RESOLUTION NO. 2004-69

OF THE BOARD OF DIRECTORS OF THE AMADOR WATER AGENCY APPROVING THE AMADOR WATER AGENCY URBAN WATER MANAGEMENT PLAN

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors hereby approves the Amador Water Agency Urban Water Management Plan on the terms and conditions contained therein, attached hereto as Exhibit A.

The foregoing resolution was duly passed and adopted by the Board of Directors of the Amador Water Agency at a regular meeting held on this 23rd day of September, 2004, by the following vote:

AYES:	Directors John P. Swift, Heinz H. Hamann, Terence W. Moore, Dan Brown and David S. Thomas
NOES:	None
ABSENT:	None
ABSTAIN:	None

Signed and approved by me after its passage this 23rd day of September, 2004.

John P. Swift, President
Board of Directors

ATTEST:
Kimberly A. Toma
Clerk of the Board of Directors

THE FOREGOING INSTRUMENT IS
A CORRECT COPY OF THE ORIGINAL
ON FILE IN THIS OFFICE
ATTEST:
Clerk of the Board of Directors
Amador Water Agency

Amador
Water Agency

2004

Urban Water Management Plan

Amador Water Agency

Urban Water Management Plan

2004

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Section 1: Introduction

1.1 Purpose

Efficient use of the water supply is extremely important to the Amador Water Agency (Agency). As a result of this philosophy, the Agency intends to use this Urban Water Management Plan (UWMP) to manage the Agency's water supplies and water demands over a range of normal and emergency conditions. Water conservation practices will be implemented to mitigate identified shortfalls caused by drought-induced water shortages. Management practices will be developed and implemented to address various contingencies arising from an analysis of demand versus supply.

1.2 Benefits

The benefit of the UWMP is to better manage the water supply and water demands for the Agency. Conservation planning will reduce energy and chemical costs, delay the need to make expensive expansion to treatment plants, storage facilities and transmission lines, and postpone the need to increase water supplies. Use of recycled water where possible will help augment raw water supplies and help postpone the need for increased water supplies. Water shortage contingency plans will provide focused consistency for the Agency board and staff decision making during periods when drought management becomes critical.

1.3 Water Code

In 1992, the California Legislature approved the Urban Water Management Planning Act, which required utilities serving more than 3,000 customers or providing more than 3,000 acre-feet of water per year to prepare an UWMP to promote water conservation and efficient water use. In the act, the Legislature finds and declares as follows:

- The waters of the state are a limited and renewable resource subject to ever increasing demands.
- The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.
- A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.

- As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.
- Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.
- Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.
- Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.
- The quality of source supplies can have a significant impact on water management strategies and supply reliability.

1.4 Scope

This UWMP compares past, current and projected Agency water supplies to projected demands. A three-year worst-case drought scenario is developed. The effect on Agency urban water supplies is analyzed. Existing and anticipated demand management measures are presented, and water shortage contingency plans are formulated that will provide a response to an urban water shortage emergency.

In addition, a review of Agency use of recycled water is being investigated on a regional basis with the intent of expanding use where economically possible.

1.5 Public Participation

The Agency encourages public participation in the development of its UWMP.

A public meeting workshop, during which the Agency Board of Directors sought public input, was held on May 12, 2004 prior to finalization and Agency Board of Directors' approval.

Prior to final adoption of the UWMP, and in accordance with Section 6066 of the Government Code, a notice of the meeting has been published in the local newspaper, and posted at the Amador Public Library. Copies of the report have been made available for public review at the Amador County Land Use Agency, and Amador City, Ione, Jackson, and Sutter Creek city offices. In addition, a copy was posted on the Agency web site.

1.5.1 Plan Adoption

This UWMP is the first such plan prepared by the Agency and is hereby submitted to the California Department of Water Resources. Appendix A (when endorsed by the Board of Directors) is the Resolution of Plan Adoption. This plan includes all information necessary to meet the requirements of California Water Code Division 6 Part 2.6, as revised by SB-553.

1.6 Agency Service Area

The Agency is the main water supplier for the western portion of Amador County. The Agency has the legal jurisdiction to serve water throughout Amador County. The primary source of consumptive water is the Mokelumne River which is supplied from rainfall and snowmelt from the Sierra Mountain Range. This water is diverted from the Tiger Creek afterbay or Lake Tabeaud forebay and then either it gravity flows or is pumped to our treatment plants. The Agency's two main water systems are the Amador Water System (AWS) and the Central Amador Water Project System (CAWP). The Agency supplies drinking water to the cities of Jackson, Ione, Sutter Creek, Amador City, Drytown, the communities along the Highway 88 corridor, and the Lake Camanche area.

Amador Water System

The Amador Water System consists of two main water treatment plants, approximately 100 miles of water main piping, and twenty three miles of conveyance canals. The service area covers over 450 square miles, and serves the communities of Amador City, Drytown, Ione, Jackson, Martell, Sutter Creek, Sutter Hill and their vicinities. In addition, the system also supplies raw water for agricultural, industrial, commercial and domestic irrigation needs to both public facilities and individual raw water customers. (See Appendix G, Amador Water System Map.)

Central Amador Water Project System

The Central Amador Water Project System (CAWP) provides wholesale and treated water to the upcountry communities of Jackson Pines, Mace Meadows, Pine Acres, Pine Grove, Pioneer, Rabb Park, Ranch House Estates and vicinity, Silver Lake Pines/Sierra Highlands, and the Sunset Heights area. In addition to delivering wholesale water, the Agency also retails domestic water to five nearby areas. (See Appendix G, CAWP Water Districts Map.)

Lake Camanche Area

The Agency also provides water service to the Lake Camanche area serving 450 homes and small commercial businesses. The domestic water supply for Lake Camanche Village is from groundwater. (See Appendix G, CSA 3 Overview Map.)

La Mel Heights

The Agency also provides water service to La Mel Heights, a 50 unit subdivision. The only water supply is groundwater. (See Appendix G, La Mel Heights Overview, ID3.)

1.6.1 Climate

Amador County has a varying range of temperature and precipitation. The Sierra Nevada foothill areas experience hot, dry summers and mild winters. The higher elevations, above 5,000 feet, experience long and severe winters, accompanied by heavy snowfall. Table 2 shows typical precipitation over the years indicated, for the western half of Amador County.

PRECIPITATION RECORDED AT THE ELECTRA POWERHOUSE MOKELUMNE RIVER, AMADOR COUNTY, CA, FOR THE PERIOD FROM JANUARY 1, 1951 TO DECEMBER 31, 1997

Month	Monthly Precipitation Statistics (inches)				
	Min	Max	Mean	Median	
January	0.28	15.73	5.79	4.90	
February	0.03	14.39	4.67	4.12	
March	0.31	13.79	4.99	4.29	
April	0.07	10.09	2.77	2.12	
May	0	4.92	0.97	0.61	
June	0	1.36	0.33	0.19	
July	0	3.05	0.12	0	
August	0	1.51	0.12	0	
September	0	3.09	0.52	0.14	
October	0	5.99	1.66	1.44	
November	0	13.42	3.89	3.51	
December	0	17.53	4.80	4.40	
Annual	**.69**	**104.87**	**30.63**	**24.28**	

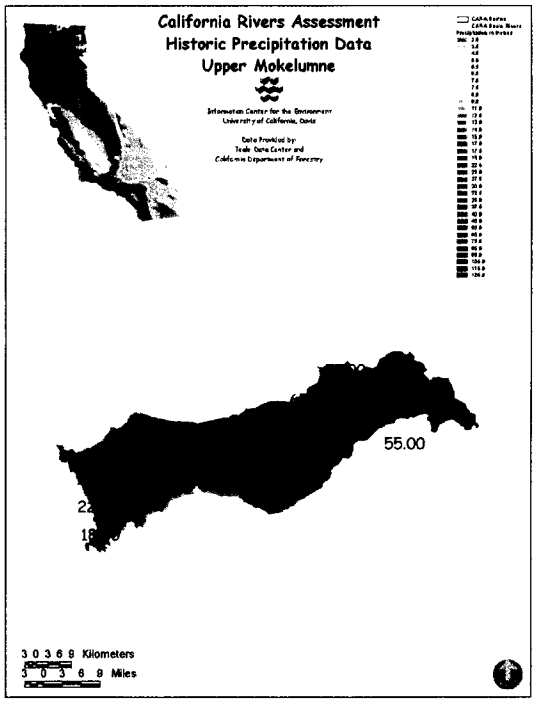
Source: National Climatic Data Center #2728, Electra Power House

Table 1

1.6.2 Topography

The topography of Amador County varies greatly from gently rolling terrain at the lower elevations, to steep hilly uplands deeply traversed by streams and tributaries that drain into the Mokelumne River on the southern portion of the County. The majority of Agency customer base resides between 300 and 3500 ft elevation. The Agency also serves customers in several communities to the east up to about elevation 4000 feet in the Sierras. The highest pass with a paved road is Carson Pass (8573 ft) on California State Route 88. The higher elevation to the east serves as the watershed for the Agency water supply with significant snow pack during the winter months.

1.6.3 Soils and Land Use



The majority of Amador County is underlain by hard, impermeable bedrock such as greenstone and granite. Some of these rocks are fractured and these fractures can yield relatively small amounts of groundwater to wells that intersect the fractures.

The soils in the Agency service area can be segregated into two broad categories: The first is that of recent alluvial soils. Shallow soil profiles and extreme rockiness are found in the lower western portions of the Agency coverage. Many of the shallow, rocky soils have proven to be marginal even for the production of pasture because of low moisture retention and low fertility.

Upland soils represent the second category. The bedrock is granite and granodiorite, which in places has weathered, decomposed granite with large, hard, residual boulders. Large areas of Pliocene Meherten formations overlie the granitic bedrock. The Meherten contains mudflows, andesitic lava, tuff and gravel. In general the soil was formed in place by the weathering and decomposition of the underlying rock material. Crop adaptability of the upland soils is largely restricted to irrigated pasture and various deciduous orchards.

Both slope and soil depth directly affect the degree of suitability of lands for development through irrigation. Very large segments of irrigable land within the Agency boundaries are presently forested and subject to forest and range management. This land possesses the slope and soil characteristics to sustain irrigable agriculture lands, but because of conditions of climate, location and availability of water, it will in all likelihood remain under some type of forest or range management program.

Today, nearly half of the county remains unsettled. Much of the County is owned by the federal government, which will limit the extent of future development. The Stanislaus National Forest of the U.S. Forest Service, and lands owned by Sierra Pacific Industries are located in Amador County.

1.6.4 Area and Water History

Amador County is located in the middle of California's Gold Country. Gold was first discovered in Amador County in 1850. The lumber industry soon realized the commercial value of the trees in the higher elevation. The history of water in Amador County is linked with the Gold Rush days. The first water conveyance systems were built for the mines and thriving camps of the gold seekers.

Water was supplied to the early placer mines as well as the later hydraulic and quartz mines from diversion sites along the North Fork of the Mokelumne River. Throughout the Gold Rush and subsequent settlement of the county, various small water companies were absorbed by merger or purchase.

Construction of a mining canal in the 1800s.

In 1908 Pacific Gas and Electric Company (PG&E) became the major owner/operator for the purveyance of raw water in western Amador County. The Amador County Water Agency (ACWA) was created in 1959.

Pacific Gas and Electric Company was, for many years, the driving force in the construction of dams, reservoirs and ditches serving what is now the Agency's service area. In 1985 ACWA purchased the Amador Water System from PG&E. In 1994 the ACWA changed its name to the Amador Water Agency to clarify that the Agency is not part of Amador County government.

Lake Tabeaud

The Agency has a yearly allotment of up to 15,000 acre-feet of consumptive water based on a contract with PG&E, which can be diverted from Lake Tabeaud at a maximum rate of 30cfs (cubic feet per second). The Agency diverts approximately 12,000 acre-feet in order to deliver about 6,000 acre-feet to meet current needs for the western area of the county. Nearly half of the diverted water is lost due to open ditch conveyance leakage.

In addition, the Agency helped to create the Central Amador Water Project (CAWP) in response to the 1976/1977 drought. The CAWP was developed in 1978 as a joint effort between 10 County communities east of Jackson and adjacent to the State route 88 corridor, as a way to bring Mokelumne River water to serve their areas.

The CAWP is a wholesale system. Some water districts in the community areas continue to own and operate their own distribution systems. CAWP pumps water from the Mokelumne River at PG&E's Tiger Creek afterbay to an Agency treatment plant in the Buckhorn area, and then distributes the treated water to the individual district storage tanks. CAWP diversion is limited to 1,150 acre-feet per year (firm yield), with the possibility of expanding to 2,200 acre-feet per year in future years.

The Agency owns and operates the Pine Acres Water System, Pioneer Water System, and the Ranch House Estates Water System, which are a part of CAWP. Currently total CAWP diversion is approximately 1066 acre feet per year.

Recent acquisition of groundwater facilities adjacent to North Shore Camanche Lake have added a small amount of potable water to the total available water consumed within Agency boundaries, however the groundwater varies in quality and quantity from site to site.

The Agency also owns and operates the La Mel Heights system consisting of one well and tank and services about 50 customers.

1.6.5 Past Drought, Water Demand, and Conservation Information

Past Drought

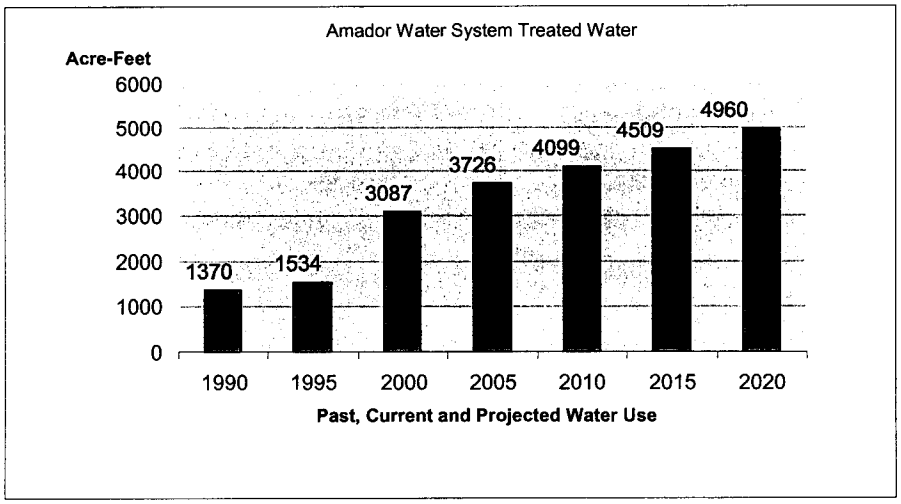
The County has experienced two major periods of drought in the past 30 years. The prolonged drought of record, 1977 and1978, and 1987 through 1994. Water supplies were adequate without imposed conservation, although voluntary conservation was solicited and did occur.

Past Drought, Water Demand, and Conservation Information (continued)

Water Demand

Amador Water System

To meet AWS future water needs and increase water reliability the Agency is replacing the old Amador Canal with a pipeline. That project will provide a firm yield of 15,000 acre feet. Based solely on a linear growth rate of 2%, the Agency will be able to serve future demand beyond 2020. (See Chart A below.) As mentioned earlier, given the growth pressures in the Sacramento region, the actual growth may not be linear and growth projections should be updated annually to ensure supplies are adequate to meet demands. See Appendix H for Data tables.



CAWP

To meet CAWP's future water needs the Agency is constructing a new water treatment plant and is applying for additional water rights that will bring the total of firm consumptive water supply to 2200 acre feet. Based on a growth rate of 2%, the Agency will be able to serve future demand beyond 2020. (See Chart B below.) See Appendix H for Data tables.

