF		10 HCF @ 3.29 = 32.90 <u>meter charge = 8.20</u> TOTAL = 41.10
MONTECITO WATER DISTRICT	Per HCF	3.05	Per HCF	3.05	Commercial 3.05 Recreation (1-12 HCF) 1.73 Recreation (12+ HCF)	4.25	10 HCF @ 3.05 = 30.50 <u>meter charge = 21.69</u> TOTAL = 52.19
CITY OF SANTA BARBARA	1 - 4 HCF 5 - 20 HCF Over 20 HCF	2.31 3.86 4.08	Per dwelling unit 1 - 4 HCF 5 - 12 HCF Over 12 HCF	2.31 3.86 4.08	100% base allotment: (avg. off-peak use) All others:	3.86 4.08	4 HCF @ 2.31 = 9.24 6 HCF @ 3.86 = 23.16 <u>meter charge = 6.07</u> TOTAL = 38.47
SANTA YNEZ RIVER WATER CONSERVATION DISTRICT ID#1	Per HCF	1.70	Same as SF			N/A	10 HCF @ 1.70 = 17.00 <u>meter charge = 19.30</u> TOTAL = 36.30

Source: Cachuma Member Units and County Water Agency, August 2003.

Although some of the Member Units have reduced their water rates as water supplies became more plentiful in the last decade, the overall water rates for the Cachuma Member Units are among the highest in the State.

DEVELOPMENT OF LONG-TERM CONSERVATION PROGRAMS

Most of the water conservation measures and programs listed above have remained in place to promote ongoing water conservation even during non-drought periods. The City and GWD provide water to the majority of the urban water users, and have therefore, taken the lead on implementing regional programs. All of the Member Units, however, evaluate their water conservation programs on an ongoing basis and add additional elements, as appropriate, for their Districts. An expanded description of the conservation measures currently in place is included in the following section.

Water Conservation Plans and Related Reports/Updates

As part of a statewide effort to promote long-term water efficiency, the Cachuma Member Units, along with nearly 300 water purveyors and public interest groups throughout the state, have joined the CUWCC and are committed to implementing the water conservation Best Management Practices (BMPs) over time. As Reclamation contractors, the Member Units also

prepared and implemented Water Management Plans under the Reclamation Reform Act of 1982 and the Central Valley Improvement Act of 1992. These plans provide water supply and water conservation information, using the same data as provided to the state CUWCC. By design, the urban contractors' implementation plans are based on the CUWCC's BMP implementation schedules and targets. (City of Santa Barbara, Jordan, personal communication, 2002)

Water Agency staff prepares a report of the regional water conservation program annually, which is distributed to all local purveyors and appropriate state and federal agencies. There are several water conservation planning requirements that affect the County and/or local purveyors. These include the state's Urban Water Management Planning Act, CUWCC's bi-annual report, and Reclamation's water conservation criteria and contract conditions for contractors. (Santa Barbara County Water Agency, Lang, personal communication, 2002.)

All Member Units and the Water Agency have prepared 5-year updates to their regional water conservation plans for Reclamation, which addresses programs implemented within the Cachuma Project service area. The County's regional plan describes programs conducted by the Water Agency that assist the Member Units in implementing some of the BMPs identified in the criteria (Reclamation staff, personal communication, August 2003.)

System Improvements, Water Surveys, and Audits

System Water Audits, Leak Detection and Repair

The water distribution systems for the Member Units are all very old, in some case more than 100 years old. Consequently, each of the Member Units has a water main replacement program in place. Age, material, and break history of water mains are tracked to determine the overall condition in order to determine the priority of mains to be replaced. For example, the City replaces three miles per year of the 275 miles of main lines in its distribution system, and has brought system losses below 4%. Montecito spends \$2,000,000 per year on its replacement program and has reduced system losses to 6%. Full water audits are also being carried out to determine the percentage of unaccounted-for water. The audits will determine areas of missing or imprecise data, and recommend any needed improvements. (City of Santa Barbara, Jordan, personal communication, 2003; Montecito Water District, Paley, personal communication, 2002)

Water Survey Programs for Single-Family and Multi-family Residential Customers

Water surveys (audits) are conducted for homes and businesses upon request by water customers throughout the Cachuma Project water service area. Some Member Unit programs target new customers and customers with unusually high bills. An evaluation includes checking all water uses on the property, and providing recommendations to the customer for improved efficiency, including offering low-flow showerheads and toilet tank displacement devices. Also, if there is an irrigation system, the evaluation includes reviewing the system's operational efficiency, checking for leaks, and offering a recommended irrigation schedule and a soil probe.

