FINAL

Crestline-Lake Arrowhead Water Agency

2010
Urban Water Management Plan

August 2011

AS APPROVED BY BOARD RESOLUTION NO. 742 ON 8/4/2011

ALBERT A. WEBB ASSOCIATES

Crestline-Lake Arrowhead Water Agency
2010 Urban Water Management Plan

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Date plan scheduled to be submitted to the Department of Water Resources:
On or before September 2, 2011

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Water supplier characteristics: Public Agency and Urban Water Supplier

Utility services provided by the water supplier: Domestic Water

Is the water supplier a Bureau of Reclamation Contractor? No

Is the water supplier a State Water Project Contractor? Yes

Section 1: Plan Preparation

Agency Coordination

This document is a 2010 Urban Water Management Plan, prepared for the Crestline-Lake Arrowhead Water Agency (CLAWA or Agency). As authorized by Section 10620(e) of the Urban Water Management Planning Act, CLAWA contracted with Albert A. Webb Associates to assist in the preparation of the Agency's 2010 Urban Water Management Plan (hereinafter referred to as the 2010 Plan or Plan). The purpose of this 2010 Plan is to address issues such as the Agency's existing and projected needs and policies concerning water supply, water demand, water conservation, and water reclamation and reuse. The intended benefits of this Plan include, but are not limited to, the following:

- help assure reliable water supplies
- promote the wise and efficient use of water
- help achieve local, regional, and statewide water conservation goals
- plan ahead for periods of water shortage
- encourage the use of recycled water

This 2010 Plan has been prepared to meet the requirements of the Urban Water Management Planning Act, California Water Code, Division 6, Part 2.6, section 10610 et seq. (hereinafter referred to as the UWMP Act or the Act). Attached as Appendix A is a copy of UWMP Act. The preparers have utilized and relied upon industry standards and the expertise of industry professionals in preparing this Plan, and have also utilized and relied upon guidance documents prepared and published by the California Department of Water Resources, such as the Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan (March 2011) and the DWR Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use (For the Consistent Implementation of the Water Conservation Act of 2009) (February 2011).

The UWMP Act requires water suppliers who directly or indirectly provide water for municipal purposes to more than 3,000 customers, or supply more than 3,000 ac-ft of water annually, to develop and implement an Urban Water Management Plan. Pursuant to the Act, urban water suppliers must update their Urban Water Management Plans at least once every five (5) years on or before December 31, in years ending in five and zero. However, pursuant to SBX7-7 (adding Water Code § 10608 et seq.) and SB 1478 (amending Water Code § 10608.20), the time for urban retail and urban wholesale water suppliers to adopt their 2010 Urban Water Management Plans was extended to July 2011.

This Plan has been prepared for the mountain communities within the boundaries of the Crestline-Lake Arrowhead Water Agency, located in the San Bernardino Mountains, San Bernardino County, California. CLAWA acts as a wholesale and retail water purveyor, delivering California State Water Project water from Cedarpines Park to Green Valley

Lake. As a wholesaler, CLAWA provides water to 15 water purveyors and one state agency that, in turn, provide municipal water service to residents, businesses, and institutions in their respective service areas. Thus, CLAWA provides supplemental water indirectly throughout most of its service area. CLAWA's wholesale customers are independent entities, each of which is responsible for its own water conservation programs and long-range planning.

Accordingly, this Plan does not govern the water management policies and practices of CLAWA's wholesale customers. Section 10620(c) of the Act provides that:

> An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

In addition to its role as a water wholesaler, CLAWA provides direct retail water service to some areas. CLAWA has four Improvement Districts ("A" through "D"), which it serves directly as a retail water purveyor. The four improvement districts have a total of approximately 1,199 service connections, many of which are owned as vacation homes and not utilized on a permanent or regular basis. There are also a number of individual users and government authorities who receive water directly from CLAWA on a retail basis, but are located outside CLAWA's improvement districts. While CLAWA provides limited retail water service as described above, CLAWA is not an "urban retail water supplier" for purposes of the Water Conservation Act of 2009 (Water Code § 10608 et seq.) and therefore has prepared this 2010 Plan as an "urban wholesale water supplier."

This 2010 Plan will help guide the Agency's water supply and conservation efforts over the next five years. Based upon this Plan, the Agency may undertake activities such as:

- develop and implement new conservation measures and strategies,
- pursue additional long-term storage agreements to supplement supply during low allocation years, and
- implement water supply programs and efforts that add reliability to the Agency's water supplies.

As provided herein and further discussed in Section 6 below, CLAWA has developed and will continue to implement an aggressive water conservation program and is a signatory member of the California Urban Water Conservation Council's Memorandum of Understanding Regarding Urban Water Conservation. Water purveyors who purchase water from CLAWA for subsequent retail service will undertake their own water management and conservation programs in addition to the conservation activities undertaken by CLAWA.

Public Involvement and Interagency Coordination

In accordance with applicable provisions of the UWMP Act and as further set forth below, CLAWA has taken steps to involve members of the public and has coordinated and consulted with a number of public agencies to obtain information and input for the preparation of this 2010 Plan. The process of coordination and consultation with the public and other agencies continued as the Plan underwent public review and final adoption.

1. Other Water Suppliers That Share a Common Source

CLAWA's primary source of supply is surface water from Silverwood Lake, which is part of the East Branch of the California State Water Project (SWP). The waters of Silverwood Lake come primarily from the SWP, and in small part from Houston Creek. Accordingly, the majority of water delivered to CLAWA's wholesale and retail customers is from the SWP. The SWP is managed by the California Department of Water Resources (DWR). Submittal of this Plan to DWR, along with the urban water management plans of other SWP contractors, will assist DWR in evaluating the total projected demands for SWP supplies and the needs of its member agencies, including CLAWA.

CLAWA also obtains some of its water supply from Houston Creek, which flows into Silverwood Lake when seasonal weather permits. As further discussed in Section 5 below, average Houston Creek appropriations by the Agency over the past 21 years are approximately 481 ac-ft/year. The Agency's diversions of Houston Creek water are made pursuant to two separate permits issued by the State Water Resources Control Board, which combined authorize the appropriation of up to 1,302 acre-feet per year. One permit authorizes the diversion of up to 1,000 acre-feet per year, and the other is for up to 300 acre-feet per year. Prior to issuance of these permits to the Agency in 1991, this water was un-appropriated.

2. Water Management Agencies

The Mojave Water Agency (MWA) is another SWP contractor that serves as an urban wholesale water supplier in the region. MWA also serves as the court-appointed Watermaster for the Mojave Groundwater Basin. MWA has been advised of the preparation of this plan, as have staff of the California Regional Water Quality Control Boards, Lahontan and Santa Ana Regions.

3. Relevant Public Agencies

The primary public agencies with land use authority in the CLAWA area are the County of San Bernardino, the U.S. Department of Agriculture, U.S. Forest Service, and California Department of Parks and Recreation. The County Planning Department, as well as the Southern California Association of Governments (SCAG), has been consulted regarding land use data and growth projections for this Plan. In addition, the Forest

Service's management plan for the San Bernardino National Forest has been reviewed with regard to land use planning and land management direction. As further set forth below, CLAWA also coordinated with other local agencies regarding the preparation of this Plan.

The Crestline Sanitation District, Running Springs Water District, and Lake Arrowhead Community Services District provide wastewater collection and treatment service within the CLAWA service area. Consultation and coordination with several of these agencies concerning potential wastewater reclamation and reuse is discussed in the Water Recycling section below.