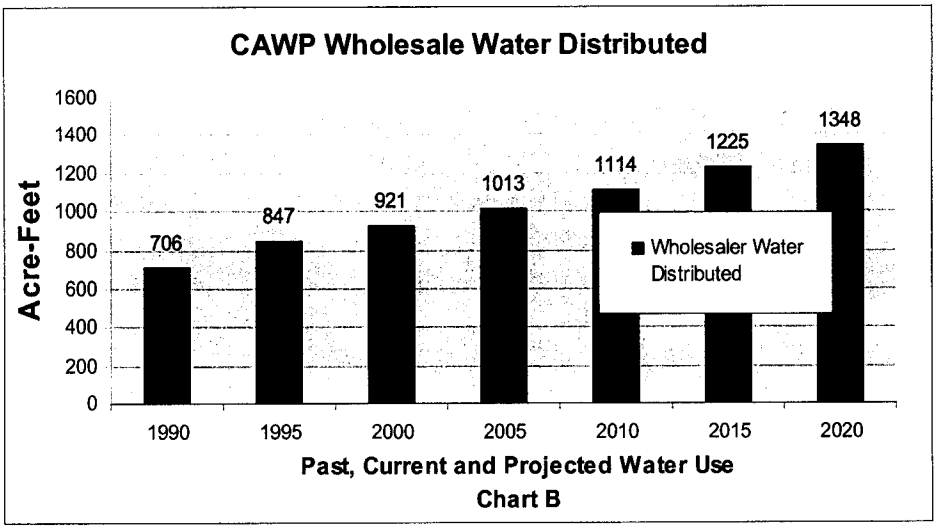


Chart B

Lake Camanche Area

To meet the Lake Camanche Area future water needs, the Agency has aggressively promoted water conservation and fixed leaks in tanks and distribution systems. Based on a 2% growth rate, the Agency should be able to serve future demand until 2020. (See Chart C below.) See Appendix H for Data tables. The Agency is also pursuing additional surface water supplies from EBMUD.

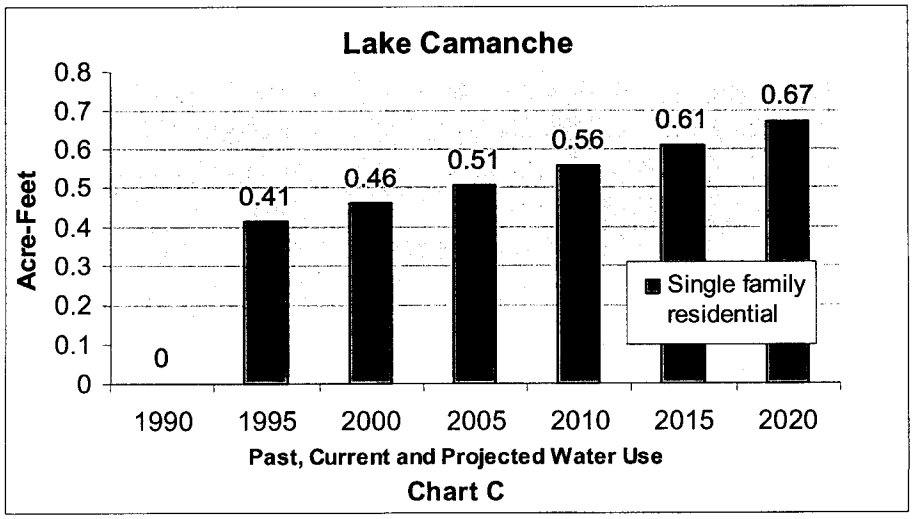
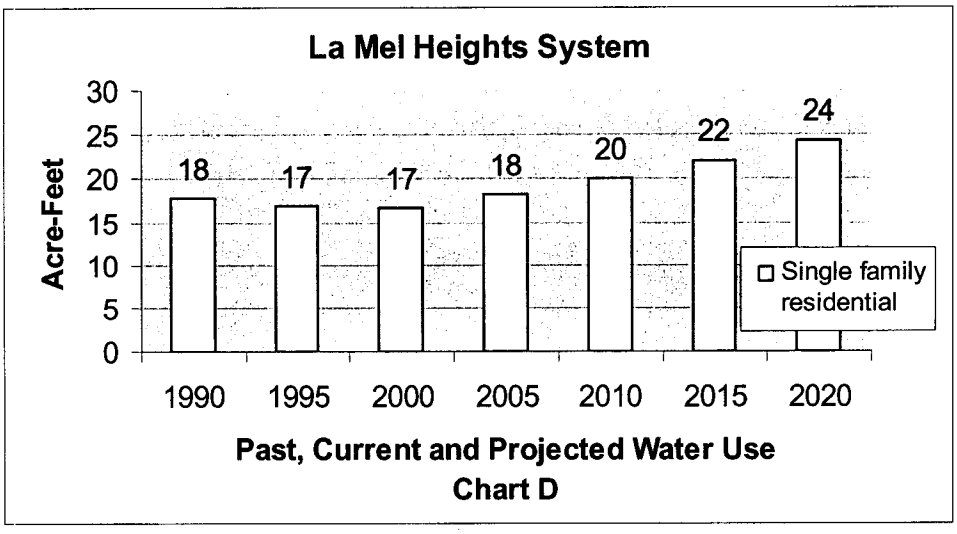


Chart C

La Mel Heights

To meet La Mel's future water needs, the Agency is attempting to finance the installation of a second well. The Agency has already purchased the property. This area has not seen any new growth over the past several years and is built out. The demand from the well is shown below. (Chart D.) See Appendix H for Data tables.



Conservation

It is prudent water management to develop a practical conservation philosophy to assist in maximizing the Agency's ability to provide service well into the future while seeking alternative sources of water.

Historically, water demand has generally paralleled population increase. Per capita water consumption has increased due to greater use of home appliances, landscaping, reduction of vacation homes, and other uses. However, an increased awareness for the need to conserve water has resulted in a general leveling off of per capita consumption. For this plan submittal, per capita demand is assumed to be 250 gallons per day (gpd) per equivalent domestic unit (EDU) in the upper elevations and 400 gpd in the lower portion of the county. The EDU assumes an average dwelling occupancy of 2.5 persons per unit.

The Agency adopted its Water Code on March 9, 2000, which includes the Agency water conservation plan as presented in Appendix D. The water conservation programs are to be activated in the following phases:

- Phase 1 - Ongoing Water Management
- Phase 2 - Conservation Measures
- Phase 3 - Mandatory Water Conservation (critical drought)

These phases include both voluntary conservation and mandatory rationing measures.

Section 2: Water Supply Sources

2.1 Water Supply Sources

The Agency has two sources of water: surface water and groundwater. Surface water accounts for approximately 97 percent of total supply. Groundwater in Amador County is severely limited due to the hard, impermeable bedrock that covers the majority of the county.

2.2 Surface Water

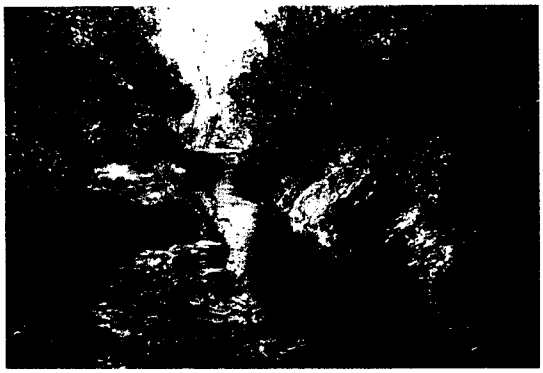
The Agency obtains the vast majority of its water from surface water. The water is supplied from the Mokelumne River through two agreements with PG&E. In 1985, the Agency acquired the Amador Water System from PG&E and the contractual right to not more than 15,000 acre-feet per year at a rate not to exceed 30 cfs. The water presently is pumped into the Amador Canal from Lake Tabeaud by PG&E.

Tiger Creek afterbay and dam

In 1978, the Agency entered into an agreement with PG&E for the use of PG&E facilities to store and divert water under water rights acquired by the Agency for the CAWP water system. Mokelumne River water for CAWP is stored at Lower Bear River Reservoir and diverted downstream at Tiger Creek Afterbay. The Agency presently has the right to store 1600 acre-feet per year and divert 1150 acre-feet per year. It is seeking to increase its storage to 3000 acre-feet and diversion right to 2200 acre-feet. The 1978 agreement with PG&E, as amended, already allows for the additional storage at Lower Bear River Reservoir and diversion at Tiger Creek Afterbay.

2.3 Source Water Quality

The Mokelumne River, which is the source water for AWS and CAWP, is a high quality of source water for most of the year. During storm periods, the water quality becomes somewhat turbid and, to the extent possible, operations of the Buckhorn Water Treatment Plant in CAWP is curtailed.



The source water supplied to the AWS is from the Mokelumne River via PG&E's Electra Tunnel and Lake Tabeaud. PG&E delivers the water to the AWS canal system at Lake Tabeaud. The source water travels 23 miles through an open canal and is delivered to the Tanner raw water storage facility. The water quality diminishes along the 23 mile canal.

Since the canal is an open system, significant contamination enters the canal system from surface runoff. Fecal coliform levels increase over 600% from Lake Tabeaud to Tanner Reservoir. During rain events, the turbidity increases significantly. To protect the AWS source water, the Agency plans to install a pipeline from Lake Tabeaud to Tanner Reservoir to greatly reduce surface water contamination.

Both the Lake Camanche Village area and La Mel Heights area are served by groundwater. The quality of the groundwater is adequate.

2.4 Groundwater

Groundwater provides approximately 3 percent of the domestic or treated water consumed annually within the Agency boundaries. The majority of available groundwater is transient and found in fractured rock. Current, non-critical year pumping produces on average approximately 200 acre-feet of consumptive water.

2.5 Recycled Water

The regional wastewater collection and treatment system for Amador County has been in operation since 1978. (The wastewater treatment and disposal systems have been constructed to meet the objectives of land disposal of sewage effluent that originates in Amador County communities. In addition, the Amador Regional Sanitation Agency (ARSA) systems provides the conveyance of treated wastewater from city treatment systems, tertiary treatment, and the transmission of treated effluent to spray irrigate area golf courses.) In addition, two treatment plants in the Ione and North Shore Camanche areas provide treated wastewater to private landowners for irrigation of approximately 1500 acres of farm and pasture land.

The Agency in partnership with Amador County, Sutter Creek, Ione, Jackson are undertaking a Regional Wastewater Consolidation Study to determine how best to provide wastewater treatment and disposal, including wastewater recycling. This study should be complete in 04/05. The results will be incorporated in the next Urban Water Management Plan update.

Section 3: Reliability Planning

3.1 Reliability

The Agency has explored various alternatives to meet anticipated water supply requirements. These alternatives include improvements to the Agency's ditch delivery system, and enhancements to existing treatment and storage facilities.

3.2 Frequency and Magnitude of Supply Deficiencies

During the recent prolonged droughts of 1977/1978 and of 1987 to 1994, spring runoff each year managed to fill PG&E's Reservoirs to near capacity. By July, runoff is typically near zero and system water demands are met by storage facilities. The timing of the runoff is about the same for wet or dry years with the only difference being the magnitude of the runoff and the amount of reservoir spill. PG&E is able to provide the full annual water contract entitlements to the Agency due to the priority of the water rights involved and the amount of water stored on behalf of the Agency.

3.3 Plans to Assure a Reliable Water Supply

With the water supply projects addressed below, the Agency expects that its surface water and groundwater supplies, along with conservation, will provide sufficient quantities of water to meet projected demands beyond the next 20 years, depending upon actual growth.

As mentioned earlier, given the growth pressures in the Sacramento region, the actual growth that may occur in Amador County may not be linear. Growth projections will be updated annually to ensure that water supplies are adequate to meet the actual growth that occurs.

Additionally, Amador Water Agency has been requested to provide treated water to areas in Amador County that are currently not served. These areas include the City of Plymouth, the Buena Vista Area in Jackson Valley, and rural areas between Sutter Creek and Ione. If these requests for water service are honored, then water supply and demand projections will need to be updated.

Amador Water System

The Agency is currently planning to replace the 23 miles of open ditch conveyance between Lake Tabeaud (a PG&E reservoir) and Tanner Reservoir (an Agency facility) with lined pipe. This project is expected to decrease losses by as much as 50 percent and allow full beneficial use of the 15,000 acre-feet associated with the Amador Water System.

The Agency continues to explore options for additional storage capacity and yield which could be used to meet future demands. The Agency also plans additional water conservation projects, such as elimination of the use of the Ione Canal closure which will reduce water losses by an additional 1 cfs.

CAWP

The Agency is in the process of applying for additional water rights for the CAWP System, consisting of an additional direct diversion of 1,050 acre-feet per year and additional storage of 1400 acre-feet per year. Once in place, the CAWP system will have a firm yield of 2200 AF.

Lake Camanche Area

The Agency is currently evaluating additional long term water supplies either from additional groundwater supplies or surface water supply in partnership with EBMUD's Camanche Water Treatment Plant.

La Mel Heights

The Agency is currently evaluating long term water supply by adding an additional well.

The Agency recognizes that other parts of the water conveyance and treatment facilities constructed decades ago will require improvements in the future for a variety of reasons, including water conservation. However, enhancement will need to be phased in, as a function of operational, environmental and/or economic needs dictate. To properly address this issue, the Agency has developed a long term Capital Improvement Program (CIP) which is reviewed every three to five years. In addition, a Financial Plan accompanies the CIP.

3.4 Three Year Minimum Water Supply

Amador Water System

Agency operational experience (Lake Tabeaud diversion) during normal years and prolonged drought conditions, such as 1988 to 1994, indicates that the spring runoff will continue to fill PG&E reservoirs to near capacity. Even during unusually severe droughts, such as occurred in 1976 and 1977 and the prolonged drought of 1988 through 1994, the PG&E storage, together with the priority of the water right for such storage, enables PG&E to deliver the full annual contract entitlements to the Agency. Once the open ditch conveyance system is replaced with a closed pipe delivery system, the Agency will be able to meet projected demand in the Amador Water System at lease for the next 20 years (assuming a 2% growth rate).

CAWP

PG&E has committed to provide up to 2200 acre feet of water from Lower Bear River Reservoir as part of its contract with the Agency for the CAWP system "Second Amended Contract Between PG&E and AWA" dated February 29, 2000. The Agency is applying for additional water rights to support PG&E's contractual commitment. Because of the priority of the water rights (county of origin rights with a 1927 priority) and the storage at Lower Bear River Reservoir, PG&E will be able to provide the 2200 acre-feet even in severe droughts such as those previously experienced.

Lake Camanche Area

The Lake Camanche Village Area water supply is based on groundwater. Based on operational experience and well records, there appears to be adequate groundwater supplies to meet customer demand. However, the Agency lacks the detailed records on the groundwater wells during drought conditions to determine if well production is inadequate.

La Mel Heights

The La Mel service area is a built-out subdivision that relies on groundwater. Based on operational experience and well records, there appears to be adequate groundwater supplies to meet customer demand. However, the Agency lacks the detailed records on the groundwater wells during drought conditions to determine if well production is inadequate. The Agency is planning for an additional well for this system in the next few years.

3.5 Transfer or Exchange Opportunities

The Agency is not pursuing water transfers or exchanges at this time. The Agency would consider any future opportunities for short-term and/or long-term water transfers and/or exchanges with other public agencies if both agencies would benefit from such an agreement.

Section 4: Water Use Provisions

4.1 Past, Current and Projected Water Use

Historically, the Agency per capita water use has increased in reaction to new home appliances, landscaping, personal use, and the increased transformation of vacation homes to permanent residences. However, the recent droughts in California have significantly increased public awareness of the need to conserve water. As a result, the per capita use of water has been leveling off. The average per capita use (2.5 persons per EDU) for the Agency service area is approximately 250 g/d EDU in the upper elevation (CAWP) area. Average for the AWS area is 400 g/d EDU. Appendices E and H illustrate the projected water use by sector.

4.1.1 Domestic Sector

The domestic sector of the Agency water service customers includes permanent and seasonal single and multi-family residences. Overall domestic water demand for the Agency is expected to increase at the same rate as the County population growth rate. The County growth rate is expected to average approximately 2 percent annually between 2003 and 2023.

4.1.2 Agricultural Sector

The forecasted growth potential of irrigated agriculture was obtained from DWR Bulletin 160-93 for the Sierra Foothills. Irrigated acreage is assumed to consume three acre-feet per acre per year. The Agency does not supply agricultural water except for incidental purposes. Agricultural demand is not projected to significantly increase over the next 20 years with the exception of reclaimed water use.

4.1.3 Industrial Sector

The major industry supplied by the Agency with treated water is the Mule Creek Prison, including the Preston School of Industry located northwest of the town of Ione. The historical annual consumption is approximately 764 acre-feet. The water demand by the facilities has been fairly uniform throughout the years and is not expected to change significantly in the foreseeable future.

4.1.4 Landscape/Recreational Sector

Golf courses are the main landscape/recreational sector consuming significant amounts of water for purposes of irrigation. However, the two existing courses are supplied water from either local wells, reclaimed wastewater and/or treatment system treated backwash water and stored storm runoff water.

Section 5: Supply and Demand Comparison Provisions

5.1 Historical and Projected Growth

The population growth in the Agency service areas has ranged between 1-3% growth rate over the past several years. (See Table 2.)