Recycled Water Programs

The City of Santa Barbara and the GWD, who together hold entitlement to approximately 70% of the Cachuma Project yield, have both developed major recycled water projects at significant costs. These projects effectively constitute a new source of water supply. The GWD developed a joint water recycling project with the Goleta Sanitary District, and began making deliveries of

recycled water in 1995. The Goleta process meets full Title 22 reclaimed water treatment, which means it is safe to use on landscaping in areas with unrestricted public access, such as parks and playgrounds. These rules require disinfection, oxidation, coagulation, clarification, and filtration. GWD has constructed a separate transmission pipeline solely to distribute recycled water. This nearly six mile long pipeline ranges in size from eight to eighteen inches in diameter, and provides recycled water to UC Santa Barbara, local parks, school grounds, golf courses, business parks, and other customers who were previously using potable water for irrigation. Today the GWD delivers approximately 1,000 AFY of recycled water, which saves approximately 300 million gallons of potable water each year, and expects to increase that to approximately 1,500 AFY. (Goleta Water District & Goleta Sanitary District)

After several dry years in the late 1970's, and continued population growth in the City, analysis of the City's water supply showed that additional water sources were needed. Recycled water was identified as a potential substitute for potable water for irrigation and other uses. In 1980, a study was conducted to determine the feasibility of using recycled water in Santa Barbara. The results of the study showed that recycled water for irrigation purposes was economically, technically, and environmentally feasible. The City's recycled water project was developed in two phases, and included the construction of an independent distribution pipeline to deliver recycled water. Phase 1 was completed in 1989, and Phase 2 was completed in 1991. The total cost of the project was more than \$15 million. The cost per acre foot of recycled water is approximately \$1,200. Recycled water serves an important role in the diversity of the City's water supplies. It is used at over 40 sites throughout the City, and the annual demand is currently 800 AFY or approximately 700,000 gallons per day. The City continues to expand the use of recycled water at existing sites, as well as identifying new sites. Like GWD, treated wastewater is sent through a filtration process, or tertiary treatment, which removes very fine particulate matter. Recycled water is used mainly for irrigation of landscaping at parks, schools, the Santa Barbara Zoo, golf courses, homeowners associations, and retirement homes. Additionally some of the recycled water is used for toilet flushing in public restrooms. (City of Santa Barbara, El Estero Wastewater Treatment Plant)

Household Water Use Efficiency Programs

Residential Plumbing Retrofit

All of the Member Units offer a wide variety of water efficient plumbing devices to their customers. These include low-flow showerheads, self-closing faucets for commercial accounts, toilet tank displacement devices such as water dams, leak detection tablets, faucet aerators, and toilet ball valves. A large percentage of water customers throughout Santa Barbara County replaced showers and toilets with more water efficient models during the last drought.

In December 1989, the City adopted an ordinance updating water conservation standards to require 1.6 gpf toilets and urinals, and 2.0 gpm showerheads for all new construction. Another ordinance adopted in June 1992, changed the maximum flow rate for residential sinks and lavatory faucets from 2.75 to 2.0 gpm. Since 1988, nearly 45,000 showerheads have been distributed throughout the City's service area, as well as hundreds of tank displacement devices and leak detection tablets.

Montecito began distributing low-flow showerheads in the 1980's and has given out over 3,000 to date. In the GWD, between 1983 when the District's plumbing efficiency ordinance was updated, and 1993 when the federal plumbing efficiency regulations took effect, more than 3,000 shower heads and hundreds of self-closing faucets were required to be installed in new construction and remodels. During 1988 and 1989, more than 35,000 showerheads were distributed and installed in residences. By 1990, approximately 95% of all showerheads in the GWD service area were low water use fixtures. The District periodically conducts surveys to determine if the majority of pre-1992 residences continue to have efficient plumbing fixtures.

The effect of thousands of plumbing retrofit conversions has contributed to a permanent reduction water demand regionally. In addition to voluntary changes, current federal plumbing standards require water conserving plumbing fixtures to be installed in all new construction.