Furthermore, water purveyors to which CLAWA provides wholesale supplies were advised of the preparation of the Plan and notified of public meetings at which the Plan was discussed. More specifically, in accordance with Section 10631(k) of the UWMP Act, CLAWA sent a letter in March 2011 to each of its wholesale customers requesting their estimated future demands for supplemental SWP water needed from CLAWA for calendar years 2015 to 2035. Replies were received from all of the major water purveyors contacted. Said letters were sent to Alpine Water Users Association, Arrowbear Park CWD, CSA 70 Cedar Glen, Arrowhead Villas Water District, Cedarpines Park MWC, Crestline Village Water District, Green Valley MSC, Running Springs Water District, Skyforest MWC, Big Bear DWP-Rimforest, Valley of Enchantment MWC, Valley View Park MWC, Strawberry Lodge MWC, Lake Arrowhead CSD, and Upper Little Bear Mountain Club. For fiscal year 2009-2010, CLAWA's wholesale water deliveries to these water purveyors totaled about 900 acre-feet. For future years, total deliveries of supplemental water to these agencies are projected to be about 870 acre-feet in the year 2015, 920 acre-feet in 2020, 965 acre-feet in 2025, and 1,000 acre-feet in 2030. These demand projections are incorporated into CLAWA's current and projected demand forecasts discussed below in Sections 3 and 5.

Plan Adoption, Submittal, and Implementation

Public Participation

CLAWA customers and members of the public generally are encouraged to participate in the urban water management planning process. Water in all its aspects - quality, sources, availability, pricing, conservation, and reuse - is a topic of considerable public interest in the San Bernardino Mountains. The population served by CLAWA has done an excellent job of conserving water, both historically and recently. Many of the conservation measures discussed in this Plan are already in effect, following public input and with public support. In other words, much of the water management planning process for CLAWA has already taken place through past actions by the Agency and by the various retail water purveyors, with full public involvement and review.

CLAWA notified the public of the availability of this Plan in draft form for public review and comment through postings in the local newspapers and mailings to persons/groups whom have previously identified their desire to receive CLAWA information. The Plan

was also made available for public inspection and comment at CLAWA's offices during normal business hours. Before adopting the 2010 Plan in final form, CLAWA conducted a duly noticed public hearing to receive public comment and discuss questions and issues related to the Plan.

Upon approval by CLAWA, copies of the 2010 Plan will be submitted to DWR, the California State Library, and the County of San Bernardino within 30 days of Board approval. Attached as Appendix B is a copy of the signed Resolution of Plan Adoption.

Section 2: System Description

Service Area Physical Description

Service Area Information with 20 Year Projections

The Crestline-Lake Arrowhead area is located approximately 85 miles east of the City of Los Angeles, and 10 miles north of the City of San Bernardino. The climate for this area consists of a relatively mild climate with four distinct seasons. The service area consists of several communities such as Crestline, Running Springs, Lake Gregory, and others. The summers are mild and dry, and winters are cold, with an annual average of approximately 40 inches of precipitation (Western Regional Climate Center). The region is subject to wide variations in annual precipitation, and experiences periodic wildland fires in the native chaparral and oak lands. The fluctuations in the annual average rainfall amounts occur across the entire southern California region because of the regional topography, and the Pacific Ocean cycle known as El Nino.

TABLE 1
CLIMATOLOGICAL DATA

	Jan	Feb	Mar	Apr	May	June
Evapotranspiration (inches)	1.77	2.60	4.58	5.95	7.04	7.63
Average Rainfall (inches)	8.58	7.96	6.45	2.93	1.14	0.16
Average Temperature (Fahrenheit)	37.3	39.3	42.2	47.7	54.3	62.1

	July	Aug	Sept	Oct	Nov	Dec	Annual
Evapotranspiration (inches)	8.12	7.36	5.43	4.05	2.36	1.75	58.64
Average Rainfall (inches)	0.14	0.35	0.76	1.64	4.25	5.71	40.04
Average Temperature (Fahrenheit)	69.2	68.6	63.8	54.0	44.0	38.2	51.73

(Revised 12/7/2005) Average Rainfall data based on records from 7/1/1948 to 3/31/2005 at the NOAA website (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?calarr)

As indicated above, CLAWA is a public agency, which primarily provides wholesale water service from Cedar Pines Park to Green Valley Lake, along with some direct service to retail customers. CLAWA is located about ten miles north of San Bernardino and Redlands in the San Bernardino Mountains. The service area encompasses portions of Crestline, Lake Arrowhead, Running Springs, and other nearby mountain communities that occupy islands of private land surrounded by National Forest territory.

Figure 1, Water Service Area, shows the major travel routes and communities in the area and also shows CLAWA's service boundary. CLAWA's water service area lies predominantly on the north side of State Highway 18 (Rim of the World Drive) and is served by State Highways 18, 138, 189, 173, and 330.

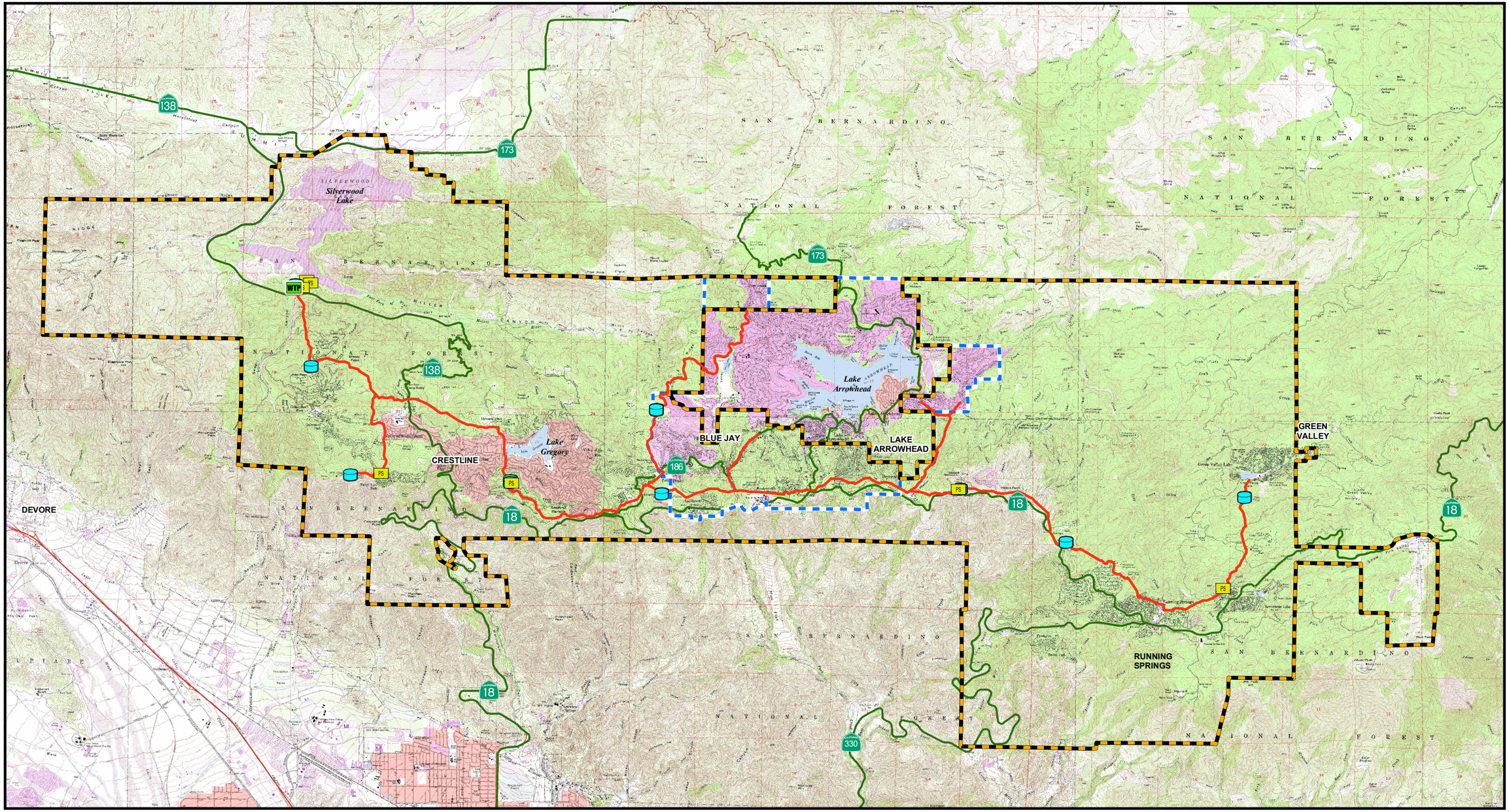
The CLAWA service area is located along the crest of the San Bernardino Mountains and

in adjacent valleys high on the mountain slopes, extending down the north face of the mountains to Silverwood Lake. The terrain is rugged, with moderate to steep slopes and elevations ranging from about 3,200 feet at Silverwood Lake to over 7,800 feet near Keller Peak. Elevations in developed areas are generally between 4,000 and 6,000 feet.