Agency Service Area
Distribution of Permanent Population

	1990	2000	2010	2020
Amador City	196	196	251	291
Ione	6516	7129	8241	9564
Jackson	3,545	3,989	4,485	5,206
Plymouth	811	980	959	1,113
Sutter Creek	1,835	2,303	2,429	2,819
Unincorporated	17,136	20,299	23,558	27,340
Total	**30,039**	**34,986**	**39,923**	**46,332**

Table 2

Data source: 1990 and 2000 U.S. Census Bureau Census of Population, California Department of Finance, Demographic Research Unit.

Table 2 shows projected population growth in the AWA service area.

Amador County historically has a 1-3% growth rate. The County is experiencing the higher range of growth due to the close proximity to Sacramento and the increasing demands of Bay Area residents wanting to move to a more rural setting. Also, neighboring counties have experienced significant growth over the past 10 years. It is expected that the growth rate in Amador County will increase significantly due to these pressures.

5.2 Supply and Demand Comparison

The Charts A through D shown on pages 9 and 10 compared current and projected water supply and demand by service area. The charts indicate that in all years the Agency has sufficient water to meet its customer needs (assuming replacement of the conveyance system in the Amador Water System and acquisition of the additional water rights for the CAWP system), through 2020 assuring a sustained population growth rate of 2.0 %.

5.3 AWS Future Water Supply

The Agency Board of Directors has not adopted a formal policy regarding the issuance of conditional will serve commitments to new development related to the Amador Water System as a consequence of the CEQA litigation. Presently, the Agency is not providing conditional commitments of service to new development, except on a case-by-case basis, where interim improvements can be made to the Amador Canal which conserve sufficient water to supply the water demands of such new development. Such improvements are the financial responsibility of the developer. The Agency Board of Directors has directed staff to report to it by November of 2004 with a recommendation on a Board policy respecting the issuance of future conditional will serve commitments related to the Amador Water System based on the status of the Amador Water System Transmission Pipeline Project at that time.

If the Amador Transmission Project is not completed, the Agency estimates that it would be unable to meet new water demands sometime before 2010.

If the Amador Transmission Project is completed, the Agency expects that it would have the ability to meet projected growth estimated at 2% per year, including growth within the City of Jackson, beyond 2020. This expectation will depend on actual population growth in the Amador Water System service area.

Section 6: Water Demand Management Measures

The Agency is committed to ensuring the implementation of water conservation programs that will promote efficient use of the existing water supplies. This section discusses water conservation measures being implemented by the Agency. The Agency does not directly budget for conservation programs. Costs for the programs are folded into the public information and maintenance budgets.

6.1 DMM1-Water Survey Programs

Water surveys for residential users help raise awareness of water conservation in the home. The Agency offers free residential water use surveys to customers upon request. The Agency also provides landscape surveys when requested, including sprinkler system efficiency, distribution uniformity, seasonal scheduling and repairs or improvements. The Agency does not track the number of surveys performed annually.

6.2 DMM2-Residential Plumbing Retrofit

The Agency encourages its customers to conserve water during every day use. To assist residential customers, the Agency offers water-saving kits free upon customer request. The water-saving kits may contain such things as free showerhead replacements and a device for reducing toilet flush water requirements for regular toilets. The Agency does not track the number of kits requested annually.

6.3 DMM3-System Water Audits, Leak Detection and Repair

Repair and maintenance of the water distribution systems are a priority for the Agency. The Agency has a continuous water leak detection and repair program. Records are kept annually on water production versus consumption to track unaccounted for water in the system. Relatively high losses in the conveyance system have been attributed to the Agency's raw water ditch delivery system. Corrective action is a project in progress as of this report period.

6.4 DMM4-Metering with Commodity Rates

The Agency's treated water systems are not fully metered. There are approximately 200 flat rate treated water customers out of a total of about 4,000 customers. As these properties transfer ownership, they are required to convert to metered service. Eventually all flat rate services will be phased out.

6.5 DMM 5- Large Landscape Conservation Programs

AWA reviews landscape plans proposed for new developments when requested to do so by the County or City Planning and Building Departments. Drought tolerant native plants are recommended with down-sized turf areas where and when possible. The Agency maintains a demonstration, drought tolerant garden for the public to view.

6.6 DMM6- High-Efficiency Washing Machine Rebate Programs

DMM 6 was added to the UWMP by SB-553. AWA does not have current data available on high efficiency washing machine rebate programs. Information for this DMM may be gathered and presented in the next UWMP update.

6.7 DMM7-Public Information Programs

AWA believes public awareness of water conservation issues is an important factor in ensuring a reliable water supply. AWA promotes public awareness of water conservation through bill inserts, brochures, special events throughout the year, and water conservation programs sponsored in local schools. Appendix B displays samples of public information distributed by AWA. Any time meter readings indicate unusually high usage, AWA contacts the customer to notify them and determine if a leak may have developed.

In addition to brochures and handouts, AWA's website www.amadorwa.com contains information on conservation measures.

6.8 DMM8-School Education Programs

AWA provides school education programs on a per request basis. Educational materials and videos for this program are provided by AWA. Presentations and demonstrations on water conservation are conducted at the local schools. (See Appendix C)

AWA depends heavily on voluntary adherence to drought imposed restrictions. However, in the event that voluntary compliance is ignored, mandated restrictions are provided for within the Agency's Water Shortage Contingency Plan. (See Appendix C)

6.9 DMM9-Conservation Programs for Commercial, Industrial And Institutional

The Agency offers to review plans for new commercial, industrial, and institutional customers. In addition, the Agency will provide water use audits to any commercial, industrial, or institutional customer upon request.

6.10 DMM10-Wholesale Agency Programs

The Agency does not have a wholesale program.

6.11 DMM11-Conservation Pricing

The Agency uses a tiered structure for water service rates in the communities where it provides retail water service from the CAWP system. This is a major factor in promoting effective water conservation. Tiered rates for the Amador Water System (2500 ft elevation and below) may be developed in the future.

6.12 DMM12-Water Conservation Coordinator

Customer Service Representatives' responsibilities include providing conservation information to customers as requested.

6.13 DMM13- Water Waste Prohibition

The Agency has both voluntary conservation and mandatory water conservation policies in the Amador Water Agency Water Code. Specific measures include: unattended water prohibited; shortening irrigation season; car, boat, building, and trailer washing restrictions; restrictions on the washing of sidewalks and driveways; restrictions on filling of swimming pools; and restrictions on use of potable water for sewer flushing, dust control, earth compaction and other construction use.

6.14 DMM14-Residential Ultra-Low-Flush Toilet Replacement Programs

The Agency does not have an Ultra-Low-Flush Toilet Replacement Program at this time.

Section 7: Water Shortage Contingency Plan

7.1 Water Shortage Contingency Plan

The Agency has adopted a voluntary and mandatory water conservation and rationing program to meet a water shortage situation. Resale customers have access to the Agency's conservation plan as presented in Appendix D.

7.2 Stages of Action

The Agency has developed a two phase plan for declared water shortages. The plan includes both voluntary and mandatory rationing, depending on the causes, severity, and anticipated duration of the water supply shortage.

7.2.1 Water Shortage Phases and Triggering Mechanisms

Phase I of the plan encourages waste reduction in every day use, common sense water use, and public education and awareness activities. Water conservation measures for this phase are on a voluntary basis.

Phase II of the plan is triggered when the Board of Directors declares a drought or emergency situation. This phase contains both voluntary and mandatory water conservation measures. The Agency will determine system water use reduction goals.

7.2.2 Water Allotment Methods

The Agency depends heavily on voluntary adherence to drought imposed restrictions. However, in the event that voluntary compliance is ignored, mandatory restrictions are provided for within the water conservation plan.

7.2.3 Mandatory Prohibitions on Water Wasting

Any customer violating the regulations and restrictions on water use will receive a written warning from the Agency for the first violation. Pursuant to a second violation, the customer will have water service restricted by a device installed by the Agency for a period of thirty days. The customer will be required to pay a penalty for removal of the device. Further violations will result in a restrictive device being installed by the Agency that shall remain in place until the Board of Directors repeals the state of emergency, and a penalty for removal of the device is paid.

7.2.4 Excessive Use Penalties

No person and / or customer shall cause or permit any water furnished by the Agency to run to waste in any gutter, to otherwise pool, pond or run-of of applied areas. The Agency, after two warnings by mail or personal service to the customer, may disconnect the service for failure to comply. Such service shall be restored only upon correction of the water waste condition and payment of the Service Call Fee set forth in the Agency Rate Schedule. Water wasted will be estimated and charged for in accordance with the Agency's Water Service Rates and Charges.

7.3 Regional Planned Power Outages

The Agency has also planned for regional power outages and has purchased or has access to emergency generators to pump and treat water in short term emergencies.

Section 8: Water Recycling

The Agency also provides wastewater treatment and disposal in parts of the County and has some recycled irrigation use.

8.1 Wastewater System Background

A Regional Wastewater plan is under development at this time. A portion of the plan will call for conveyance of primary treated wastewater from local septic systems to a regional treatment and disposal plant. The study will also review other existing wastewater systems for possible consolidation, facility capacity, regulatory compliance and reclamation compliance. Unsewered areas will be reviewed for future wastewater planning.

8.2 Wastewater Recycling

The only system presently including commercial wastewater recycling as part of the treatment process is that portion of the tertiary treatment provided to Amador City, Martel, Sutter Creek, and Ione, which provides treated wastewater for spray application at the Castle Oaks golf course near the City of Ione. Other existing systems utilize established spray fields that can and often do double as irrigation for leased pastureland.

Section 9: Glossary of Terms

A

ACWA	Association of California Water Agencies
ARSA	Amador Regional Sanitation Authority
AWS	Amador Water System
AWWA	American Water Works Association

B

BacT	Bacteria Sample Test
BIA	Bureau of Indian Affairs

C

CAMRA	Calaveras/Amador Mokelumne River Authority
CAWP	Central Amador Water Project
CCWD	Calaveras County Water District
CIP	Capital Improvement Plan
ccf	Hundred cubic feet
cfs	Cubic Feet per Second
COP	Certificates of Participation
CPUC	California Public Utilities Commission
CPUD	Calaveras Public Utilities District
CSA	County Service Area
CSD	Community Services District
CYA	California Youth Authority

D

DOHS/DHS	Department of Health Services (State)
DWR	Department of Water Resources (State)

E

EIR	Environmental Impact Report
EDU	Equivalent Dwelling Unit

F

FASB	Financial Accounting Standards Board (pronounced fazbee)
FIP	Facilities Improvement Plan
FPPC	Fair Political Practices Commission
FYI	For Your Information

G

GASB	Governmental accounting Standards Board (pronounced gazbee)
GIS	Geographical Information System
GPS	Global Positioning System
GSL	Gravity Supply Line

H

I

I&I	Inflow and Infiltration

J

JPA	Joint Powers Authority
JPIA	Joint Powers Insurance Authority
JVID	Jackson Valley Irrigation District

K

L

LAIF	Local Agency Investment Fund

M

MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MCWRA	Mountain Counties Water Resources Association
MMB	Meyers-Milias Brown Act
MOU	Memorandum of Understanding
MRA	Mokelumne River Association
MWA	Mutual Water Association
MWC	Mutual Water Company

N

NEPA	National Environmental Protection Act
NPDES	National Pollution Discharge Elimination System

O

P

PAPA	Pesticide Applicators Professional Association
PDWS	Public Drinking Water Standard
PERB	Public Employee Relations Board
PHG	Public Health Goal
ppm	Parts Per Million
ppb	Parts Per Billion
PSM	Process Safety Management

Q

R

RCRC	Regional Council of Rural Cities
RMP	Risk Management Plan
RWQCB	Regional Water Quality Control Board

S

SCADA	Supervisory Control And Data Acquisition
SEIU	Service Employees' International Union

T

TMF	Technical/Managerial/Financial
TTHM	Total Tri-Halo Methane

U

UMRWA	Upper Mokelumne River Water Authority
USA	Underground Service Alert

V

VFD	Variable Frequency Drive
VCSD	Volcano Community Services District

W

WUUA	Western Utilities Underground Alert

XYZ

9.2 Glossary of Terms

A

- **Acre Foot** - The amount of water needed to cover one acre of land one foot deep (equal to 325,851 gallons). An acre foot can support the annual indoor and outdoor needs of one to two urban households.
- **Adjudication** - a determination of water rights for an entire stream or ground water basin. Adjudication sets priorities of rights during shortages.
- **Appropriative Rights** - "First in time, first in right" principle water rights secured through a permit issued by the State Water Resources Control Board whereby a user may take water from a particular source without regard to the contiguity of the land to the source. This permit contains terms and conditions for use of the water.
- **Aqueduct** - A pipe, conduit, or channel designed to transport water from a remote source, usually by gravity.
- **Aquifer** - An underground geological formation, or group of formations, containing water: source of groundwater for wells and springs.

B

- **Beneficial Uses of Water** - The uses of water protected against degradation, such as: domestic; irrigation; power municipal; mining; industrial; fish and wildlife preservation; aquaculture; recreational; stock watering; water quality, frost protection; heat control; ground water recharge; and agriculture.
- **Best Management Practices (BMP)** - A practice that is determined by a state's water quality planning agency to be the most effective and feasible method of preventing or reducing the amount of pollution generated by nonpoint sources given environmental, institutional, technical and economic constraints. Determination is made after public participation and review of all other alternatives.

C

- **California Environmental Quality Act (CEQA)** - The established state policy of environmental protection, maintenance, and enhancement.
- **Chlorination** - The application of chlorine to drinking water, sewage, or industrial waste to disinfect or to oxidize undesirable compounds.
- **Clarifier** - A tank in which solids settle to the bottom and are subsequently removed as sludge.
- **Clean Water Act** - Federal legislation enacted in 1972 to protect the fishable, swimmable and navigable uses of the surface water of the state; requires every state to submit a biennial report to the EPA, describing the quality of its surface, ground and marine waters. cleanup and abatement order - an order which requires a discharger to clean up a waste, abate its effects, and, in a case of threatened pollution, take necessary remedial action.
- **Community Water System** - A public water system that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

- **Conventional Treatment** - A method of treating water with the addition of coagulant chemicals, flash mixing, coagulation-flocculation, sedimentation, and filtration. Also called conventional filtration.
- **Consumptive Use** - A use where a significant portion of water is removed from available water supplies without return to a water resources system, e.g., water used in manufacturing, agriculture or food preparation.
- **Conveyance Loss** - Water loss in pipes, channels, conduits, and ditches by leakage or evaporation.
- **Cubic Feet Per Second** - The rate of flow passing any point equal to the volume of one cubic foot of water every second. One cfs is equal to 7.48 gallons per second; 448.8 gallons per minute; 646,317 gallons per day.

D

- **Discharge** - Flow of surface water in a stream or canal or the outflow of ground water from a flowing artesian well, ditch, or spring. Can also apply to discharge of liquid effluent from a facility or to chemical emissions into the air through designated venting mechanisms.
- **Disinfectant** - A chemical or physical process that kills pathogenic organisms in water, air, or on surfaces. Chlorine is often used to disinfect sewage treatment effluent, water supplies, wells, and swimming pools.
- **Disinfectant Byproduct** - A compound formed by the reaction of a disinfectant such as chlorine with organic material in the water supply; a chemical byproduct of the disinfection process.
- **Disinfectant Time** - The time it takes water to move from the point of disinfectant application (or the previous point of residual disinfectant measurement) to a point before or at the point where the residual disinfectant is measured. In pipelines, the time is calculated by dividing the internal volume of the pipe by he maximum hourly flow rate; within mixing basins and storage reservoirs it is determined by tracer studies of an equivalent demonstration.
- **Diversion** - Partial use of a stream flow as water supply. A channel with a supporting ridge on the lower side constructed across a slope to divert water at a non-erosive velocity to sites where it can be used.
- **Drainage** - Improving the productivity of agricultural land by removing excess water from the soil by means such as ditches or subsurface drainage tiles.
- **Drainage Basin** - The area of land that drains water, sediment, and dissolved materials to a common outlet at a point along a stream channel.
- **Drawdown** - 1. The drop in the water table or level of groundwater when water is being pumped from a well; 2. the amount of water used from a tank or reservoir; 3. the drop in the water level of a tank or reservoir.
- **Drought Conditions** - Hydrologic conditions during a defined period when rainfall and runoff are much less than average.

E

- **Entitlement** - the right to receive, demand or do something.