Residential Ultra-Low Flow Toilet Replacement Programs

Between 1983 and 1993, GWD installed more than 4,000 ULF toilets, and began a toilet rebate program in 1986. Between 1987 and 1990, approximately 15,000 rebates were paid totaling more than \$1,000,000. A total of 26,496 rebates were given during the Toilet rebate Program, which achieved an estimated permanent reduction of 703 AFY in the GWD service area.

The City's toilet rebate program was in place from August 1988 through June 1995. An \$80 rebate was issued per toilet retrofitted to a 1.6 gpf or less toilet. The rebate was reduced to \$40 for the period July 1994 to June 1995. The total number of rebates issued was 21,837. Approximately 50% of multifamily dwelling units have been retrofitted and 34% of single family dwelling units. The City's Toilet Rebate Program achieved an estimated permanent reduction of 657 AFY of potable water supply for the residential retrofits.

Promoting Use of Graywater

All Member Units and the Water Agency promote the state's guidelines on the legal use of graywater by distributing the state's guidelines brochure. Additionally, the City participated in a two-year graywater study from 1996 to 1998, sponsored by the California Department of Water Resources

Landscape and Irrigation Water Use Efficiency Programs

Several programs have been developed and put in place to promote water efficient landscaping throughout the Member Units' service areas. These include: the Santa Barbara County Evapotranspiration (ET) Controller Distribution Program, the Green Gardener Certification Program, California Irrigation Management Information System (CIMIS) weather stations, Sustainable Landscape Fair, residential irrigation system evaluations including distribution of soil probes, promotion and funding of the Cachuma Resource Conservation District's (CRCD) large landscape irrigation evaluations, low-water use demonstration gardens, and promotion of the program to "green industry" locally.

Santa Barbara County ET Controller Distribution and Installation Program.

The Water Agency and several program partners received a grant from the Water Use Efficiency Grant Program through the CALFED Bay Delta Program in May 2001 for the Santa Barbara County ET Controller Distribution and Installation Program. Program partners include the

Water Agency (representing Montecito, and the cities of Lompoc and Santa Maria), the City of Santa Barbara, and GWD. The program involves distribution and installation of 312 Weather TRAK ET Controllers over three years to the highest water using residential customers. The Weather TRAK ET Controllers provide weekly automatic irrigation schedules using a built-in radio receiver based on real time ET data from local CIMIS weather stations. A study by the Irvine Ranch Water District demonstrated that the Weather TRAK ET Controller saves about 25% of residential landscape water use.

The marketing plan was launched in April 2002. ET Controllers are distributed and installed at no cost to participating customers by the program partners. Two training workshops were held for local landscape contractors to train contractors to install the ET controllers. To date, 77 Weather TRAK ET Controllers have been installed.

Green Gardener Certification Program

The Green Gardener Certification Program (GGCP) was developed by the City and the Water Agency. Program sponsors include the U.S. Bureau of Reclamation (Reclamation), U.S. EPA, Santa Barbara Community College District Continuing Education Division, County of Santa Barbara Solid Waste and Utilities Division Santa Barbara Botanic Garden, Carpinteria Valley Water District, Goleta Water District, La Cumbre Mutual Water Company, All Around Irrigation, Casa de la Raza, and Santa Barbara Air Pollution Control District. The GGCP began in March 2000, and is an innovative regional certification program to educate landscape maintenance professionals in resource efficient landscaping and pollution prevention practices.

In order to be certified as Green Gardeners, participants attend a ten-week training session, offered in both English and Spanish, covering topics including water efficiency, non-point source pollution reduction, fertilizing, integrated pest management, reduction of air pollution emissions, and green waste. A basic test covering training material is required for certification plus annual ongoing educational requirements. Classes are held twice per year. In June 2001, the Green Gardener Certification Program received a grant from the U.S. EPA to develop and implement an advanced class series. This advanced series was first offered in Fall 2001 and now is offered every Spring. The advanced training offers an additional ten-week training session to certified green gardeners to cover topics in more depth. In Spring 2003, the program was expanded to the north county, and classes are now held in Santa Maria as well.