CLAWA was established in 1962 by the California Legislature and approved in 1963 by local voters. There have been a number of annexations over the years, which have enlarged the Agency's boundary. The Agency's existing boundary encompasses approximately 117 square miles, as shown in Figure 1. In 2006, CLAWA annexed a 1,235 acre area of US Forest Service land including the Snow Valley Mountain Resort, located southeasterly of Green Valley and southerly of State Highway 18. The annexation allows water to be delivered to the ski resort for snow making purposes during the winter months. The terms of the agreement between CLAWA and Snow Valley allow for 200 ac-ft of water to be delivered from CLAWA to Snow Valley on an interruptible basis during the months of November through February; however, to date Snow Valley has not completed the financial arrangements and construction of facilities necessary to allow said water delivery to Snow Valley.

As shown in Figure 1, the majority of the land within CLAWA is uninhabited. In fact, more than half of the land within CLAWA's boundary is part of the San Bernardino National Forest. The mountain communities occupy islands of private land surrounded by National Forest territory. There are three main clusters of developed communities within CLAWA's water service area:

- In the western part of the Agency are the communities of Crestline, Skyland, Valley of Enchantment, Lake Gregory, Valley of the Moon, Arrowhead Highlands, Valley View Park, and Cedarpines Park.
- In the central part of the Agency are the communities of Rimforest, Twin Peaks, Blue Jay, Crest Park (Meadowbrook), Skyforest, Cedar Glen, Deer Lodge Park, and Lake Arrowhead (portion within CLAWA’s boundary).
- In the eastern part of the Agency are the communities of Running Springs, Fredalba, Smiley Park, Arrowbear Lake, and Green Valley Lake.



Sources: CLAWA; San Bernardino County, 2009

ALBERT A. WEBB ASSOCIATES

N
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0 2 4 Miles

Legend

- CLAWA District Boundary
- Lake Arrowhead CSD Sewer Service Area
- CLAWA Transmission Line
- Highways

Figure 1. Crestline - Lake Arrowhead Water Agency Water Service Area

Map created Feb. 7, 2010; G:\\1987\87-0153\GIS\clawa_LACSD_17x11.mxd

CLAWA's sphere of influence was established in 1973 and has not been amended to date, except for the annexation of the Snow Valley Mountain Resort. The sphere of influence covers an area of approximately 150 square miles and extends about 23 miles east-west and 9 miles north-south. The bulk of CLAWA's sphere of influence is within Township 2 North, Ranges 1 West to 5 West, but some portions extend north and south into Townships 3 North and 1 North. The areas that are in CLAWA's sphere but not within the current Agency service boundary are: (1) the Lake Arrowhead Exclusion (2) 16 square miles of National Forest land in the Butler Peak/Keller Peak area, at the Agency's east end; and (3) a total of three square miles of primarily National Forest lands in the Cleghorn Pass and Sugarpine Mountain areas, at the Agency's west and southwest edges, along with a small area south of Crestline.

Near the central part of CLAWA's service area is an area surrounding Lake Arrowhead which chose to be excluded from the Agency's boundary, relying instead on local water sources. The "Lake Arrowhead Exclusion" area consists of the community surrounding Lake Arrowhead and is currently served by the Lake Arrowhead Community Services District (LACSD). LACSD draws its water from Lake Arrowhead and other local sources; however, LACSD purchases water from CLAWA to serve Deer Lodge Park and approximately 300 residences within the "overlap areas". The two "overlap areas" are located in the Grandview area on the west side of Lake Arrowhead and in Cedar Glen on the east side of Lake Arrowhead. These two areas are within both CLAWA's and LACSD's service area.

The Lake Arrowhead Exclusion is a result of the decision made during the original formation of CLAWA decades ago. The major property owner in Lake Arrowhead elected to exclude the Lake Arrowhead community from CLAWA's boundaries, confident that local water supplies in Lake Arrowhead would be sufficient to satisfy the needs of that community. In 2005, at LACSD's request, CLAWA entered into agreements with San Bernardino Valley Municipal Water District (SBVMWD) and LACSD which provided 7,600 acre-feet of State Water Project water over a period of 10-15 or more years with treatment and delivery capacity through CLAWA's water transmission system to LACSD for supplemental potable water. An existing 6-inch diameter metered turnout in Crest Park, having a flow capacity of 200-1,500 gpm, is the connection point for said supplemental water to LACSD. Normally, said supplemental water deliveries to LACSD through this turnout are scheduled to be made during CLAWA's off-peak months.

Service Area Population and Uses Served

Development in the San Bernardino Mountains is naturally constrained by rugged terrain, limited access, and lack of support infrastructure, as well as by planning and environmental policies which place much of the area off limits to significant development. Most of the mountain area, including the majority of CLAWA's service area, is surrounded by or within the San Bernardino National Forest. Forest lands are devoted primarily to resource protection and recreational use.

Lake Arrowhead, Crestline, Running Springs, and neighboring communities are part of a mountain resort area, which experiences significant tourism. There is a large seasonal population component as well as a substantial influx of visitors. The visitor/seasonal population is not fully reflected in available demographic statistics, which count mainly year-round residents. Seasonal changes in water demand in the CLAWA area are quite different from the normal seasonal variation in water use by customers of average Riverside-San Bernardino water purveyors, which reflect monthly changes in outdoor water use for landscape irrigation, swimming pools, car washing, space cooling, etc., which are far less prevalent within CLAWA's service area

The CLAWA service area includes commercial uses oriented to tourists and seasonal residents as well as year-round residents. However, development in the CLAWA service area is primarily single family residential, and this pattern is expected to continue. This data is compiled in Table 2 – Water Purveyors, Service Connections, and Water Use in CLAWA Area.

The Agency, in its secondary role as a water retailer, currently maintains approximately 1,199 retail service connections and serves a population of approximately 2,750 permanent residents.

TABLE 2
SERVICE CONNECTIONS, POPULATION AND WATER USE IN CLAWA SERVICE AREA

Estimates Made by CLAWA and its Purveyors
• There are approximately 14,750 active service connections in entirety of CLAWA's service area. Of this total, the majority (approximately 13,551 or 92 percent) are served by CLAWA's purveyor customers. The remaining 1,199 connections are served directly by CLAWA.
• Ninety-three percent of the retail service connections in the CLAWA service area are classified as general or residential. There are about 57 commercial connections, 8 agricultural/irrigation connections, no industrial connections, and 17 other water systems and camps.
• The CLAWA service area has an estimated permanent population of approximately 30,000. However, there are strong seasonal factors which can increase the number of people visiting the mountain area.
• In addition to the water annually imported by CLAWA, water purveyors in the CLAWA service area produce approximately 1200-1600 ac-ft annually from local water sources according to CLAWA's original project feasibility report for supplemental SWP water, and annual estimates reported to CLAWA from its wholesale customers.