F

- **Filtration** - A treatment process, under the control of qualified operators, for removing solid (particulate) matter from water by means of porous media such as sand or a man-made filter; often used to remove particles that contain pathogens.
- **Firm Yield** – The ability of a reservoir, a water supply utility, or both to supply water.

G

- **Groundwater** - The supply of fresh water found beneath the earth's surface, usually in aquifers, which supply wells and springs. Because ground water is a major source of drinking water, there is growing concern over contamination from leaching agricultural or industrial pollutants or leaking underground storage tanks.
- **Groundwater Recharge** - Refers to the addition to the water within the earth that occurs naturally from infiltration of rainfall and from water flowing over the earth.

H

- **Health Services, Department of (DHS)** - a State agency which regulates drinking water quality, the recreational use of water, and wastewater where it could affect public health.

I

J

K

L

M

N

- **National Pollutant Discharge Elimination System (NPDES)** - A provision of the Clean Water Act that prohibits discharge of pollutants into waters of the United States unless a special permit is issued by EPA, a state, or, where delegated, a tribal government on an Indian reservation.

O

P

Q

R

S

- **Source Water** - The supply of water for a water utility. Source water is usually treated before distribution to consumers, but some groundwaters are of such a quality that they can be distributed untreated. This term is preferred over *raw water*.

T

U

V

W

- **Water reclamation** - the treatment of waste water to render it suitable for recycle or reuse, the transportation of treated wastewater to the place of use and the actual use of treated wastewater for a direct beneficial use or controlled use that would not otherwise occur.
- **Water Resources, Department of** - State agency which constructs and operates the State Water Project, provides statewide water resources planning, regulates dam safety and controls floods.
- **Watershed** - the total land area that contributes water to a river, stream, lake or other body of water. Synonymous with drainage area, drainage basin and catchment.

This Glossary of Terms courtesy of the State Water Resources Control Board.

Resolution of Plan Adoption

RESOLUTION NO. 2004-__

OF THE BOARD OF DIRECTORS OF THE AMADOR WATER AGENCY FOR THE APPROVAL OF THE URBAN WATER MANAGEMENT PLAN

WHEREAS, the Amador Water Agency (the "Agency") intends to implement the Urban Water Management Plan;

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE AGENCY AS FOLLOWS:

1. The Urban Water Management Plan is hereby approved and a copy is attached hereto.

PASSED AND ADOPTED by the Board of Directors of the Amador Water Agency at its regular meeting this _____ day of _____, 2004, by the following vote:

AYES: Directors Terence W. Moore, John P. Swift, Heinz H. Hamann, Michael A. Johnson and Dan Brown

NOES: None

ABSENT: None

Signed and approved by me after its passage this ____ day of _____, 2004.

_____
President, Board of Directors
Amador Water Agency

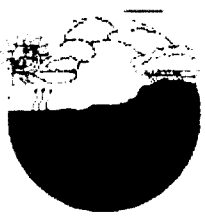
ABSTAIN: None

Attest:

_____
Clerk, Board of Directors
Amador Water Agency

10/R072103sak

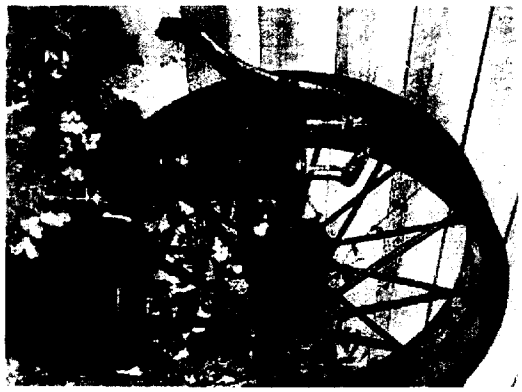
Public Information Programs



I MAKE EVERY DROP COUNT

SHUT YOUR TAP!

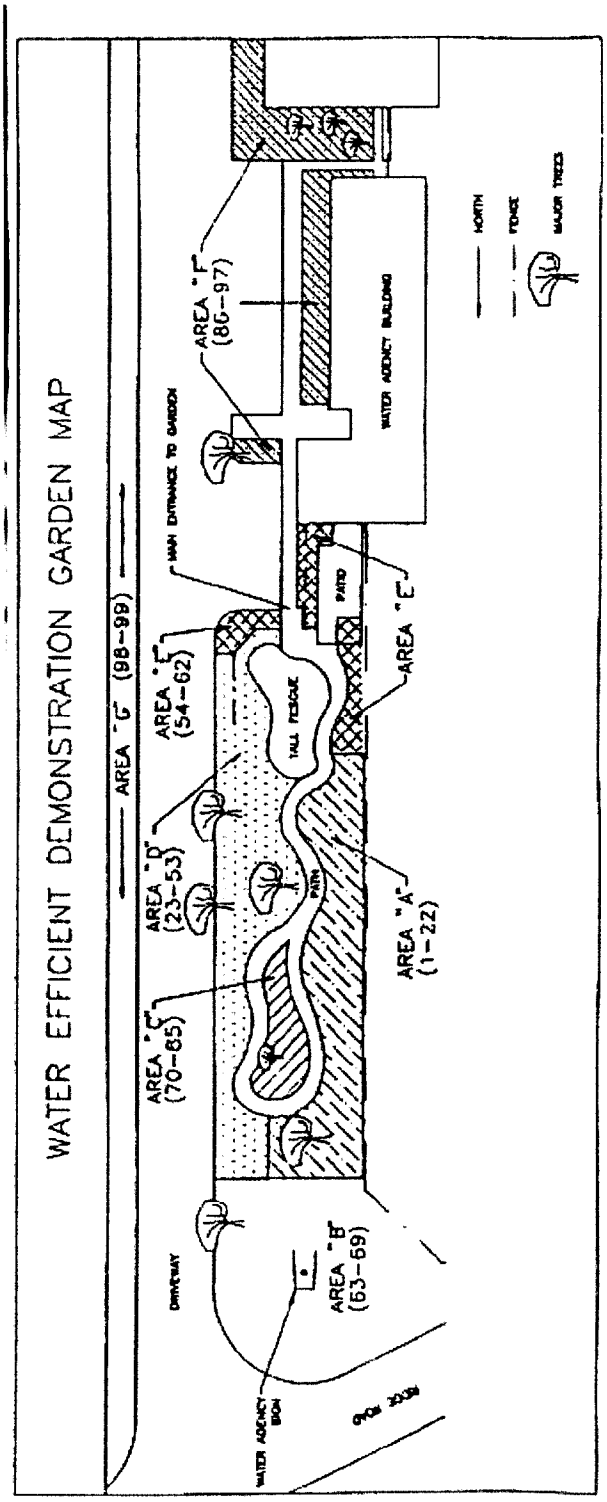
Aqua Annie



AMADOR WATER AGENCY

A Countywide Water District Since 1959

B – 1



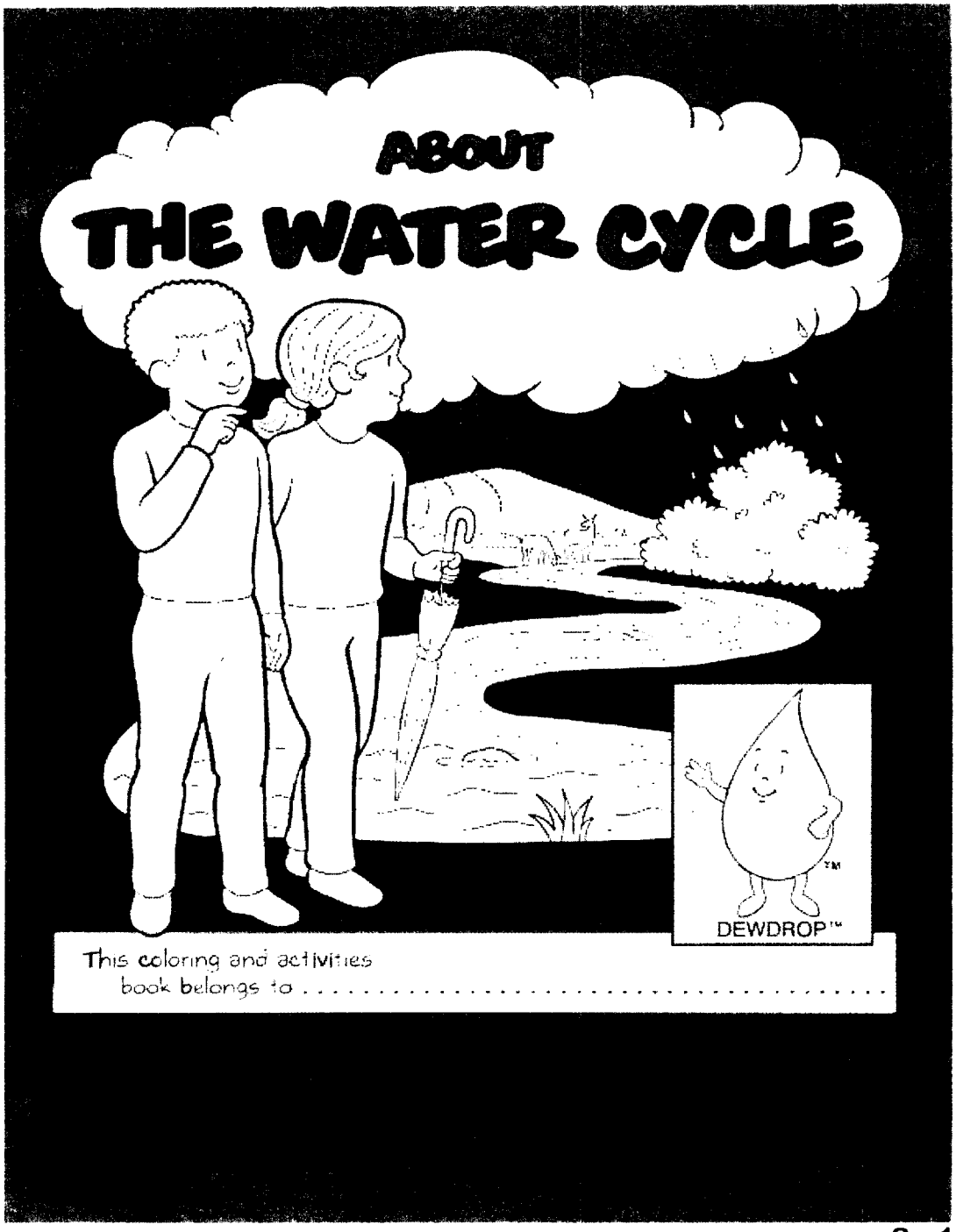
Amador Water Agency
DEMONSTRATION GARDENS

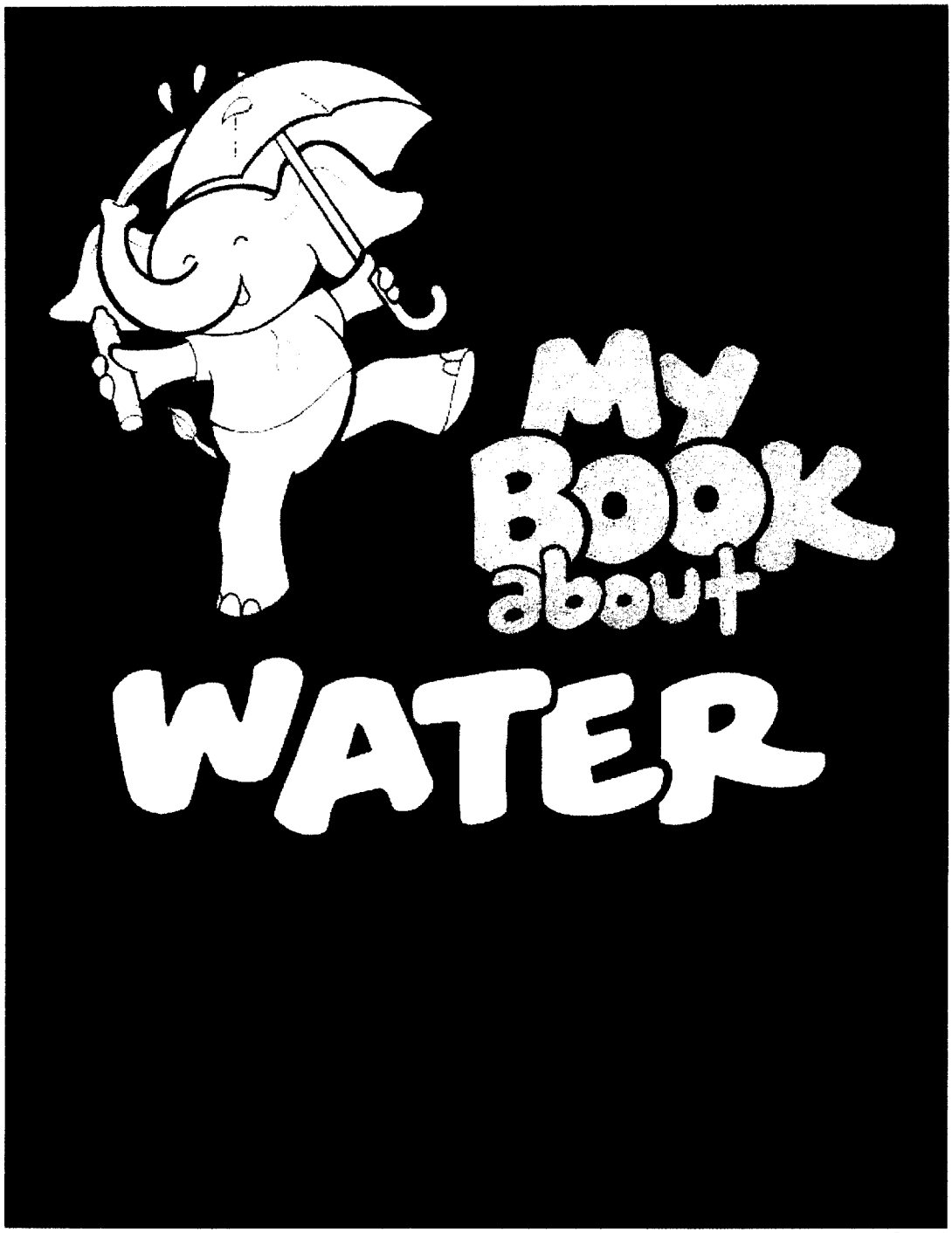
Featuring Drought Tolerant Landscaping

INFORMATIONAL BOOKLET
&
PLANT GUIDE

Landscape Designer
Kathleen Lynch

School Education Programs


ABOUT
THE WATER CYCLE
DEWDROP™
This coloring and activities
book belongs to .....


MY
BOOK
about
WATER

OUTDOOR WATER CONSERVATION TIPS

AQUA ANNIE'S TIPS FOR SAVING WATER

Conservation of water not only helps preserve our natural resources, it saves you money. Your water bill is tied directly to the amount of water you use inside and outside of your home.

Here are a few simple tips to help you save gallons of water outdoors and in your yard!

- Plant drought-resistant trees and plants.
- Put a layer of mulch around trees and plants. A layer of mulch will slow the evaporation of moisture.
- Water evenings or mornings to prevent rapid evaporation during the heat of day.
- Deep soak garden once weekly rather than sprinkle lightly several times a week.
- Use a broom to clean driveways, sidewalks, patios, pool decks and steps.
- Wash your car with bucket, sponge and a hose with a nozzle which can be shut off or adjusted to a fine spray. Soap down your car with a bucket of soapy water. Then use a hose just to rinse it off.
- Cover your swimming pool to slow down the evaporation of water from it.
- Teach your children that your hose and sprinkler are not toys.
- Check for leaks in pipes, hoses, faucets and couplings.

LANDSCAPING IDEAS

Are you looking for ways to have a beautiful yard, yet save money? The Water Agency has a water efficient demonstration garden which is designed to illustrate different varieties in form, texture and color of plants available for low water use gardening in Amador County. The plants are categorized as California natives or genuses of natives which require good soil drainage and little to no water once established. The garden contains only a sampling of the many plants available for this use.

In the garden you may recognize some natives to Amador County such as Toyon, Manzanita, and Oak. Drought tolerant herbs are also featured which not only provide foliage and flower color, but many culinary uses as well. A variety of ornamental drought tolerant trees, shrubs, grasses, perennials and ground covers are illustrated throughout the display.

You are welcome to stop by the Water Agency Office on Ridge Road and view the garden. An informational plant guide is available for you to use while visiting. For more information, call us at 223-3018.

AWA Water Shortage Contingency Plan

(An extract from the AWA Water Code)

any damage to Agency property resulting from a ground wire attachment.