Upon certification, gardeners receive many benefits including a soil probe, hat, binder of reference materials, free advertising, and discounts from vendors and sponsors. This program promotes using certified Green Gardeners through advertising, and a list of certified gardeners is distributed by partnering agencies to homeowners looking for "green" landscape services. So far, the GGCP has trained more than 500 people, and currently there are 140 certified gardeners on the Green Gardener list.

California Irrigation Management Information System (CIMIS)

CIMIS is a network of weather stations that automatically reads and collects information on wind speed, average water vapor pressure, air temperature, relative humidity, dew point, solar radiation, soil temperature, and precipitation. The information is transmitted to a central computer database in Sacramento that gives daily ET rates that can be accessed by modem. A series of weather stations throughout the state provide real time ET data for irrigators to use in scheduling irrigation of agricultural acreage or landscapes such as large turf areas.

There are six CIMIS stations located in Santa Barbara County. The City maintains one located on the City's Golf Course. The GWD maintains a CIMIS station in the Goleta foothills. Within the ID No. 1 service area, there are two CIMIS stations that provide data to farming interests associated with the program. Weekly ET information from these and other local CIMIS stations is available to all customers through a local ET hotline that is maintained by the CRCD. The Member Units distribute information brochures to every agricultural account and many large landscape accounts regarding the CIMIS hotline and how to use ET data to schedule irrigation.

Sustainable Landscape Fair and Brochures

The South Coast Sustainable Landscape Fair provides free educational information to the community on water efficient landscaping techniques. This fair has been held annually on the South Coast for twenty one years, and addresses conservation of all resources in landscaping (energy, fertilizer, labor), as well as water. Each event features speakers, displays, demonstrations, free information, and garden tours. The 21st South Coast Landscape Fair was held on October 18, 2003. The event includes exhibits, displays, tours and pruning and planting demonstrations. The sponsoring water agencies were the Water Agency, City, GWD, CVWD, Montecito, and La Cumbre Mutual Water District.

The Sustainable Landscaping brochure was first published in 1992 as a cooperative effort among water districts in Santa Barbara and San Luis Obispo counties. It features local resource-efficient landscapes and sustainable landscape concepts. The brochure contains attractive photographs, information on sustainable landscapes, and resources and references for assistance with developing sustainable gardens. Brochures are distributed at the annual Sustainable Landscape Fair, Earth Day, Goleta Water Awareness Day, and by individual purveyors.

The Landscape Irrigation Guide for Landscape Professionals was updated in 2001, and provides information for landscape professionals on watering times, plant water requirements, and how to utilize CIMIS information for the landscapes they maintain. The brochure has been distributed at all public events attended by City and Water Agency staff, and is available for distribution by purveyors, especially for water audits.

Water Wise Plants for Santa Barbara brochure was developed by the City with funding from a Reclamation grant. This brochure lists many drought tolerant plants by plant type with botanical information and many color photos. All Member Units have copies of this brochure and distribute it to their customers.

Large Landscape Conservation Programs and Incentives

The Member Units have arranged for the CRCDD to perform irrigation evaluations of commercial and multi-residential landscapes. CRCDD staff audits and prepares water budgets for these sites. Water Agency staff works with the CRCDD's Irrigation Water Management Program to promote audits of public agencies (school districts, parks, universities) and private turf areas (golf courses, etc.) in Santa Barbara County. Financial contributions from the county make it possible to reduce the cost of an audit to the Member Units' customers. In 2001-2002, approximately 47 audits were completed within the county. Member Units provide funding for additional irrigation evaluations by CRCDD staff to their large landscape customers.

The water districts also send letters to large landscape customers and conduct complete evaluations and water use surveys as a free service. Montecito provides landscape water audits for all parcels greater than three acres in size. Soil probes are distributed on irrigation evaluations, and the City requires that the Landscape Design Standards for Water Conservation be implemented by all development projects reviewed by the Architectural Board of Review and the Historical Landmarks Committee.

Water Wise Demonstration Gardens

The GWD's garden design center is a climate and water appropriate garden located at the GWD office. The demonstration garden's influence is greatly expanded by a GWD supported program that landscaped all the major street medians in the GWD service area with drought tolerant plants. The GWD's garden and street median landscape projects are the result of a community-supported effort. Significant contributors included Santa Barbara City College Horticulture Department, County of Santa Barbara Public Works Department, local landscape architects, landscape contractors, retail and wholesale nurseries, other local community groups, and many individuals. This broad collaboration resulted in significant cost savings, excellent on the job training for students, and tremendous positive public relations.