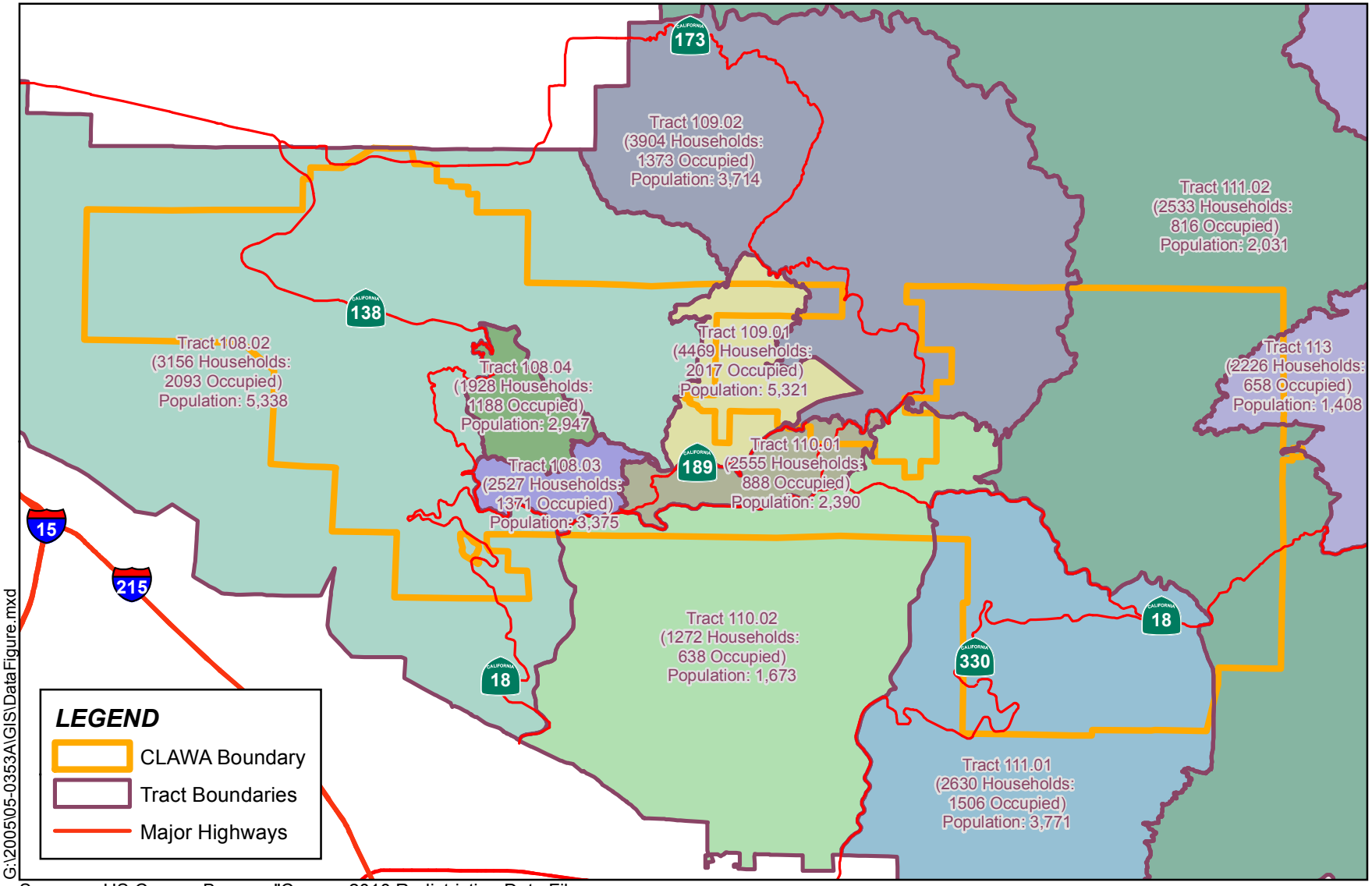
Census Data

As shown in Figure 2 – Households by Tract, 2010 Census Data, the CLAWA boundary is located within Census Tracts 108.02, 108.3, 108.4, 109.01, 109.02, 110.01, 110.02, 111.01, 111.02, and 113.00. Although the census tract boundaries extend considerably beyond CLAWA's boundary and sphere, most of the additional land is within the San Bernardino National Forest and is essentially undeveloped. However, there are three developed areas within the census tracts that are not within the CLAWA boundary. These three developed areas include a small part of the City of San Bernardino, a small area of the City of Big Bear Lake, and the unincorporated community of Lake Arrowhead. For the purposes of this Plan, Census Tract 110.02 which covers a small part of the City of San Bernardino, and Census Tract 113.00 which covers a small portion of the City of Big Bear Lake, were removed from consideration and are not counted towards the population projection for CLAWA.

As shown in Figure 2– Households by Tract, 2010 Census Data, these two census tracts extend considerably beyond the CLAWA boundary, but only cover small undeveloped portions of the CLAWA service area. When these two areas are subtracted, the data for the remaining eight census tracts approximately corresponds to CLAWA's service boundary. It is not an exact match, because Census Tract 109.02 extends considerably beyond the CLAWA boundary and it covers the unincorporated community of Lake Arrowhead which is not within CLAWA's service area. However, unlike the other two census tracts which were removed from consideration, Census Tract 109.02 includes developed areas that are within CLAWA's boundary; therefore, as a conservative measure, Census Tract 109.02 has been included in its entirety as a part of the population analysis (the remainder of this analysis will refer to the eight census tracts that are counted towards the CLAWA population projection as the "CLAWA Census Tracts").

The 2010 Census recorded a population of 28,887 for the CLAWA Census Tracts. As noted previously, a population of 28,887 is an estimate rather than an exact total because the CLAWA Census Tracts include the community of Lake Arrowhead which is not within CLAWA's service area.

Table 3 – CLAWA Service Area Demographics gives selected facts about the area's population and housing stock, such as occupancy, single family vs. multifamily structures, age of structure, and housing value. For comparison, data for the Riverside-San Bernardino Primary Metropolitan Statistical Area (PMSA) are also shown. It should be noted however that at the time of this analysis, the 2010 Census was not yet fully available. As a result, Table 3 is derived from the 2000 Census (and was also included in the 2005 CLAWA UWMP).



Sources: US Census Bureau, "Census 2010 Redistricting Data Files Delivered via FTP", March, 2010; URL: http://www2.census.gov/census_2010/01-Redistricting_File--PL_94-171/; County of San Bernardino, 2010.

0 1 2 3 Miles

N W E S

Figure 2. Households by Tract, 2010 Census

2010 Urban Water Management Plan

TABLE 3
CLAWA SERVICE AREA DEMOGRAPHICS

• 93 percent of all homes in the CLAWA area are single family dwellings, as compared to 68 percent in the Riverside-San Bernardino PMSA.
• The CLAWA housing stock has very few multifamily units (2 percent), condominiums (1 percent), and mobile or other unconventional homes (4 percent). This compares to averages for the entire PMSA of 20 percent multifamily, 6 percent condominiums, and 12 percent mobile/other homes.
• Fully 51 percent of the housing units in the CLAWA area were classified as vacant at the time of the census (2000). This is primarily because 45 percent of all dwelling units are classified as "for seasonal, recreational, or occasional use." As described by the Census Bureau, "These are vacant units used or intended for use only in certain seasons or for weekend or other occasional use throughout the year" (Census 1993b). By comparison, only 7 percent of the housing units in the entire PMSA are in this category.
• The CLAWA housing stock is also older. 52 percent of the CLAWA area housing stock is more than 35 years old, as compared to 36 percent in the metropolitan area. 32 percent of CLAWA's housing is more than 45 years old.

Population Growth Forecasts

The Southern California Association of Governments (SCAG) is the council of governments responsible for growth forecasting and planning in the region. SCAG has adopted growth forecasts for sub-regions within Southern California. CLAWA is within the San Bernardino sub-region, which consists of all of San Bernardino County.