Section 2.19 Voluntary Water Conservation. The Agency promotes an ongoing voluntary water conservation program in order to ensure that water resources available to the Agency are put to a reasonable beneficial use and that the benefits of the Agency's water supply and service extend to the largest number of persons. Each customer of the Agency is urged to install devices to reduce the quantity of water to flush toilets and to reduce the flow rate of showers. Each customer is further urged to adopt such other water use and reuse practices and procedures as are feasible and reasonable. The Agency, at its sole discretion, may make available, for use in each residence receiving water service from the Agency, a water saving kit containing the following:

1. A device(s) for reducing toilet flush water requirements;
2. A device(s) for reducing shower flow rates;
3. A dye tablet or tablets for determining if a toilet tank leaks;
4. Other water conservation devices approved by the Agency from time to time; and
5. Other instruction and device installation information pertinent to conservation of water.

Section 2.20 Mandatory Water Conservation. In order to conserve the Agency's water supply during a drought or other emergency for the greatest public benefit with particular regard to domestic use, sanitation, and fire protection, the following regulations and restrictions on the delivery and use of water from the Agency shall take effect upon a declaration of a drought or other emergency by the Board or its designee:

(a) Residential, Commercial and Public Authority Customers. All customers shall reduce consumption by that percentage amount stated in the Board's

drought or emergency declaration. Where appropriate, achievement of percentage reductions shall be determined by the Agency by comparing the customer's prior year's seasonal usage with the seasonal usage during the year of the drought or other emergency. In order to reduce consumption to the appropriate levels, the Board may determine in its drought or emergency declaration that customers shall comply with the following:

1. Discontinue watering lawns and gardens or any other irrigation between the hours of 9:00 a.m. and 7:00 p.m. In addition, the watering of lawns and gardens or any other irrigation which results in gutter, patio, driveway, walk or street flooding or other run-off shall be prohibited. Unattended watering shall be prohibited.

2. Washing of cars, boats, trailers or other vehicles by a hose without an automatic shut-off valve or by use of water directly from faucets or other outlets shall be prohibited.

3. The emptying and refilling of existing indoor and outdoor swimming pools and hot tubs shall be discontinued.

4. There shall be no washing of sidewalks, walkways, driveways, patios, parking lots, tennis courts or other hard-surfaced areas by hose or by use of water directly from faucets or other outlets.

5. Customers shall utilize water conservation kits that may be distributed by the Agency or other water utilities.

6. Applications for service connections for new construction shall be granted upon condition that water shall be used for only interior purposes

and shall not be used for lawn or garden watering or any other irrigation use for the duration of the drought or emergency.

7. Operation of decorative fountains shall be prohibited.

8. Sewer flushing with fresh water shall be prohibited.

9. Restaurants shall serve water to customers only upon request.

10. The use of water for scenic and recreational ponds and lakes, except for the minimum amount required to support fish life, shall be prohibited.

(b) Industrial Customers. Industrial customers shall reduce water use to the lowest possible amount that will allow continued operation. Conservation measures to be taken shall be reviewed on an individual basis; and reductions in consumption shall be established on an individual basis.

(c) Canal and Ditch Customers. All customers shall observe the above rules where appropriate and consistent with the Board's drought or emergency declaration, the following additional rules:

1. All irrigation service customers entitled to take one miner's inch of water constant flow shall be limited to one-half miner's inch. Customers entitled to take one-half miner's inch shall be limited to one-fourth miner's inch.

2. All irrigation service and other customers using more than one miner's inch shall reduce their consumption of water by 50 percent.

3. All customer receiving tanks shall be float-controlled; and receiving tanks and other facilities, including but not limited to pipes, shall be in proper condition to eliminate leakage and waste of water.

4. Water deliveries to resale customers serving metered accounts and water deliveries to resale customers serving unmetered accounts shall be reduced by those percentages stated in the Board's declaration of drought or other emergency.

5. In reducing water consumption, customers shall use irrigation practices that conserve water.

6. During the term of mandatory water conservation requirements, new applications for only irrigation water service shall be denied.

7. All new service applications for ditch water intended to be treated by the customer and used for domestic purposes shall be metered.

(d) Enforcement. Violations of mandatory water conservation requirements shall result in the following enforcement measures :

1. First violation: written warning that a further violation will result in possible water restrictions.

2. Second violation: Agency shall restrict customer's water service by inserting a device to reduce the customer water flow by the required reduction; and such restriction shall be removed only after a one-week period has elapsed, and upon payment by the customer to Agency of the applicable Service Call Fee.

3. Third violation: Agency shall restrict the customer's water service by inserting a device to reduce the customer's water flow by the required reduction; and said device shall remain in place for the duration of the drought or emergency. Prior to removal of the device the customer shall pay to the Agency the applicable Service Call Fee.

(e) Variances. Variances may be granted from any of the above regulations and restrictions upon application in writing stating in detail the reason therefor.

Section 2.21 Control Valve. The customer shall install a suitable valve as close to the meter box location as practicable, the operation of which shall control the entire water supply from the service. When any customer service pipe is being replaced, such control valve shall be installed by the owner of the property at his expense if such is not already provided.

Section 2.22 Metered Service.

(a) A meter shall be installed with every new connection made to an Agency water system, whether treated or untreated, at the time that the service connection is installed, except as otherwise approved by the Agency.

(b) A meter shall be installed on existing unmetered services, whether treated or untreated, upon the occasion of a change of customer at the subject premises . For the purposes of this Section, a change of customer occurs when a person different from the existing customer occupies the subject premises.

(c) All new and existing commercial services shall be metered whether treated or untreated. For the purpose of this Section, commercial service

CAWP Historical Growth

CAWP SYSTEM DISTRICT DATA
By Parcel, Connection, and Water Consumption

	1989				1990				1991				1992			
CAWP District	No. of Parcels	No. of Conn.	Water Consumption	Consumption/Connection	No. of Parcels	No. of Conn.	Water Consumption	Consumption/Connection	No. of Parcels	No. of Conn.	Water Consumption	Consumption/Connection	No. of Parcels	No. of Conn.	Water Consumption	Consumption/Connection
I.D. # 1	1,030	805	81,916	279	1,035	832	79,160	261	1,043	858	62,000	198	1,049	878	70,718	221
I.D. # 2	70	57	6,643	319	98	57	9,644	464	200	115	11,507	274	202	151	12,707	231
I.D. # 4	488	417	32,140	211	491	416	31,178	205	526	461	30,430	181	526	461	34,882	207
CSA # 1	601	390	30,349	213	619	401	29,746	203	619	409	27,365	183	625	415	29,424	194
CSA # 2	95	58	2,314	109	95	65	2,911	123	101	69	3,084	122	101	65	3,550	150
PGCSD	314	303	34,420	311	314	303	34,136	309	314	305	33,574	302	314	315	36,509	318
Ridgeway Pines	143	99	6,084	168	143	100	6,368	174	143	99	6,165	171	143	108	7,333	186
Rabb Park	109	52	8,604	453	109	52	7,726	407	136	74	4,949	183	136	75	5,613	205
Mace Meadows	502	340	22,982	185	502	348	23,193	183	502	344	22,559	180	502	344	22,987	183
Sunset Heights	52	49	6,208	347	52	49	6,228	348	52	47	5,295	309	52	48	5,776	330
Totals	**3,404**	**2,570**	**231,660**	**247**	**3,458**	**2,623**	**230,290**	**241**	**3,636**	**2,781**	**206,928**	**204**	**3,650**	**2,860**	**229,499**	**220**
Avg. Annual Growth by Parcel	1.6%				5.1%				0.4%				0.5%			
Avg. Annual Growth by Connection		2.1%				6.0%				2.8%				0.7%		
Avg. Annual Water Increase			-0.6%				-10.1%				10.9%				3.6%	
Avg. Annual Water per Connection Increase				-2.6%				-15.2%				7.8%				2.9%

CAWP SYSTEM DISTRICT DATA

By Parcel, Connection, and Water Consumption

	1993				1994				1995				1996			
CAWP District	No. of Parcels	No. of Conn.	Water Consumption	Consumption/Connection	No. of Parcels	No. of Conn.	Water Consumption	Consumption/Connection	No. of Parcels	No. of Conn.	Water Consumption	Consumption/Connection	No. of Parcels	No. of Conn.	Water Consumption	Consumption/Connection
I.D. # 1	1,054	888	79,199	244	1,054	892	87,096	268	1,080	904	85,289	258	1,080	913	88,948	267
I.D. # 2	203	156	13,232	232	203	167	16,910	277	179	168	25,575	417	250	189	26,941	391
I.D. # 4	526	461	33,140	197	527	478	40,602	233	612	464	42,770	253	529	468	36,931	216
CSA # 1	629	420	30,884	201	629	436	34,192	215	629	431	32,139	204	633	439	34,311	214
CSA # 2	98	66	3,159	131	98	70	3,508	137	101	67	3,549	145	101	70	4,558	178
PGCSD	321	315	36,026	313	321	315	38,152	332	322	295	42,005	390	322	297	42,306	390
Ridgeway Pines	143	108	6,456	164	143	105	7,063	184	143	110	7,192	179	143	109	7,338	184
Rabb Park	136	75	7,345	268	136	75	7,156	261	136	85	6,958	224	136	86	10,416	332
Mace Meadows	506	344	22,649	180	508	346	24,108	191	497	369	23,931	178	499	369	25,741	191
Sunset Heights	52	48	5,732	327	53	49	6,979	390	53	49	6,933	388	53	49	7,338	410
Totals	**3,668**	**2,881**	**237,822**	**226**	**3,672**	**2,933**	**265,766**	**248**	**3,752**	**2,942**	**276,341**	**257**	**3,746**	**2,989**	**284,828**	**261**
Avg. Annual Growth by Parcel	0.1%				2.2%				-0.2%				0.4%			
Avg. Annual Growth by Connection		1.8%				0.3%				1.6%				1.6%		
Avg. Annual Water Increase			11.7%				4.0%				3.1%				1.7%	
Avg. Annual Water per Connection Increase				9.8%				3.7%				1.5%				0.1%

CAWP SYSTEM DISTRICT DATA
By Parcel, Connection, and Water Consumption

	1997				1998				1999				2000			
CAWP District	No. of Parcels	No. of Conn.	Water Consumption	Consumption/Connection	No. of Parcels	No. of Conn.	Water Consumption	Consumption/Connection	No. of Parcels	No. of Conn.	Water Consumption	Consumption/Connection	No. of Parcels	No. of Conn.	Water Consumption	Consumption/Connection
I.D. # 1	1,094	925	89,259	264	1,115	931	87,843	259	1,160	944	100,107	291	1,163	943	138,371	402
I.D. # 2	239	193	27,136	385	241	218	24,045	302	239	240	30,297	346	289	240	47,059	537
I.D. # 4	526	470	36,374	212	523	472	32,091	186	531	486	39,432	222	528	478	54,983	315
CSA # 1	633	443	36,734	227	633	443	34,904	216	633	447	41,612	255	633	458	42,500	254
CSA # 2	103	72	4,974	189	103	75	4,928	180	103	75	5,407	198	103	76	6,100	220
PGCSD	338	297	41,014	378	338	297	39,054	360	339	299	40,759	373	339	305	52,000	467
Ridgeway Pines	141	128	7,800	167	141	141	7,522	146	141	141	8,280	161	141	141	9,910	193
Rabb Park	138	88	10,267	320	139	89	9,148	282	139	92	9,315	277	139	94	12,375	361
Mace Meadows	497	369	27,740	206	497	369	25,622	190	497	375	28,509	208	497	373	21,198	156
Sunset Heights	53	51	8,285	445	53	53	7,522	389	53	53	8,272	428	53	51	9,374	504
Totals	**3,762**	**3,036**	**289,583**	**261**	**3,783**	**3,088**	**272,679**	**242**	**3,835**	**3,152**	**311,990**	**271**	**3,885**	**3,159**	**393,870**	**342**
Avg. Annual Growth by Parcel	0.6%				1.4%				1.3%							
Avg. Annual Growth by Connection		1.7%				2.1%				0.2%						
Avg. Annual Water Increase			-5.8%				14.4%				26.2%					
Avg. Annual Water per Connection Increase				-7.4%				12.1%				26.0%				

CAWP SYSTEM ANNUAL GROWTH

By Parcel, Connection, and Water Consumption

Year	No. of Parcels	Percent Growth	No. of Connections	Percent Growth	Annual Water Consumption	Percent Growth	Water Consumption Per Connection	Percent Growth
1989	3,404		2,570		231,660		247	
1990	3,458	1.6%	2,623	2.1%	230,290	-0.6%	241	-2.6%
1991	3,636	5.1%	2,781	6.0%	206,928	-10.1%	204	-15.2%
1992	3,650	0.4%	2,860	2.8%	229,499	10.9%	220	7.8%
1993	3,668	0.5%	2,881	0.7%	237,822	3.6%	226	2.9%
1994	3,672	0.1%	2,933	1.8%	265,766	11.7%	248	9.8%
1995	3,752	2.2%	2,942	0.3%	276,341	4.0%	257	3.7%
1996	3,746	-0.2%	2,989	1.6%	284,828	3.1%	261	1.5%
1997	3,762	0.4%	3,036	1.6%	289,583	1.7%	261	0.1%
1998	3,783	0.6%	3,088	1.7%	272,679	-5.8%	242	-7.4%
1999	3,835	1.4%	3,152	2.1%	311,990	14.4%	271	12.1%
2000	3,885	1.3%	3,159	0.2%	393,870	26.2%	342	26.0%
	Avg. Annual Growth by Parcel	1.3%	Avg. Annual Growth by Connection	2.1%	Avg. Annual Increase in Water Consumption	5.9%	Avg. Annual Increase in Water Consumption per Connection	3.8%
	Ten Year Growth by Parcel	14.1%	Ten Year Growth by Connection	22.9%	Ten Year Increase in Water Consumption	70.0%	Ten Year Increase in Water Consumption per Connection	38.3%

Improvement District #1
Annual Growth By Parcel, Connection, and Water Consumption

Year	No. of Parcels	Percent Growth	No. of Connections	Percent Growth	Annual Water Consumption (1,000 gallons)	Percent Increase	Water Consumption Per Connection (gallons per day)	Percent Increase
1989	1,030		805		81,916		279	
1990	1,035	0.5%	832	3.4%	79,160	-3.4%	261	-6.5%
1991	1,043	0.8%	858	3.1%	62,000	-21.7%	198	-24.1%
1992	1,049	0.6%	878	2.3%	70,718	14.1%	221	11.5%
1993	1,054	0.5%	888	1.1%	79,199	12.0%	244	10.7%
1994	1,054	0.0%	892	0.5%	87,096	10.0%	268	9.5%
1995	1,080	2.5%	904	1.3%	85,289	-2.1%	258	-3.4%
1996	1,080	0.0%	913	1.0%	88,948	4.3%	267	3.3%
1997	1,094	1.3%	925	1.3%	89,259	0.3%	264	-1.0%
1998	1,115	1.9%	931	0.6%	87,843	-1.6%	259	-2.2%
1999	1,160	4.0%	944	1.4%	100,107	14.0%	291	12.4%
2000	1,163	0.3%	943	-0.1%	138,371	38.2%	402	38.4%
	Avg. Growth By Parcel	1.1%	Avg. Growth By connection	1.5%	Avg. Annual Increase in Water Consumption	5.8%	Avg. Annual Increase in Water Consumption per Connection	4.4%
	Total Year Growth by Parcel	12.9%	Total Year Growth by Connection	17.1%	Total Year Increase in Water Consumption	68.9%	Total Year Increase in Water Consumption per Connection	44.2%

Improvement District #2
Annual Growth By Parcel, Connection, and Water Consumption

Year	No. of Parcels	Percent Growth	No. of Connections	Percent Growth	Annual Water Consumption (1,000 gallons)	Percent Increase	Water Consumption Per Connection (gallons per day)	Percent Increase
1989	70		57		6,643		319	
1990	98	40.0%	57	0.0%	9,644	45.2%	464	45.2%
1991	200	104.1%	115	101.8%	11,507	19.3%	274	-40.9%
1992	202	1.0%	151	31.3%	12,707	10.4%	231	-15.9%
1993	203	0.5%	156	3.3%	13,232	4.1%	232	0.8%
1994	203	0.0%	167	7.1%	16,910	27.8%	277	19.4%
1995	179	-11.8%	168	0.6%	25,575	51.2%	417	50.3%
1996	250	39.7%	189	12.5%	26,941	5.3%	391	-6.4%
1997	239	-4.4%	193	2.1%	27,136	0.7%	385	-1.4%
1998	241	0.8%	218	13.0%	24,045	-11.4%	302	-21.6%
1999	239	-0.8%	240	10.1%	30,297	26.0%	346	14.5%
2000	289	20.9%	240	0.0%	47,059	55.3%	537	55.3%
	Avg. Growth By Parcel	17.3%	Avg. Growth By connection	16.5%	Avg. Annual Increase in Water Consumption	21.3%	Avg. Annual Increase in Water Consumption per Connection	9.0%
	Total Year Growth by Parcel	312.9%	Total Year Growth by Connection	321.1%	Total Year Increase in Water Consumption	608.4%	Total Year Increase in Water Consumption per Connection	68.2%