The City administers two water wise demonstration gardens, the Firescape Garden and a portion of the Alice Keck Park Memorial Gardens. The City also has landscaped all City facilities with low-water using plants.

CVWD and ID No. 1 were awarded grants from Reclamation and have installed water wise demonstration gardens at their offices. In 1997, working with Reclamation, ID No. 1 developed and constructed a drought tolerant and drip irrigation demonstration garden including plant guides. The garden consists of approximately 112 different drought-tolerant plants. Montecito installed its water wise demonstration garden at their office in 1983.

Commercial Conservation Programs

Green Awards Consortium

The Water Agency participates in the Green Awards Consortium, which has developed an awards program honoring businesses in Santa Barbara County that demonstrate environmental stewardship over and above their primary mission. The activities considered in the nomination process include those that result in cleaner air or water, less waste, less traffic, conservation of water and energy, and reduced use of hazardous materials.

Lodging Industry Brochures for Water and Energy Efficiency

In-room brochures for the local hotel industry are being provided to promote guest awareness of water and energy efficiency practices. Draft brochures were distributed to the water purveyors, Chambers of Commerce, and the Greater Lodging Association for comments in Spring 2001, and the brochures were printed and distributed to hotels in 2003. A corresponding training video is also being developed to educate hotel personnel about water and energy conservation.

Rinse and Save Program

The City is participating in a CUWCC program, Rinse and Save, funded by a grant from the Public Utilities Commission. It is a direct installation program of pre-rinse low-flow nozzles. The City provided funding for 300 nozzles and to date 103 have been installed. The City and the Water Agency are also pursuing additional grant funding to bring this program to hotels, additional restaurants, and other food facilities in the region.

2003 Proposition 13 Urban Water Conservation Program Grant

In May 2003, the Department of Water Resources announced the recipients of the 2003 Proposition 13 Urban Water Conservation Program Grant. The Santa Barbara County Commercial, Industrial and Institutional Rebate Program (CII Rebate Program) was awarded a grant totaling \$268,600.00, which will fund rebates for ultra low flush toilets, waterless urinals and clothes washers in commercial businesses. The CII Rebate Program was ranked 6th out of 60 applications submitted by agencies from around the state.

The CII Rebate Program will be available to businesses within the service areas of the program partner agencies: City of Santa Barbara, City of Lompoc, and City of Santa Maria. The Santa Barbara County Water Agency will administer the grant program.

Proposition 13 Water Conservation Program money supports feasible, cost effective urban projects to improve water use efficiency. A total of \$18,090,185 in grants was awarded to 25 projects during the current funding cycle. Four major types of projects were funded including three infrastructure and meter retrofit projects; nine commercial, industrial, and institutional efficiency projects; seven landscape irrigation projects; and six residential high efficiency clothes washer and toilet rebate projects.

Public Information Programs

The Member Units and the Water Agency have initiated extensive public information programs. Because public information is a county-wide benefit, the smaller Member Units rely on the Water Agency, the City, and GWD to carry out this program, although they actively participate in many of the following major activities.

Be Water Wise Advertising Campaign

The Be Water Wise advertising campaign began August 4, 2003. The campaign is designed to raise awareness of how many people over water their landscapes. The Be Water Wise Campaign includes radio spots, newspaper advertisements, and television commercials highlighting the importance of watering wisely. The ads direct local residents to visit www.bewaterwise.com for tools on efficient irrigation. A feature of the website is a landscape watering calculator that allows residents to enter specific information about their landscaping, and generate a

recommended irrigation schedule based on historical local weather data.

Local sponsors of this campaign include the Santa Barbara County Water Agency, City of Santa Barbara, Goleta Water District, California Cities Water Company, Carpinteria Valley Water District, Montecito Water District, La Cumbre Mutual Water Company, Vandenberg Village Community Services District, Los Alamos Community Services District, and Cuyama Community Services District.

Water Awareness Month

Each May the Member Units promote California Water Awareness Month. The Water Agency coordinates the events for Water Awareness Month with assistance from the Member Units.