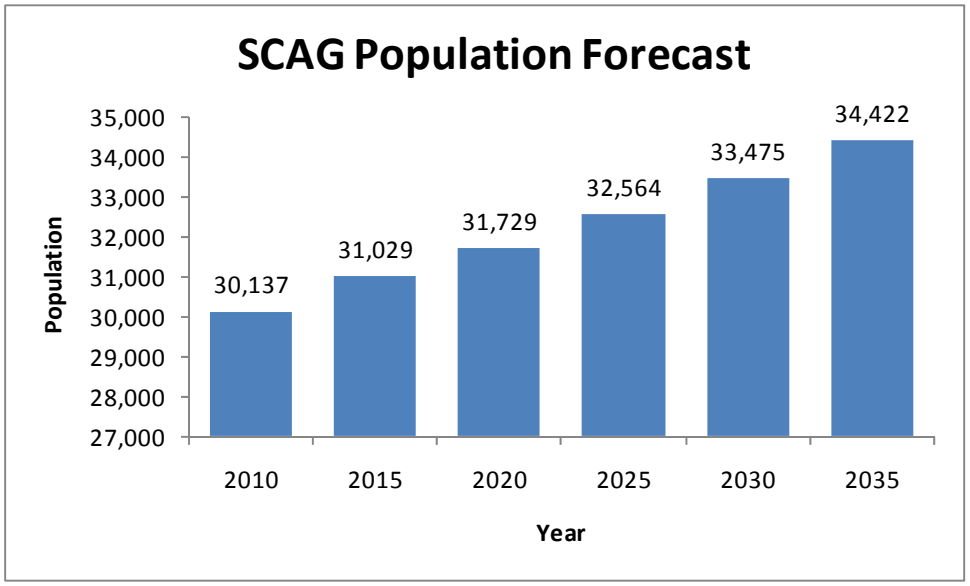
The population projections in this document are derived from the SCAG 2008 Regional Transportation Plan. The SCAG 2008 Regional Transportation Plan provides population projections in 5 year increments through the year 2030. The SCAG Regional Transportation Plan provides population projections by Traffic Area Zones (TAZ), by City and by census tracts. For the purposes of this analysis, the most detailed data available from SCAG are at the census tract level. As described above, the CLAWA Census Tracts roughly correspond to the CLAWA service area boundary.

The SCAG 2008 Regional Transportation Plan was developed prior to the 2010 Census count. As a result, the 2008 Regional Transportation Plan uses a slightly different population projection for 2010 than the 2010 Census. For instance, the 2008 Regional Transportation Plan projects a population of 30,137 for CLAWA in 2010, while the 2010

Census recorded a population of 28,887. Thus, the SCAG population assumes a population of 1,250 more than the 2010 Census.

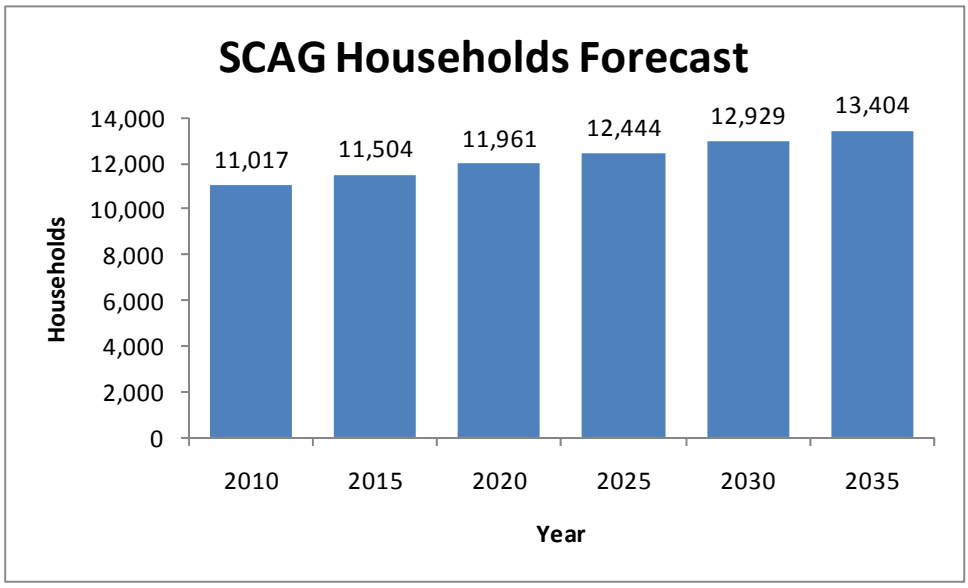
Figure 3 – SCAG Population Forecast, shows the estimated 2010 population, per the SCAG population forecast to the year 2035 for the CLAWA Census Tracts. Figure 4 – SCAG Households Forecast, gives similar data for household projections within CLAWA's service area. Population in these census tracts is projected to grow from 30,137 in 2010 (according to the 2008 Regional Transportation Plan) to 34,422 by 2035. Households are forecasted to increase from 11,017 to 13,404.

FIGURE 3
CLAWA SERVICE AREA SCAG POPULATION FORECAST



Source: SCAG 2008; Albert A. Webb Associates.

FIGURE 4
CLAWA SERVICE AREA, SCAG HOUSEHOLDS FORECAST



Source: SCAG 2008; Albert A. Webb Associates.

As shown in Figure 3 above – SCAG Population Forecast, SCAG estimates a population increase of approximately 4,285 individuals from the year 2010 to the year 2035, an increase of approximately 14.2 percent over a 25 year time period. In addition, as shown in Figure 4 above – SCAG Households Forecast, SCAG estimates the total number of households to increase from 11,017 to 13,404 from the year 2010 to the year 2035, an increase of approximately 21.7 percent over the same 25 year time period.

Section 3: System Demands

Water Demands

Water Use by Customer Type - Past, Current, and Future

As discussed previously, most of the water users within CLAWA's service area are served by a retail water purveyor other than CLAWA. In other words, most of CLAWA's water is sold on a wholesale basis to retail water purveyors who then combine the water they receive from the Agency with their own local well water supplies for delivery to their retail customers. Information is not available from CLAWA's purveyor customers to break down each purveyor's water use by customer sector. Notwithstanding, it has been estimated that approximately 97 percent of all connections in CLAWA's service area fall in the general/residential category; most of the rest are commercial. There are currently no industrial connections in CLAWA's service area.

Water deliveries by CLAWA for the year 2010 are summarized in Table 4 and are intended to give a current breakdown of CLAWA's water deliveries by customer category. Table 4 uses the categories by which CLAWA classifies its customers in the Agency's annual reports to the California Department of Public Health. In the future, CLAWA will attempt to modify its record keeping to use the customer sector categories identified in the UWMP Act (single family residential use, multifamily residential use, commercial use, industrial use, institutional and governmental use, landscape use, agricultural use, other uses, and sales to other agencies).

TABLE 4
CLAWA'S 2010 WATER DELIVERIES BY CUSTOMER CATEGORY

	CLAWA's 2010 Water Deliveries	
Customers	Water Deliveries (Ac-Ft)	Percent of Water Deliveries (%)
Retail Improvement District "A"	7	0.7
Retail Improvement District "B"	128	13.1
Retail Improvement District "C"	26	2.7
Retail Improvement District "D"	69	7.1
Wholesale Water Purveyors	635	65.0
Wholesale Other Water Customers*	111	11.4
Total Water Use	**976**	**100**

Source: Albert A. Webb Associates 2010 Annual Report to CDPH.
*Other Deliveries along Wholesale Transmission System: Purveyor Retail (12 Meters), CLAWA Office, Private Camps/Schools, County Annex Office/Road Yard, USFS Campgrounds/Heliport, State Parks & Recreation-Silverwood, and some Commercial Facilites.