Improvement District #4
Annual Growth By Parcel, Connection, and Water Consumption

Year	No. of Parcels	Percent Growth	No. of Connections	Percent Growth	Annual Water Consumption (1,000 gallons)	Percent Increase	Water Consumption Per Connection (gallons per day)	Percent Increase
1989	488		417		32,140		211	
1990	491	0.6%	416	-0.2%	31,178	-3.0%	205	-2.8%
1991	526	7.1%	461	10.8%	30,430	-2.4%	181	-11.9%
1992	526	0.0%	461	0.0%	34,882	14.6%	207	14.6%
1993	526	0.0%	461	0.0%	33,140	-5.0%	197	-5.0%
1994	527	0.2%	478	3.7%	40,602	22.5%	233	18.2%
1995	612	16.1%	464	-2.9%	42,770	5.3%	253	8.5%
1996	529	-13.6%	468	0.9%	36,931	-13.7%	216	-14.4%
1997	526	-0.6%	470	0.4%	36,374	-1.5%	212	-1.9%
1998	523	-0.6%	472	0.4%	32,091	-11.8%	186	-12.1%
1999	531	1.5%	486	3.0%	39,432	22.9%	222	19.3%
2000	528	-0.6%	478	-1.6%	54,983	39.4%	315	41.8%
	Avg. Growth By Parcel	0.9%	Avg. Growth By connection	1.3%	Avg. Annual Increase in Water Consumption	6.1%	Avg. Annual Increase in Water Consumption per Connection	4.9%
	Total Year Growth by Parcel	8.2%	Total Year Growth by Connection	14.6%	Total Year Increase in Water Consumption	71.1%	Total Year Increase in Water Consumption per Connection	49.2%

County Service Area (CSA) #1
Annual Growth By Parcel, Connection, and Water Consumption

Year	No. of Parcels	Percent Growth	No. of Connections	Percent Growth	Annual Water Consumption (1,000 gallons)	Percent Increase	Water Consumption Per Connection (gallons per day)	Percent Increase
1989	601		390		30,349		213	
1990	619	3.0%	401	2.8%	29,746	-2.0%	203	-4.7%
1991	619	0.0%	409	2.0%	27,365	-8.0%	183	-9.8%
1992	625	1.0%	415	1.5%	29,424	7.5%	194	6.0%
1993	629	0.6%	420	1.2%	30,884	5.0%	201	3.7%
1994	629	0.0%	436	3.8%	34,192	10.7%	215	6.6%
1995	629	0.0%	431	-1.1%	32,139	-6.0%	204	-4.9%
1996	633	0.6%	439	1.9%	34,311	6.8%	214	4.8%
1997	633	0.0%	443	0.9%	36,734	7.1%	227	6.1%
1998	633	0.0%	443	0.0%	34,904	-5.0%	216	-5.0%
1999	633	0.0%	447	0.9%	41,612	19.2%	255	18.2%
2000	633	0.0%	458	2.5%	42,500	2.1%	254	-0.3%
	Avg. Growth By Parcel	0.5%	Avg. Growth By connection	1.5%	Avg. Annual Increase in Water Consumption	3.4%	Avg. Annual Increase in Water Consumption per Connection	1.9%
	Total Year Growth by Parcel	5.3%	Total Year Growth by Connection	17.4%	Total Year Increase in Water Consumption	40.0%	Total Year Increase in Water Consumption per Connection	19.2%

County Service Area (CSA) #2
Annual Growth By Parcel, Connection, and Water Consumption

Year	No. of Parcels	Percent Growth	No. of Connections	Percent Growth	Annual Water Consumption (1,000 gallons)	Percent Increase	Water Consumption Per Connection (gallons per day)	Percent Increase
1989	95		58		2,314		109	
1990	95	0.0%	65	12.1%	2,911	25.8%	123	12.3%
1991	101	6.3%	69	6.2%	3,084	5.9%	122	-0.2%
1992	101	0.0%	65	-5.8%	3,550	15.1%	150	22.2%
1993	98	-3.0%	66	1.5%	3,159	-11.0%	131	-12.4%
1994	98	0.0%	70	6.1%	3,508	11.0%	137	4.7%
1995	101	3.1%	67	-4.3%	3,549	1.2%	145	5.7%
1996	101	0.0%	70	4.5%	4,558	28.4%	178	22.9%
1997	103	2.0%	72	2.9%	4,974	9.1%	189	6.1%
1998	103	0.0%	75	4.2%	4,928	-0.9%	180	-4.9%
1999	103	0.0%	75	0.0%	5,407	9.7%	198	9.7%
2000	103	0.0%	76	1.3%	6,100	12.8%	220	11.3%
	Avg. Growth By Parcel	0.8%	Avg. Growth By connection	2.6%	Avg. Annual Increase in Water Consumption	9.7%	Avg. Annual Increase in Water Consumption per Connection	7.0%
	Total Year Growth by Parcel	8.4%	Total Year Growth by Connection	31.0%	Total Year Increase in Water Consumption	163.6%	Total Year Increase in Water Consumption per Connection	101.2%

Pine Grove Community Services District
Annual Growth By Parcel, Connection, and Water Consumption

Year	No. of Parcels	Percent Growth	No. of Connections	Percent Growth	Annual Water Consumption (1,000 gallons)	Percent Increase	Water Consumption Per Connection (gallons per day)	Percent Increase
1989	314		303		34,420		311	
1990	314	0.0%	303	0.0%	34,136	-0.8%	309	-0.8%
1991	314	0.0%	305	0.7%	33,574	-1.6%	302	-2.3%
1992	314	0.0%	315	3.3%	36,509	8.7%	318	5.3%
1993	321	2.2%	315	0.0%	36,026	-1.3%	313	-1.3%
1994	321	0.0%	315	0.0%	38,152	5.9%	332	5.9%
1995	322	0.3%	295	-6.3%	42,005	10.1%	390	17.6%
1996	322	0.0%	297	0.7%	42,306	0.7%	390	0.0%
1997	338	5.0%	297	0.0%	41,014	-3.1%	378	-3.1%
1998	338	0.0%	297	0.0%	39,054	-4.8%	360	-4.8%
1999	339	0.3%	299	0.7%	40,759	4.4%	373	3.7%
2000	339	0.0%	305	2.0%	52,000	27.6%	467	25.1%
	Avg. Growth By Parcel	0.7%	Avg. Growth By connection	0.1%	Avg. Annual Increase in Water Consumption	4.2%	Avg. Annual Increase in Water Consumption per Connection	4.1%
	Total Year Growth by Parcel	8.0%	Total Year Growth by Connection	0.7%	Total Year Increase in Water Consumption	51.1%	Total Year Increase in Water Consumption per Connection	50.1%

Ridgeway Pines

Annual Growth By Parcel, Connection, and Water Consumption

Year	No. of Parcels	Percent Growth	No. of Connections	Percent Growth	Annual Water Consumption (1,000 gallons)	Percent Increase	Water Consumption Per Connection (gallons per day)	Percent Increase
1989	143		99		6,084		168	
1990	143	0.0%	100	1.0%	6,368	4.7%	174	3.6%
1991	143	0.0%	99	-1.0%	6,165	-3.2%	171	-2.2%
1992	143	0.0%	108	9.1%	7,333	18.9%	186	9.0%
1993	143	0.0%	108	0.0%	6,456	-12.0%	164	-12.0%
1994	143	0.0%	105	-2.8%	7,063	9.4%	184	12.5%
1995	143	0.0%	110	4.8%	7,192	1.8%	179	-2.8%
1996	143	0.0%	109	-0.9%	7,338	2.0%	184	3.0%
1997	141	-1.4%	128	17.4%	7,800	6.3%	167	-9.5%
1998	141	0.0%	141	10.2%	7,522	-3.6%	146	-12.5%
1999	141	0.0%	141	0.0%	8,280	10.1%	161	10.1%
2000	141	0.0%	141	0.0%	9,910	19.7%	193	19.7%
	Avg. Growth By Parcel	-0.1%	Avg. Growth By connection	3.4%	Avg. Annual Increase in Water Consumption	4.9%	Avg. Annual Increase in Water Consumption per Connection	1.7%
	Total Year Growth by Parcel	-1.4%	Total Year Growth by Connection	42.4%	Total Year Increase in Water Consumption	62.9%	Total Year Increase in Water Consumption per Connection	14.4%

Rabb Park
Annual Growth By Parcel, Connection, and Water Consumption

Year	No. of Parcels	Percent Growth	No. of Connections	Percent Growth	Annual Water Consumption (1,000 gallons)	Percent Increase	Water Consumption Per Connection (gallons per day)	Percent Increase
1989	109		52		8,604		453	
1990	109	0.0%	52	0.0%	7,726	-10.2%	407	-10.2%
1991	136	24.8%	74	42.3%	4,949	-35.9%	183	-55.0%
1992	136	0.0%	75	1.4%	5,613	13.4%	205	11.9%
1993	136	0.0%	75	0.0%	7,345	30.9%	268	30.9%
1994	136	0.0%	75	0.0%	7,156	-2.6%	261	-2.6%
1995	136	0.0%	85	13.3%	6,958	-2.8%	224	-14.2%
1996	136	0.0%	86	1.2%	10,416	49.7%	332	48.0%
1997	138	1.5%	88	2.3%	10,267	-1.4%	320	-3.7%
1998	139	0.7%	89	1.1%	9,148	-10.9%	282	-11.9%
1999	139	0.0%	92	3.4%	9,315	1.8%	277	-1.5%
2000	139	0.0%	94	2.2%	12,375	32.9%	361	30.0%
	Avg. Growth By Parcel	2.5%	Avg. Growth By connection	6.1%	Avg. Annual Increase in Water Consumption	5.9%	Avg. Annual Increase in Water Consumption per Connection	2.0%
	Total Year Growth by Parcel	27.5%	Total Year Growth by Connection	80.8%	Total Year Increase in Water Consumption	43.8%	Total Year Increase in Water Consumption per Connection	-20.4%

MM

Mace Meadows

Annual Growth By Parcel, Connection, and Water Consumption

Year	No. of Parcels	Percent Growth	No. of Connections	Percent Growth	Annual Water Consumption (1,000 gallons)	Percent Increase	Water Consumption Per Connection (gallons per day)	Percent Increase
1989	502		340		22,982		185	
1990	502	0.0%	348	2.4%	23,193	0.9%	183	-1.4%
1991	502	0.0%	344	-1.1%	22,559	-2.7%	180	-1.6%
1992	502	0.0%	344	0.0%	22,987	1.9%	183	1.9%
1993	506	0.8%	344	0.0%	22,649	-1.5%	180	-1.5%
1994	508	0.4%	346	0.6%	24,108	6.4%	191	5.8%
1995	497	-2.2%	369	6.6%	23,931	-0.7%	178	-6.9%
1996	499	0.4%	369	0.0%	25,741	7.6%	191	7.6%
1997	497	-0.4%	369	0.0%	27,740	7.8%	206	7.8%
1998	497	0.0%	369	0.0%	25,622	-7.6%	190	-7.6%
1999	497	0.0%	375	1.6%	28,509	11.3%	208	9.5%
2000	497	0.0%	373	-0.5%	21,198	-25.6%	156	-25.2%
	Avg. Growth By Parcel	-0.1%	Avg. Growth By connection	0.9%	Avg. Annual Increase in Water Consumption	-0.2%	Avg. Annual Increase in Water Consumption per Connection	-1.1%
	Total Year Growth by Parcel	-1.0%	Total Year Growth by Connection	9.7%	Total Year Increase in Water Consumption	-7.8%	Total Year Increase in Water Consumption per Connection	-15.9%

SH

Sunset Heights

Annual Growth By Parcel, Connection, and Water Consumption

Year	No. of Parcels	Percent Growth	No. of Connections	Percent Growth	Annual Water Consumption (1,000 gallons)	Percent Increase	Water Consumption Per Connection (gallons per day)	Percent Increase
1989	52		49		6,208		347	
1990	52	0.0%	49	0.0%	6,228	0.3%	348	0.3%
1991	52	0.0%	47	-4.1%	5,295	-15.0%	309	-11.4%
1992	52	0.0%	48	2.1%	5,776	9.1%	330	6.8%
1993	52	0.0%	48	0.0%	5,732	-0.8%	327	-0.8%
1994	53	1.9%	49	2.1%	6,979	21.8%	390	19.3%
1995	53	0.0%	49	0.0%	6,933	-0.7%	388	-0.7%
1996	53	0.0%	49	0.0%	7,338	5.8%	410	5.8%
1997	53	0.0%	51	4.1%	8,285	12.9%	445	8.5%
1998	53	0.0%	53	3.9%	7,522	-9.2%	389	-12.6%
1999	53	0.0%	53	0.0%	8,272	10.0%	428	10.0%
2000	53	0.0%	51	-3.8%	9,374	13.3%	504	17.8%
	Avg. Growth By Parcel	0.2%	Avg. Growth By connection	0.4%	Avg. Annual Increase in Water Consumption	4.3%	Avg. Annual Increase in Water Consumption per Connection	3.9%
	Total Year Growth by Parcel	1.9%	Total Year Growth by Connection	4.1%	Total Year Increase in Water Consumption	51.0%	Total Year Increase in Water Consumption per Connection	45.1%

AWA Rates and Charges

AWA WATER RATES AND CHARGES

Effective 7/1/04

AWS Metered Treated (Routes 02 to 13)	per month	per unit
5/8" Monthly Service Charge	$ 16.91	$ 1.26
Meter set fee (5/8" meter)	$ 205.00	
Participation Fee (5/8" meter) Treated Retail	$ 4,370.00	
48 Hour Late Notice Charge	$ 8.50	

AWS Flat Rate Treated (Routes 09 - 13)	per month	
Monthly Service Charge(7,000 sq.ft or less)	$ 51.45	
7,001 to 16,000 sq.ft	$ 56.49	
16,001 to 25,000 sq.ft	$ 98.07	
Additional dwelling unit	$ 29.37	
48 Hour Late Notice Charge	$ 8.50	

AWS Metered Untreated (Route 01 and 08)	per month	per unit
5/8" Monthly Service Charge	$ 9.26	$ 0.34
Meter set fee (5/8" meter)	$ 205.00	
Participation Fee	$ 1,340.00	
48 Hour Late Notice Charge	$ 8.50	

AWS Flat Rate Untreated (Route 01 - 08)	per month	
Monthly Service Charge(7,000 sq.ft or less)	$ 24.66	
7,001 to 16,000 sq.ft	$ 31.40	
16,001 to 25,000 sq.ft	$ 46.44	
Additional dwelling unit	$ 18.08	
48 Hour Late Notice Charge	$ 8.50	

ID #1 Pioneer (Routes 15 - 20)	bi-monthly	per unit
5/8" Monthly Service Charge	$ 52.50	
1-20 units		$ 1.62
21+ units		$ 2.05
Meter set fee (5/8" meter)	$ 205.00	
48 Hour Late Notice Charge	$ 8.50	
Annual Assessment	$ 100.00	
CAWP Participation Fee (5/8" meter)	$ 4,507.00	
Retail Participation Fee (5/8" meter)	$ 1,000.00	

ID #2 Ranch House (Route 21)	bi-monthly	per unit
5/8" Monthly Service Charge	$ 52.50	
1-20 units		$ 1.62
21+ units		$ 2.05
Meter set fee (5/8" meter)	$ 205.00	
48 Hour Late Notice Charge	$ 8.50	
Annual Assessment	$ 70.00	
CAWP Participation Fee (5/8" meter)	$ 4,507.00	
Retail Participation Fee (5/8" meter)	$ 1,000.00	

ID #3 La Mel Heights (Route 22)	bi-monthly	per unit
5/8" Monthly Service Charge	$ 44.00	$ 1.10
Annual Assessment $180.00	$ 30.00	
Meter set fee (5/8" meter)	$ 205.00	
48 Hour Late Notice Charge	$ 8.50	