Each year, the County Board of Supervisors adopts a resolution declaring May as Water Awareness Month in Santa Barbara County. Events include presentations at schools, exhibits and tours of the City's wastewater treatment plant and desalination facility, tours of demonstration gardens, and Goleta Water Awareness Day.

Earth Day Fair

The Member Units participate in this annual event with the Water Agency. Exhibits include a water efficient home, and highlight the Green Gardener Program. There is also a children's activity booth, which includes "fishing for water facts", the watershed model, and building a water cycle bracelet. Approximately 20,000 people attend, and brochures promoting water conservation are widely distributed.

Girl Scouts Water Drop Patch Event

The Water Agency partnered with the City, Montecito, CVWD and GWD to provide the Tres Condados Girl Scouts with the opportunity to earn their Water Drop Patch. Twice per year the purveyors hold the Water Drop Patch Day at the City's El Estero Wastewater Treatment Plant. The patch requirements were jointly developed by the U.S. Environmental Protection Agency and the Girl Scout Council of the Nation's Capital. The purpose of the project was to encourage girls to:

- Make a difference in their communities by becoming watershed and wetlands stewards.
- Use their skills and knowledge to educate others in their communities of the need to protect the nation's valuable water resources.
- Explore the natural world to gain an interest in science and math.
- Use the Internet as a source of information.

Water Resources Poster

The Water Agency produced a poster that summarizes the water supplies and water uses throughout Santa Barbara County. A Reclamation grant was secured for printing the poster, which was completed in Fall 2002. The poster is available to the public at the Water Agency and Member Units' offices, and public events such as Earth Day. Prior to completing the poster, the Water Agency distributed similar information in a simple brochure format.

County Water Connection Newsletter

The newsletter is published two to three times per year, and covers water efficiency, water supply, and pollution prevention in Santa Barbara County. The newsletter is distributed free of charge to over 180 water purveyors, public interest groups, and other interested parties.

Water Conservation Literature

The following is a list of the current water conservation literature provided to Member Unit customers:

- Sustainable Landscaping
- Lawn Irrigation Guide for Landscape Professional
- Water Wise Plants of Santa Barbara
- Meter Reading Instructions
- Water of Santa Barbara County
- Use Guidelines
- CIMIS
- Water Wise Gardening for California
- How to Water Your Garden
- Smart Water and Energy Use in the West
- List of Public Demonstration Gardens
- Lawn Alternatives
- Lawn Watering Guide
- Irrigation Controllers for the Homeowner
- Teacher's Guide to Free Water Education Resources
- Videos on water efficient landscaping, water conservation, and water supply are loaned to the general public, schools, and other organizations.

Water Bill Inserts

Water bill inserts inform customers of the current water supply situation, coming events, and conservation information. Additionally, Member Units periodically print a monthly water conservation message directly on the water bill.

Water Education and Water Conservation Web Sites

www.sbwater.org

www.ci.santa-barbara.ca.us/departments/public_works/water_resources

www.goletawater.com

www.bewaterwise.com

The Member Units and the Water Agency provide water conservation educational information on their individual websites, and are currently running an ad campaign to promote www.bewaterwise.com. These web sites contain activities, interactive student data exchanges, a calendar of events, water conservation publications, landscaping tips, indoor water conservation, educational materials, links to other sites, and many other features.

Educational Programs

As with public information activities, school education programs also provide county-wide benefits. The smaller Member Units rely primarily on the Water Agency to carry out this program. GWD and the City also participate in the regional school education programs, as well

as offer classroom presentations by their staff within their service areas. The following regional school education programs are provided to all teachers and schools in the Cachuma Project service area.

Workshop: Protect WET

This is a special training workshop for teachers using the Project WET curriculum. It is a 6-hour training session that includes hands-on activities for teachers to use with their students. The Project WET manual includes activities, experiments, and other resources for teachers developing a water education curriculum. About twenty-five teachers per year participate in this training.

Summer Teacher's Conference

The Water Agency staff set up booths at the Summer Teacher's Conference, and distributes all of the water education and conservation support materials for educators supplied by the City, the Water Agency, and other water purveyors in the county. Over 300 teachers attend this two-day event.