TABLE 4A
CLAWA'S PROJECTED WATER DEMANDS

Year	CLAWA Long Term Water Demand Table (1)(3)(4)(5)(6)(7)			
	Multiple Dry Year Delivery (Ac-Ft)	Single Dry Year Delivery (Ac-Ft)	Average Year Delivery (Ac-Ft)	Wet Year Delivery (Ac-Ft)
2011	1,200	1,060	1,000	600
2015	1,800	1,590	1500(2)	875
2020	2,300	2,000	1,900	1,125
2025	2,525	2,200	2,090	1,250
2030	2,700	2,375	2,250	1,350
2035	2,850	2,500	2,370	1,425

(1) Refer to Figure 5 for graph of CLAWA long term annual water demand projections interpolated from the above.

(2) CLAWA's historical annual water demand from 1990-2010 averages about 1,500 AF. Peak High annual water demands occurred in 1990 (2,057 AF), 2004 (2,572 AF), and 2007 (2,702 AF). Peak low annual water demands occurred in 1998 (757 AF), 2005 (1,061), and 2007 (976 AF).

(3) CLAWA's retail improvement district water demands average about 0.2 AF/service/year; comprising mainly residential (a blend of full-time and part-time residents), along with some commercial.

(4) Refer to page 9 herein for a written summary of future annual SWP water projected by CLAWA's wholesale water purveyors, for years 2015, 2020, 2025 and 2030.

(5) The SCAG households forecast (Figure 4) was utilized in projecting applicable portions of CLAWA long term water demands.

(6) The above annual CLAWA water demand projections include estimated growth in CLAWA's other deliveries along their wholesale transmission system (see Table 4 footnote).

(7) The above annual CLAWA water demand projections also include allowances for fire protection water needed during possible wild land forest fires, water for possible contingencies, emergencies, normal unaccounted-for-water (UFW), and leaks.

Water Purveyor Data

As described previously, CLAWA is primarily a water wholesaler. That is, the Agency contracts for State Water Project water, and in turn sells this water to public and private retail water purveyors in CLAWA's service area. CLAWA also provides a limited amount of retail water service to four improvement districts and certain other

connections. In 2003, the Agency delivered a total of approximately 2,071 ac-ft of water, of which approximately 1,617 ac-ft was wholesale water, and the remaining amount was retail water. Table 4 shows that in 2010, CLAWA delivered a total of approximately 976 acre feet, of which approximately 76.4 percent was for wholesale purposes and 23.6 percent was for retail.

Section 10631.1 of the UWMP Act requires that water use projections of an UWMP include the projected water use for single-family and multi-family residential housing for lower income households as identified in the housing element of any city, county, or city and county in the service area of the supplier. It is the Agency's current understanding that the housing element of the County of San Bernardino's General Plan was last updated in April 2007. The Agency further understands that, while the County's housing element identifies the number and general locations of low income households in the County up to the year 2008, the housing element does not project the number or location of low-income households in the future. For this reason it is not practicable to specifically project future water use for lower income households in CLAWA's service area in a way that is separate and apart from overall residential demand. As indicated above, it has been estimated that approximately 97 percent of all connections in CLAWA's service area fall in the general/residential category. Thus, based on the relative lack of information regarding lower-income housing projections in the Agency's service area over the next 25-year planning horizon, this analysis assumes that the projected water demands for future lower-income households will not exceed historic trends and are therefore included within the Agency's current and future demand projections for residential use.

Section 4: System Supplies

California State Water Project

CLAWA's primary water supply source is the California State Water Project (SWP). The following description of the SWP was obtained from the Department of Water Resources' Office of Public Affairs.

The SWP is the nation's largest state-built water and power development and conveyance system. It includes facilities—pumping and power plants; reservoirs, and storage tanks; and canals, tunnels, and pipelines—that capture, store, and convey water to 29 water agencies. The SWP's watershed encompasses the mountains and waterways around the Feather River. Rain and melting snow run off mountainsides and into waterways that lead into Lake Oroville. The lake in Butte County is the State Water Project's official start and a part of a complex that includes three power plants, a forebay, and an afterbay. One of the power plants, Hyatt Powerplant, is the largest and was built in the bedrock under the Lake.

There are three smaller lakes above Oroville in Plumas County—Antelope Lake, Frenchman Lake, and Lake Davis—which are mainly used for recreation and downstream releases for fisheries. Lake Davis also provides water to the nearby community of Portola. When water is needed, Lake Oroville releases water into the Feather River. It travels down the river to where the river converges with the Sacramento River, the state's largest waterway. Water flows down the Sacramento River into the Sacramento-San Joaquin Delta. Some of the water is pumped into the North Bay Aqueduct, which serves Napa and Solano counties.

The remaining water travels further south in the Delta, where it is pumped by Banks Pumping Plant into the 444-mile-long California Aqueduct. Water then enters Bethany Reservoir, where the South Bay Aqueduct begins. It serves Alameda and San Jose counties. Water in the mainstem of the California Aqueduct flows south by gravity into the San Luis Joint-Use Complex, which was designed and constructed by the federal government and is operated and maintained by the Department of Water Resources. Within the complex are O'Neill Forebay, Sisk Dam and San Luis Reservoir, the nation's largest offstream reservoir (it has no natural watershed), the Gianelli Pumping-Generating Plant, Dos Amigos Pumping Plant, and the San Luis Canal. This section of the California Aqueduct serves both the SWP and the federal Central Valley Project. After leaving the Joint-Use Complex, water travels through the central San Joaquin Valley and splits near Kettleman City into the Coastal Branch Aqueduct, completed in 1997, to serve San Luis Obispo and Santa Barbara counties.

The water in the mainstem is pumped up California's hilly terrain by three pumping plants – Buena Vista, Teerink, and Chrisman – until it reaches Edmonston Pumping Plant, the SWP's largest. Its huge motor-pump units, each standing about 65 feet tall and

weighing more than 400 tons, lift water nearly 2,000 feet up and over the Tehachapi Mountains through 10 miles of tunnels.

As the water reaches the bottom of the mountain, it splits into two branches: the West Branch and the East Branch (the mainstem). Water in the West Branch is pumped by Oso Pumping Plant into Quail Lake. From there, it enters a pipeline leading into Warne Powerplant to generate power. Water is then discharged into Pyramid Lake, travels through Angeles Tunnel, and into Castaic Powerplant (the latter two are joint developments by DWR and the Los Angeles Department of Water and Power). At the end of the West Branch is Castaic Lake and Castaic Lagoon, a popular Southern California recreation spot.

Water flowing down the East Branch generates power at Alamo Powerplant then is pumped uphill by Pearblossom Pumping Plant. The plant lifts the water 540 feet. From there, it flows downhill through an open aqueduct, linked at its end to four underground pipelines which carry the water into the Mojave Siphon Powerplant, which discharges the water into Lake Silverwood. When water is needed, it is discharged into Devil Canyon Powerplant and its two afterbays. The 28-mile-long Santa Ana Pipeline then takes it underground to Lake Perris, the southernmost SWP facility and one of Southern California's most popular recreation spots.

The SWP's most recently constructed facility, the East Branch Extension delivers water from Devil Canyon Powerplant's Afterbay to Yucaipa Valley and the San Gorgonio Pass area in San Bernardino and Riverside counties. The project – consisting of 13 miles of buried pipeline, three pump stations, and a 90 acre-foot regulatory reservoir – will meet the region's water needs for the next 40 years. SWP water will be used to recharge over drafted groundwater basins and allow more flexibility for local water systems. The extension, completed in 2003, is a cooperative project between DWR, the San Bernardino Valley Municipal Water District, and the San Gorgonio Pass Water Agency. The two contractors will pay for the project's construction costs by repaying the principal and interest of revenue bonds sold to finance the project. Appendix C shows a map of the entire SWP.