ID #4 Pine Acres (Route 23)	bi-monthly	per unit
5/8" Monthly Service Charge	$ 52.50	
1-20 units		$ 1.62
21+ units		$ 2.05
Meter set fee (5/8" meter)	$ 205.00	
48 Hour Late Notice Charge	$ 8.50	
Annual Assessment	$ 100.00	
CAWP Participation Fee (5/8" meter)	$ 4,507.00	
Retail Participation Fee (5/8" meter)	$ 845.00	

AWA WATER RATES AND CHARGES

Effective 7/1/04

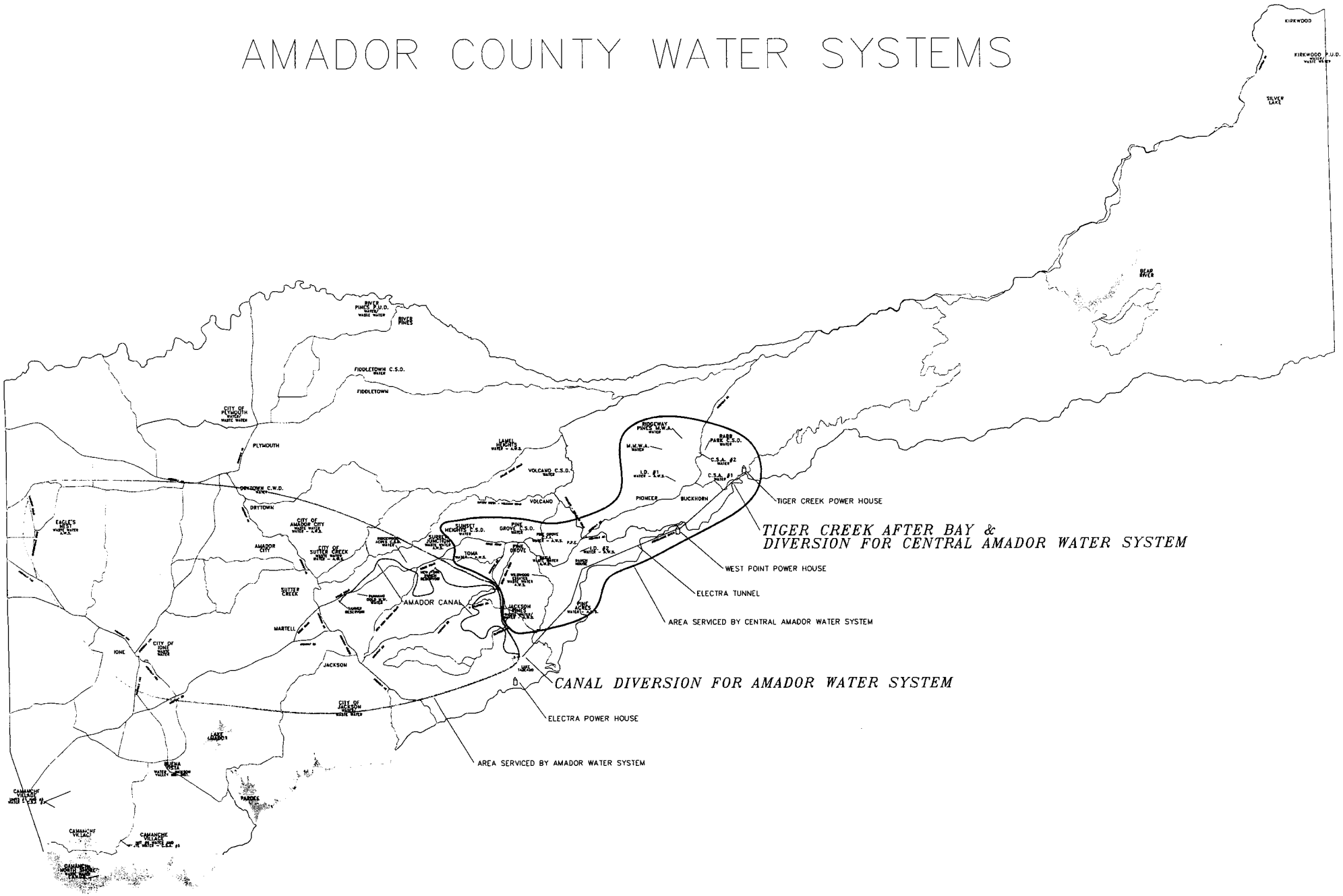
ID #5 Silver Lake (route 31 & 36)	bi-monthly	per unit
Bi-Monthly Base & User Rate (10 units included)	$ 70.50	
-Base rate $11.35 & user rate $23.90 per month		
Overage Rate (per unit over 10 units)		$ 2.10
Quarterly Base Rate (Non-Metered)	$ 34.05	
Connection Charge/per unit of use	$ 573.00	
Equalization Fee/per unit of use	$ 2,352.00	
Meter Set Fee (5/8")	$ 205.00	
48 Hour Late Notice Charge	$ 8.50	
CAWP Participation Fee (5/8" meter)	$ 4,507.00	

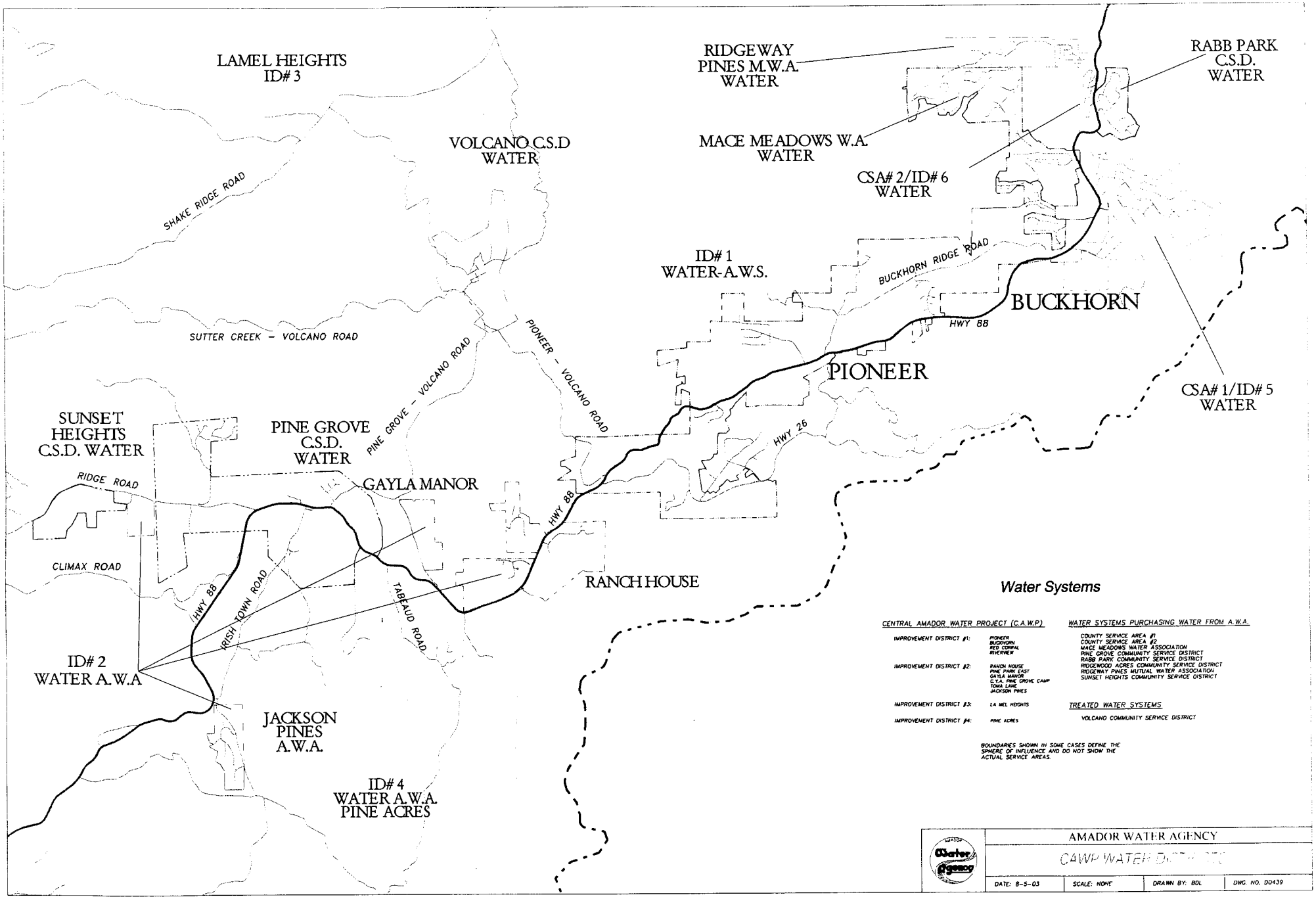
ID #6 Buckhorn East (route 32)	bi-monthly	per unit
Bi-Monthly Base & User Rate (10 units included)	$ 70.50	
-Base rate $10.35 & user rate $24.90 per month		
Overage Rate (per unit over 10 units)		$ 2.10
Bi-Monthly Base Rate (Non-Metered)	$ 20.70	
Connection Charge/per unit of use	$ 573.00	
Equalization Fee/per unit of use	$ 2,352.00	
Meter Set Fee (5/8")	$ 205.00	
48 Hour Late Notice Charge	$ 8.50	
CAWP Participation Fee (5/8" meter)	$ 4,507.00	

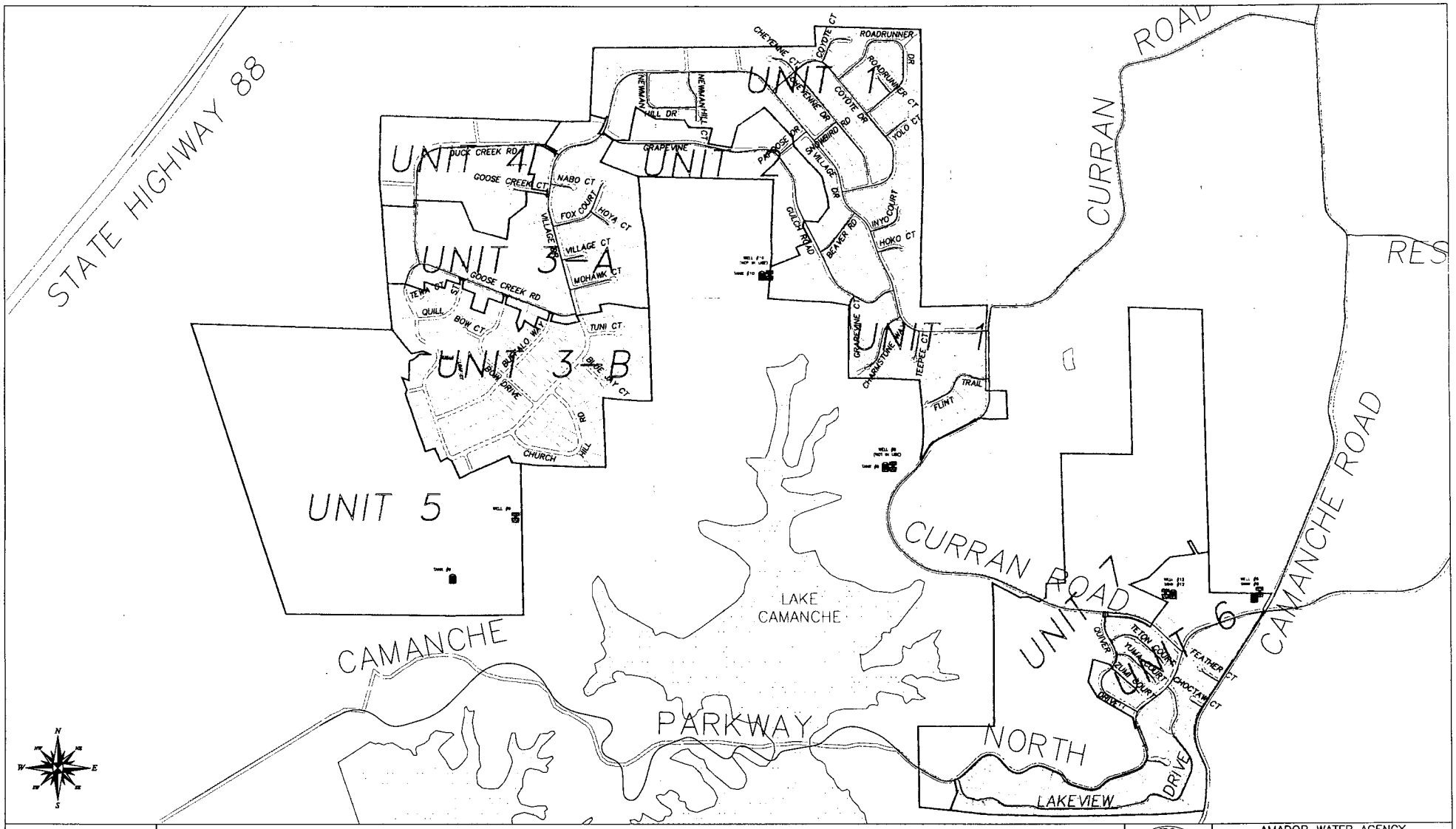
ID #7 Lake Camanche Water (route 33 & 37)	bi-monthly	per unit
Bi-Monthly Base & User Rate (18 units included)	$ 58.70	
-Base rate $8.35 & user rate $21 per month		
Overage Rate (per unit 19-60 units)		$ 1.00
Overage Rate (per unit 61-100 units)		$ 1.50
Overage Rate (per unit over 100 units)		$ 2.00
Quarterly Base Rate (Non-Metered)	$ 25.05	
Connection Charge/per unit of use	$ 3,350.00	
Equalization Fee/per unit of use	$ 6,430.00	
Meter Set Fee (5/8")	$ 205.00	
48 Hour Late Notice Charge	$ 8.50	

Area Maps

AMADOR COUNTY WATER SYSTEMS




LAMEL HEIGHTS
ID# 3
VOLCANO C.S.D
WATER
SHAKE RIDGE ROAD
SUTTER CREEK – VOLCANO ROAD
PINE GROVE – VOLCANO ROAD
PIONEER – VOLCANO ROAD
RIDGEWAY
PINES M.W.A.
WATER
MACE MEADOWS W.A.
WATER
CSA# 2/ID# 6
WATER
RABB PARK
C.S.D.
WATER
ID# 1
WATER-A.W.S.
BUCKHORN RIDGE ROAD
BUCKHORN
HWY 88
PIONEER
HWY 26
CSA# 1/ID# 5
WATER
SUNSET
HEIGHTS
C.S.D. WATER
PINE GROVE
C.S.D.
WATER
RIDGE ROAD
GAYLA MANOR
HWY 88
CLIMAX ROAD
HWY 88
IRISH TOWN ROAD
TABEAUD ROAD
RANCH HOUSE
ID# 2
WATER A.W.A
JACKSON
PINES
A.W.A.
ID# 4
WATER A.W.A.
PINE ACRES
Water Systems
CENTRAL AMADOR WATER PROJECT (C.A.W.P)
IMPROVEMENT DISTRICT #1:
PIONEER
BUCKHORN
RED CORRAL
RIVERVIEW
IMPROVEMENT DISTRICT #2:
RANCH HOUSE
PINE PARK EAST
GAYLA MANOR
C.Y.A. PINE GROVE CAMP
TOMA LANE
JACKSON PINES
IMPROVEMENT DISTRICT #3:
LA MEL HEIGHTS
IMPROVEMENT DISTRICT #4:
PINE ACRES
WATER SYSTEMS PURCHASING WATER FROM A.W.A.
COUNTY SERVICE AREA #1
COUNTY SERVICE AREA #2
MACE MEADOWS WATER ASSOCIATION
PINE GROVE COMMUNITY SERVICE DISTRICT
RABB PARK COMMUNITY SERVICE DISTRICT
RIDGEWOOD ACRES COMMUNITY SERVICE DISTRICT
RIDGEWAY PINES MUTUAL WATER ASSOCIATION
SUNSET HEIGHTS COMMUNITY SERVICE DISTRICT
TREATED WATER SYSTEMS
VOLCANO COMMUNITY SERVICE DISTRICT
BOUNDARIES SHOWN IN SOME CASES DEFINE THE SPHERE OF INFLUENCE AND DO NOT SHOW THE ACTUAL SERVICE AREAS.
AMADOR WATER AGENCY
CAWP WATER DISTRICT
DATE: 8-5-03
SCALE: NONE
DRAWN BY: BDL
DWG. NO. DD439