Classroom Presentations

The Water Agency purchased a groundwater model, and has constructed two large water puzzles for use by all purveyors in the county. Miniature water puzzle pieces were also made for classroom presentations. These miniature pieces mirror the larger puzzle pieces and allow students to simulate the path that water takes from the sky to the wastewater treatment plant. In addition, a water cycle coloring sheet, water related word search handout, and short cartoon video discussing water efficiency topics are used for in-class presentations.

Teacher's Guide to Free Resources

This guide provides teachers with information about free classroom presentations, field trips, videos, and water education materials offered by the Water Agency and each of the purveyors within the county. The materials are available locally or from the Department of Water Resources, American Water Works Association and other sources. Copies of the guide are distributed at summer teacher's conferences, during which classroom presentations are conducted as well as the Project WET training workshop.

Water Awareness High School Video Contest

The third annual Santa Barbara County Water Awareness High School Video Contest was jointly sponsored by CVWD, GWD, Montecito, City of Santa Barbara, City of Lompoc, City of Santa Maria, La Cumbre Mutual Water Company, Mission Hills Community Services District, Vandenberg Village Community Services District, and California Cities Water Agency. In January, all eligible high schools were invited to begin preparations for submitting a video for the contest. Students were directed to focus their video on drinking water issues, and to use no professional assistance.

Committees, Conferences, and Workshops

Water Audit Training Workshop

The Water Agency held a Residential Water Audit Training Workshop for water conservation staff from Santa Barbara, San Luis Obispo, and Ventura counties in July 2001. Approximately

fifteen people attended the workshop, which included a presentation on preparing for a water audit, hands on training for conducting a water audit, and a packet containing pertinent information.

Santa Barbara/San Luis Obispo Counties Water Conservation Committee

This committee, comprised of water conservation staff from the two counties, meets semi-annually to share conservation program ideas and organize joint efforts. Because water supply and demand parameters for the two counties are similar, valuable information and ideas can be shared at these joint meetings. Projects have included development of a water rates survey, water education materials, and the sustainable landscape brochure.

Department of Water Resources Education Advisory Committee

Member Unit water conservation staff attends meetings of this statewide committee, and interfaces with other water educators and conservation specialists from around the state. Information is shared with other local water purveyors.

American Water Works Association National Water Conservation Committee

The City's Conservation Coordinator attends meetings of this national committee whenever possible. The major advantage of this committee is sharing information with water conservation staff from water districts throughout the country. The committee develops joint water use efficiency programs among its members, and also produces written materials that can be used nationwide. Water efficiency programs being implemented throughout the nation are highlighted at these meetings. New approaches and technologies are discussed and research needs are identified.

California Urban Water Conservation Council Plenary Sessions

The Water Agency, the City, and GWD attend the CUWCC Plenary Sessions held quarterly throughout the State to keep apprised of the latest information regarding BMPs, grant opportunities, and networking with other water conservation professionals.

CONCLUSION

The Cachuma Member Units implement effective water conservation programs and practices, and have been doing so for more than 30 years. During the statewide drought in the late 1980s to early 1990s, the entire Cachuma water community employed measures to deal with the consequences of drought at considerable cost to the community. The City of Santa Barbara, Goleta Water District and Montecito Water District prepared a Drought Response Report to: (1) document drought response efforts, (2) evaluate the effects of water conservation programs implemented during the drought, (3) determine which programs should be maintained as part of a long-term effort to promote efficient water use, and (4) attempt to predict the demand patterns following the end of a drought. The report includes suggestions for future efforts, the current status of water efficiency programs, and recommendations for further study.

All Member Units are signatories to the CUWCC's MOU, and several were signatories to the original MOU established in 1991. Permanent conservation measures have remained in place since the last drought, and although water demand has slowly increased throughout this last very

wet decade, overall water usage is still significantly lower than before the drought, even with a growth in population. A major incentive to implement water conservation measures continues to be comparatively high water rates. The Member Units depend on water conservation as a part of their water supply programs because many water efficiency best management practices can cost less than obtaining new water supplies. The Member Units and their ratepayers are carrying out a substantial number of comprehensive water conservation measures in a responsible and environmentally sound manner, and continue to embrace new opportunities to conserve water as new technology unfolds, such as the Weather TRAK ET Controller. They also take advantage of water conservation grants whenever possible.

The Cachuma Member Units have achieved a significant level of conservation within their service areas, and they are committed through both voluntary and mandatory requirements to continue this commitment into the future.

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