CLAWA is one of 29 agencies authorized to receive direct water deliveries from the SWP pursuant to a contract with DWR. Under that contract, CLAWA's SWP "Table A" allocation is 5,800 acre-feet per year. "Table A" supplies refer to the maximum amount of water that each contractor is entitled to receive on an annual basis from the SWP and that amount is set forth in "Table A" of each contract with DWR. Table A is used in determining each contractor's proportionate share of the total amount of SWP supplies available in a given year. As originally conceived, the SWP was planned to have a delivery capability of 4.23 million gallons per year of Table A supplies. However, the entire SWP was never fully constructed, and therefore that amount is not available from the project. Furthermore, while Table A identifies the maximum amount of SWP supplies that the contractors may receive in a given year, the amount actually available depends upon a variety of hydrologic, operational, environmental, regulatory, legal, and other factors. On a bi-annual basis, DWR prepares a SWP Delivery Reliability Report

which accounts for the many factors affecting the SWP and forecasts the long-term annual availability of SWP supplies during normal, single-dry, and multiple-dry year periods over the next 20-year forecast. As set forth in greater detail below, DWR's most recent SWP Delivery Reliability Report was issued in 2010. Among other things, the DWR Report concludes that long-term average deliveries of SWP Table A supplies will be 60 percent of the contractors' Table A amounts. Accordingly, based on CLAWA's Table A amount of 5,800 acre-feet per year, the Agency can only plan on receiving an average of 3,480 acre-feet per year over the next 20-year projection. Annual variations in that amount, which may occur during single-dry, multiple-dry, and wet years, are further described in Section 5 below.

Local Surface Water

While CLAWA's primary source of water supply is the SWP, Agency also holds rights to a reliable local water supply. In 1978, CLAWA applied to the State Water Resources Control Board to appropriate local water from Houston Creek which is tributary to Lake Silverwood. In 1991, the State Board issued two permits which allow CLAWA to appropriate up to 1,302 ac-ft per year from that source. Actual diversion quantities vary depending upon annual amounts of precipitation and are limited according to the amount of return flow to the Mojave watershed each year. The current (1989-2010) average amount of water appropriated per year is 481 ac-ft. This local water appropriated by CLAWA is in addition to its allotment of 5,800 ac-ft/year of SWP Table A water discussed above. CLAWA's appropriative rights to Houston Creek, together with its SWP deliveries, create a more reliable overall water supply for the Agency. As an example, in 1992-93 an extended drought in Northern California forced DWR to reduce its SWP deliveries to CLAWA. During that same time, however, the local area was not experiencing the same drought conditions and thus CLAWA was able to use water from Houston Creek to supplement its below-normal SWP supply.

The reliability of supply from Houston Creek is dependent upon factors such as local precipitation, surface water management, and possibly groundwater production by others. The variability of local precipitation can be seen in Figure 8, Historical Precipitation, Lake Arrowhead, 1948-2005. Over this period, local precipitation has ranged from about 14.6 inches to more than 98 inches. Due to the unpredictable nature of local hydrology, CLAWA does not rely upon the full amount set forth in its appropriative permits. Rather, for planning purposes, CLAWA utilizes the average annual amount of water it has received from Houston Creek over the last 20 years, which is 481 acre-feet per year.

Table 5 below identifies the current and projected long-term average water supplies available to CLAWA based on its SWP Table A allotment and appropriative rights to Houston Creek. Based on the discussion above, these projections assume a long-term average delivery projection of 60% of SWP Table A supplies and an average appropriation of 481 acre-feet per year from Houston Creek. As a conservative measure, Table 5 does not include additional water supplies available to CLAWA pursuant to its agreements with other agencies, and does not include surplus SWP supplies that CLAWA may seek to acquire and store for use during dry conditions (these two additional supplies

are discussed below.) Table 5A shows yearly totals of water appropriated from Houston Creek. Further discussion regarding the availability and reliability of CLAWA's SWP Table A and Houston Creek supplies are provided in Section 5.

TABLE 5
Current and Projected Water Supplies

Water Supply Sources	2010	2015	2020	2025	2030	2035
Available from DWR [1,2]	2,900	3,480	3,480	3,480	3,480	3,480
Locally produdced groundwater	0	0	0	0	0	0
Locally available surface water [3]	481	481	481	481	481	481
Transfers						
Exchanges In						
Recycled Water	0	0	0	0	0	0
Other						
Total	3,381	3,961	3,961	3,961	3,961	3,961

Units of Measure: Ac-ft/Year

[1] 2010 availability based upon approved DWR Table A allocation percentage of 50%.

[2] Future availability based upon SWP long term reliability of 60%.

[3] Average total surface water available from Houston Creek via Lake Silverwood from 1989-2010.

TABLE 5A
HISTORICAL WATER SUPPLIES (SWP AND HOUSTON CREEK)

Calendar Year	State Water Project Deliveries (Ac-Ft)	Water Year [1]	Houston Creek Water (Ac-Ft)
1990	1,827	89-90	123
1991	849	90-91	472
1992	519	91-92	692
1993	439	92-93	617
1994	785	93-94	391
1995	409	94-85	492
1996	485	95-96	603
1997	651	96-97	608
1998	187	97-98	517
1999	1,132	98-99	13
2000	1,194	99-00	264
2001	1,057	00-01	671
2002	2,189	01-02	0
2003	1,563	02-03	471
2004	1,831 [2]	03-04	557
2005	807	04-05	590
2006	641	05-06	506
2007	2,478	06-07	123
2008	725	07-08	1,082
2009	952	08-09	598
2010	144	09-10	712
		Average	**481**

[1] The 12-month period from October through September. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. For example, the year ending September 30, 1992 is called the "1992 water year".

[2] Corrected value.

Groundwater

CLAWA does not currently use any groundwater, nor are there any projected future plans for CLAWA to use groundwater.

Transfer and Exchange Opportunities

Water Transfers

CLAWA has for some years been investigating opportunities to have long-term water storage agreements. CLAWA is seeking arrangements which would allow the transfer of unused water, in years when SWP allocations exceed demand, to another water purveyor for storage. CLAWA would then have the right to utilize all or some of that stored water during years in which the SWP allocations did not meet demand. To date, CLAWA has entered into the following such agreements, and the Agency will continue investigating the possibility of additional storage and transfer arrangements.

In 2005, CLAWA entered into an agreement with the Lake Arrowhead Community Services District (LACSD) and San Bernardino Valley Municipal Water District (SBVMWD) to deliver water purchased from SBVMWD to the Lake Arrowhead Woods area. This agreement provides that CLAWA will treat and deliver 7,600 ac-ft of water to LACSD over a period of 10-15 or more years. The agreement also gives CLAWA the right to utilize a portion of the water to satisfy demands within the Agency's service area during years of low SWP allocation. The agreement does however limit the deliveries of water to LACSD and/or CLAWA to 15% of SBVMWD's approved SWP allocations for that year. For example in a 10% SWP allocation year, SBVMWD's allocation would equal 10,260 ac-ft and no more than 15% of that total (1,539 ac-ft) could be delivered to LACSD and/or CLAWA. This transfer agreement will provide CLAWA with the ability to supplement its source of supply while seeking additional long-term storage agreements.

In 2009, CLAWA entered into an amendment to a 2008 exchange agreement with SBVMWD which provides that SBVMWD shall deliver to CLAWA, at Silverwood Lake, up to a total of 1,650 acre-feet of water when requested by CLAWA, between the years 2009 and 2018, subject to the conditions of the 2008 agreement as amended.

In 2010, CLAWA entered into an exchange agreement with San Gorgonio Pass Water Agency (SGPWA) which provides that SGPWA shall deliver to CLAWA up to a total of 1,000 acre-feet of water when requested by CLAWA, between the years 2012 and 2020, subject to the conditions of the 2010 agreement.