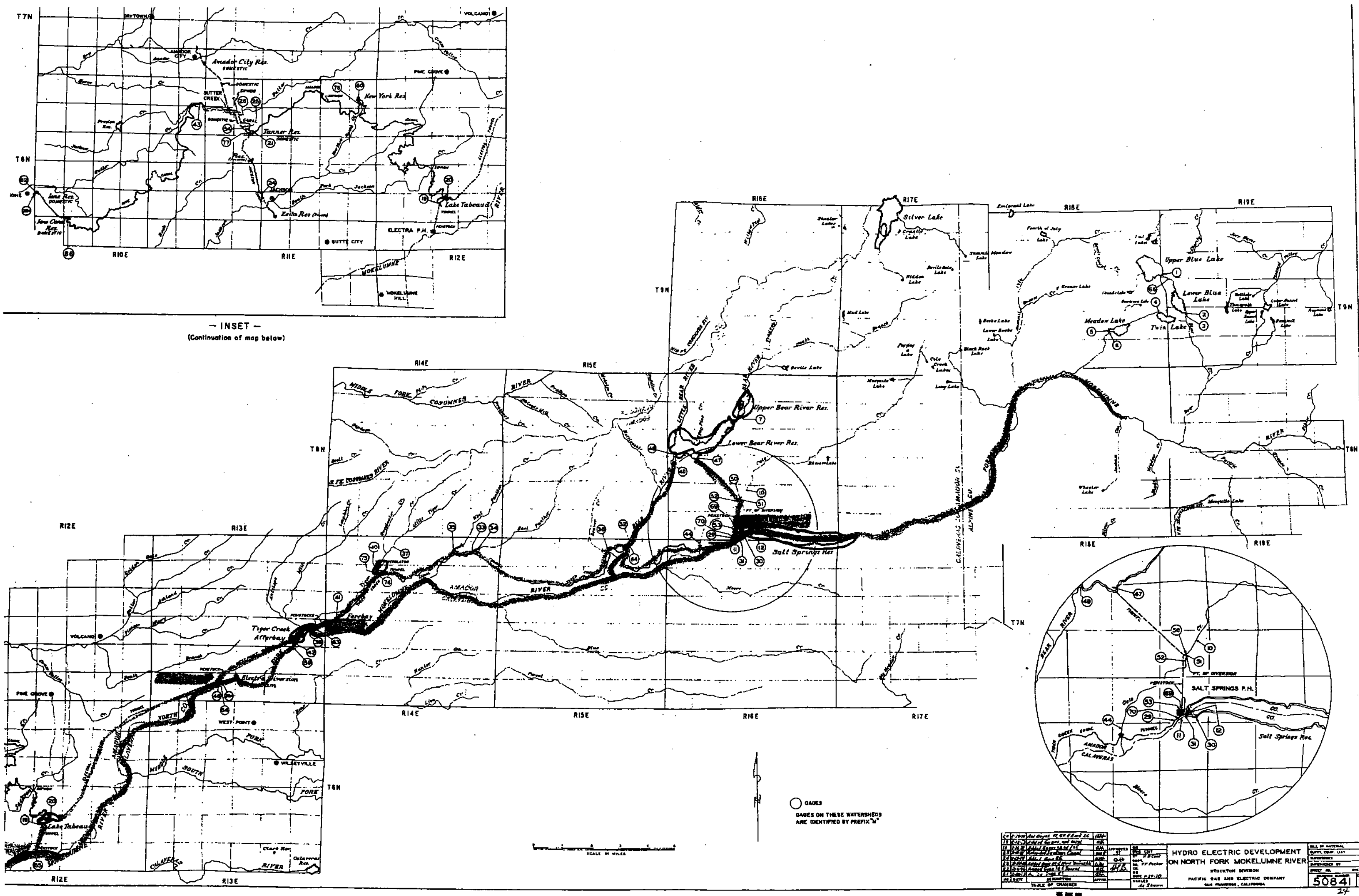


THIS MAP WAS PREPARED FOR AMADOR WATER AGENCY PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE DATA HERE ON.

AMADOR WATER AGENCY
SUTTER CREEK, CALIFORNIA

COUNTY SERVICE AREA #3, OVERVIEW
AMADOR WATER AGENCY
WATER IMPROVEMENT DISTRICT #7

SCALE: DO NOT SCALE	DRAWN BY: BDL	DWG. NO. N/A
DATE: 04-08-2002	CHK'D. BY: G. MANCEBO	SHEET 3 OF 3



- INSET -
(Continuation of map below)
Amador City Res.
New York Res.
Tanner Res.
Zeila Res
Lake Tabeaud
ELECTRA P.H.
BUTTE CITY
MOKELUMNE HILL
VOLCANO
PINE GROVE
IONE
AMADOR CITY
SUTTER CREEK
JACKSON
DRYTOWN
Silver Lake
Upper Blue Lake
Lower Blue Lake
Twin Lake
Meadow Lake
Upper Bear River Res.
Lower Bear River Res.
Salt Springs Res.
Tiger Creek Afterbay
Forebay
Electra Diversion Dam
WEST POINT
WILSEYVILLE
MOKELUMNE RIVER
AMADOR
CALAVERAS
SALT SPRINGS P.H.
PT. OF DIVERSION
PENSTOCK
TUNNEL
GAGES
GAGES ON THESE WATERSHEDS ARE IDENTIFIED BY PREFIX "M"
SCALE IN MILES
TABLE OF CHANGES
HYDRO ELECTRIC DEVELOPMENT
ON NORTH FORK MOKELUMNE RIVER
STOCKTON DIVISION
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA
As Shown
50841 25

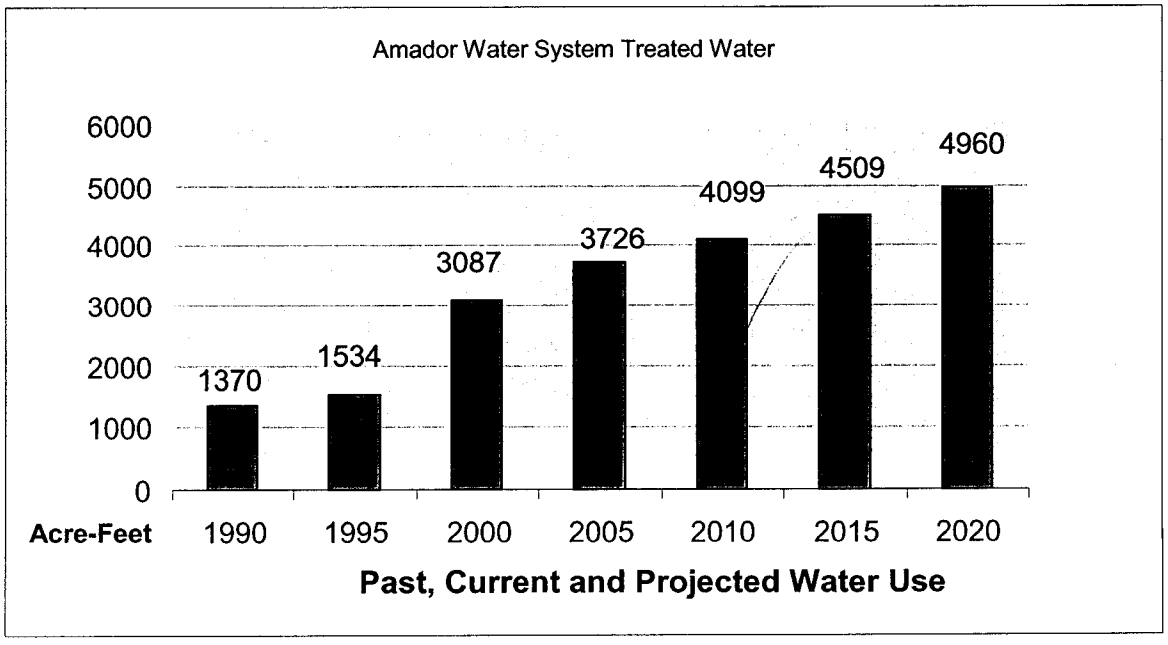
Past, Current and Projected Water Use Data Tables

Past, Current, and Projected Water Use

Amador Water System (Treated Only)

Acre-Feet

Water Use Sector	1990	1995	2000	2005	2010	2015	2020
Single family residential	522	723	1044	1148	1263	1389	1528
Multi-family residential	28	27	96	105	116	128	140
Commercial	47	45	87	96	105	116	128
Industrial	542	580	732	805	885	974	1071
Governmental	208	130	1044	1148	1263	1389	1528
Sales to other Agencies	23	29	386	424	467	513	565
Agricultural							
Total	1370	1534	3088	3727	4099	4509	4960



Past, Current, and Projected Water Use Water ID No. 7 - Lake Camanche **Acre-Feet**							
Water Use Sector	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Single family residential	Unavailable	0.41	0.46	0.51	0.56	0.61	0.67
Total		0.41	0.46	0.51	0.56	0.61	0.67

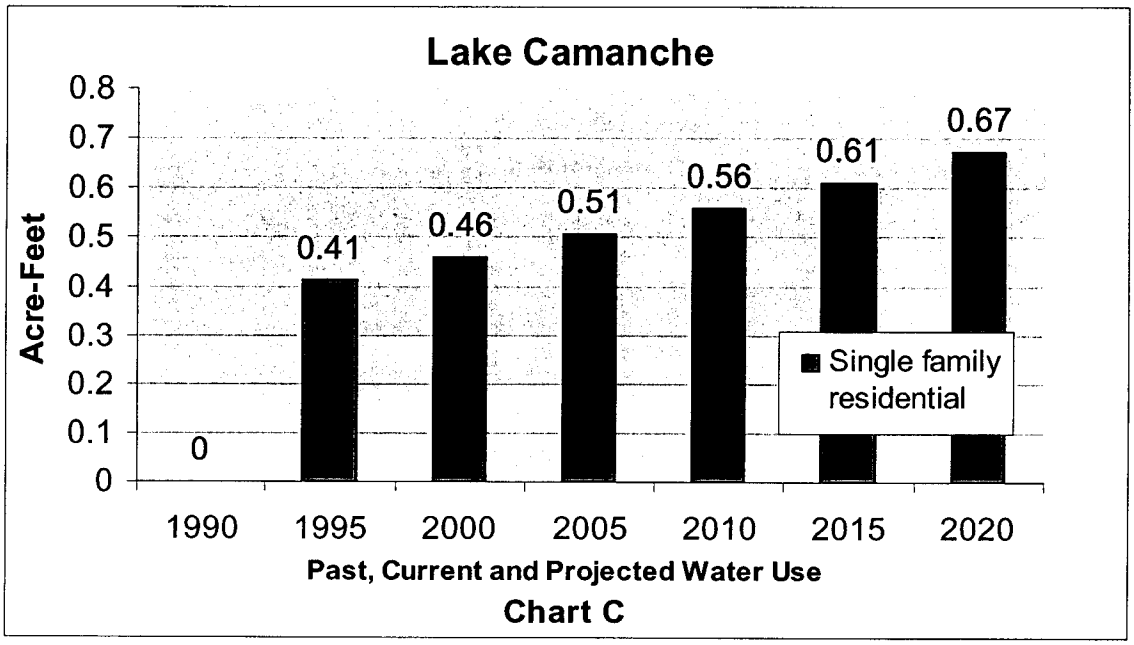
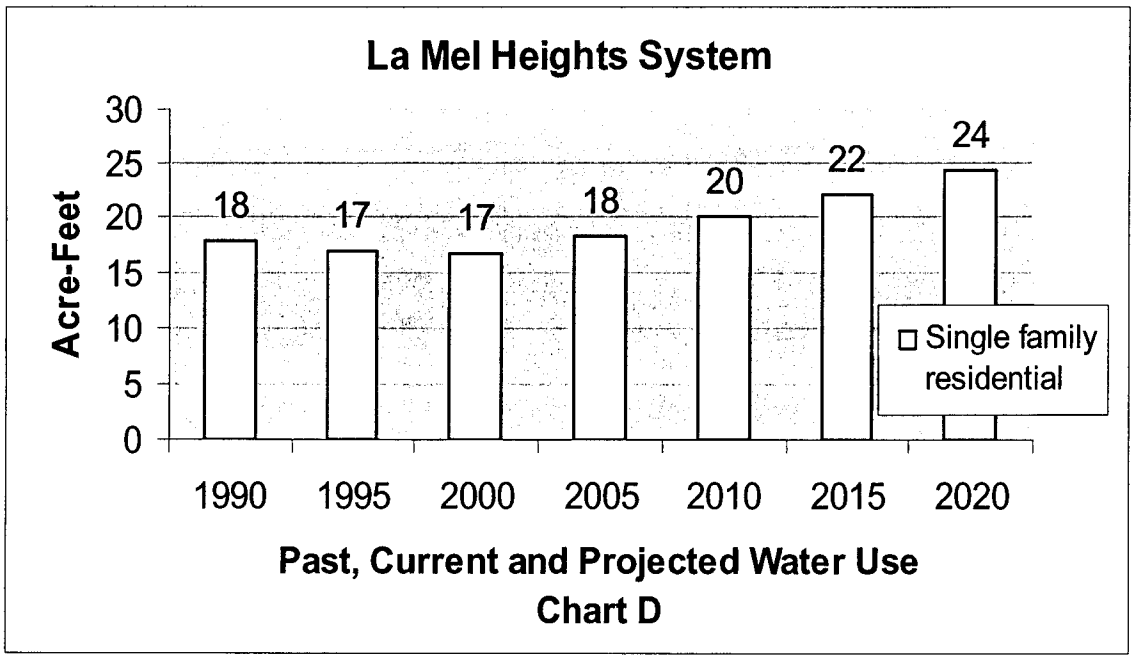


Chart C

Past, Current, and Projected Water Use La Mel Heights System (Retailers Only) Acre-Feet							
Water Use Sector	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Single family residential	18	17	17	18	20	22	24
Total	18	17	17	18	20	22	24



Wholesale Water Distributed (CAWP)							
Acre-Feet							
Water Use Sector	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
Wholesaler Water Distributed	706	847	921	1013	1114	1225	1348

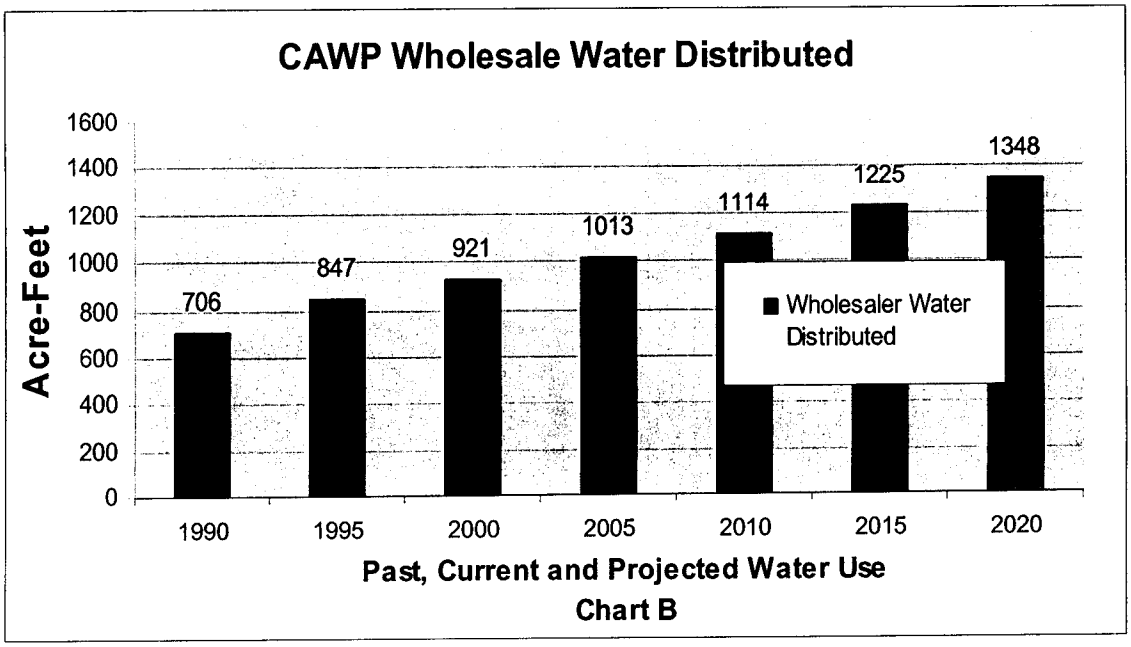


Chart B