Additional SWP Supplies

As an additional means of supplementing its water supply portfolio, CLAWA may seek to purchase additional SWP water from DWR on an annual basis or from other SWP contractors on a permanent basis. From time to time, SWP contractors have the opportunity to purchase surplus SWP supplies from DWR. For example, "Article 21" water is SWP supply that may be made available by DWR on an unscheduled basis to SWP contractors when excess flows are present in the Delta. This supply is limited to amounts not needed for fulfilling contractors' approved Table A deliveries or for meeting SWP operational requirements, including environmental regulations and reservoir storage

goals for the current or following years. (DWR, 2010.) Deliveries of Article 21 water to specific contractors may be limited by operational capacity in SWP facilities or as a result of changed operational conditions. Moreover, Article 21 water cannot be stored by DWR in SWP reservoirs for later delivery to a requesting contractor. (DWR, 2010; 2009 DWR Report at 39.)

"Turnback Pool" water refers to a program where SWP contractors with allocated Table A supplies in excess of their needs in a given year may make that supply available for purchase by other contractors. The Turnback Pool is administered by DWR, which provides that a SWP contractor may sell its Table A supply under the program provided that the contractor has not elected to store project water outside of its service area in that year and has not elected to carry over water under pursuant to Article 12(e) or Article 56 of its contract with DWR. (DWR, 2011.) Because Article 21 and Turnback Pool water supplies are not available on a regular basis, and because CLAWA has not historically utilized those supplies as a component of its water supply portfolio, they are not relied upon in this Plan as part of CLAWA's supply projections. Nevertheless, those supplies remain available to CLAWA as a SWP contractor and the Agency will continue to evaluate the possibility of acquiring them in the future. To that end, the 2009 DWR Report shows that an average of 85,000 acre-feet per year of Article 21 water is projected to be available to the SWP contractors under current conditions, and that 60,000 acre-feet per year is projected to be available under future conditions. (See DWR Report at 44, 50, Tables 6.6 and 6.15.)

In some circumstances, SWP contractors are also able to permanently acquire additional SWP Table A supplies from other contractors that are willing to sell. By way of example, the neighboring Mojave Water Agency recently acquired the right to 14,000 acre-feet per year of additional SWP Table A supplies from the Dudley Ridge Water District (another SWP contractor) located in Kern County. of ales of Table A water occurring amongst the SWP contractors. As a SWP contractor, CLAWA will continue to monitor this opportunity to acquire additional SWP supplies.

Recycled Water

To date, CLAWA has made no use of recycled water. There are a number of reasons for this. First, the California Regional Water Quality Control Board, Lahontan Region (Regional Board), has had a longstanding prohibition against the use of recycled water at elevations above 3,200 feet in the San Bernardino Mountains. In January 2003, a request for a Basin Plan amendment was filed. The amendment would allow the discharge of treated waters that are of waste origin above 3,200-foot elevation. In early September 2003, the Regional Board recommended approval of the Basin Plan Amendment. The amendment was reviewed and approved by the State Water Resources Control Board and the U.S. Environmental Protection Agency in 2004. As further discussed below, these changes will allow recycled water projects to proceed to some extent.

Second, because of the climate, topography, and development patterns in the mountains, there are very few sizable landscaped areas where recycled water could potentially be

used for irrigation. Third, for the same reasons, total landscaped area is extremely low, since most lots have little landscaped area. Fourth, there are no industrial uses to speak of in the CLAWA service area, hence no potential market for industrial use of recycled water. Most commercial uses are also fairly small.

For purposes of this Plan, it has been assumed that all recycled water supply and use will be handled by others due to the fact that CLAWA does not have any wastewater treatment facilities or a recycled water distribution system.

Wastewater Collection and Treatment in the CLAWA Service Area

There are three agencies which provide wastewater collection and treatment service in parts of CLAWA's service area and sphere of influence. They are the Crestline Sanitation District, Running Springs Water District, and Lake Arrowhead Community Services District.

Crestline Sanitation District

The Crestline Sanitation District (CSD) was formed in 1946 as a special district of San Bernardino County (CSA 70). CSD operates three small wastewater treatment plants, with a combined treatment capacity of 4.3 ac-ft per day (af/d) or 1.4 MGD in the San Bernardino National Forest. The Houston Creek wastewater treatment plant, located north of Lake Gregory, has a treatment capacity of 2.2 af/d. The Seeley Creek treatment plant, located north of Valley of Enchantment, has 1.5 acre-foot capacity, and the Cleghorn facility, southwest of Lake Silverwood, has capacity of 0.6 ac-ft. CSD also disposes of effluent from the Pilot Rock Treatment Plant, located in Miller Canyon north of Crestline, which is owned by the California Department of Forestry and has a treatment capacity of 0.3 af/d.

Running Springs Water District

Running Springs Water District (RSWD) is a San Bernardino County special district formed in 1958 and authorized to provide water, sewer, sanitation, fire, and park and recreation services. RSWD provides wastewater collection and treatment for the communities of Running Springs, Fredalba, Smiley Park, Green Valley and Snow Valley.

RSWD operates a single wastewater treatment facility, the Running Springs Water Pollution Control Plant, which is located one-quarter mile south of Smiley Park. The plant’s treatment capacity is approximately 3.1 af/d.

Lake Arrowhead Community Services District

There is presently some recycled water use in LACSD’s service area to irrigate the Grass Valley Golf Course. Between 1994 and 2004 the District treated an average annual wastewater flow of 1.32 million gallons per day (mgd) or 1,479 AFY. The District currently produces between 1,500 and 2,000 AFY of treated wastewater that is conveyed

through an outfall pipeline to the District's disposal facility in the City of Hesperia. This disposal site consists of groundwater recharge into the Mojave Basin.

As indicated above, historically the Regional Board prohibited the use of recycled water in the District service area because the rules governing discharge of waters of a waste origin were not permitted to be used in locations above 3,200 feet in elevation. In addition, large areas served by the recycling agencies are tributary to lakes which are sources of public drinking water supply. Pursuant to a Basin Plan Amendment adopted in 2004, the District has implemented a recycled water program which supplies approximately 1 mgd of recycled water for outdoor irrigation in the Grass Valley Basin.

The District currently operates two wastewater treatment plants; 1) the Grass Valley Wastewater Treatment Plant (GVWWTP) and, 2) the Willow Creek Wastewater Treatment Plant (WCWWTP). The District has recently constructed improvements to the wastewater treatment process at the GVWWTP so that the recycled water can be beneficially used in the District's service area for outdoor irrigation.

Current Use of Recycled Water

CLAWA does not directly use recycled water in its service area at this time.

Potential Uses of Recycled Water

As discussed above, several factors limit the potential uses of recycled water within CLAWA. For instance, the terrain in CLAWA's service area is steep and irregular, winters are severe, and maintenance of natural forest conditions is preferred. As a result, most lots have little landscaped area that requires irrigation. Furthermore, there is virtually no market for industrial use of recycled water and most commercial uses are fairly small. The lack of potential major users of recycled water renders the construction of dual water systems economically infeasible at this time. Despite these obstacles, the potential exists to use recycled water for wildlife habitat and wetland enhancement within the National Forest. The Forest Service is interested in exploring opportunities for water reuse. However, regulatory constraints would have to be overcome to make this possible. As another example, RSWD has sought to use recycled water to spray irrigate 20 acres of land adjacent to its treatment plant. In the long term, another potential use of recycled water being considered is to extend this irrigation activity eastward along the mountain to create a greenbelt that would help protect the area from fire. Over time, such a program could make use of all of RSWD treated effluent. Again, however, regulatory issues would have to be overcome and necessary approvals and permits would need to be obtained, which have not yet been pursued at this time.

Future Water Projects

There are currently no proposed projects to directly provide additional water supply to CLAWA. As stated previously, CLAWA utilizes SWP Table A supplies (contractual allotment of 5,800 ac-ft/year) and local surface water appropriated from Houston Creek.

CLAWA currently does not forecast utilizing groundwater or recycled water supplies as a direct source of supply for its wholesale or retail customers. The Agency is, however, pursuing additional long-term storage arrangements to supplement supply during low allocation years.

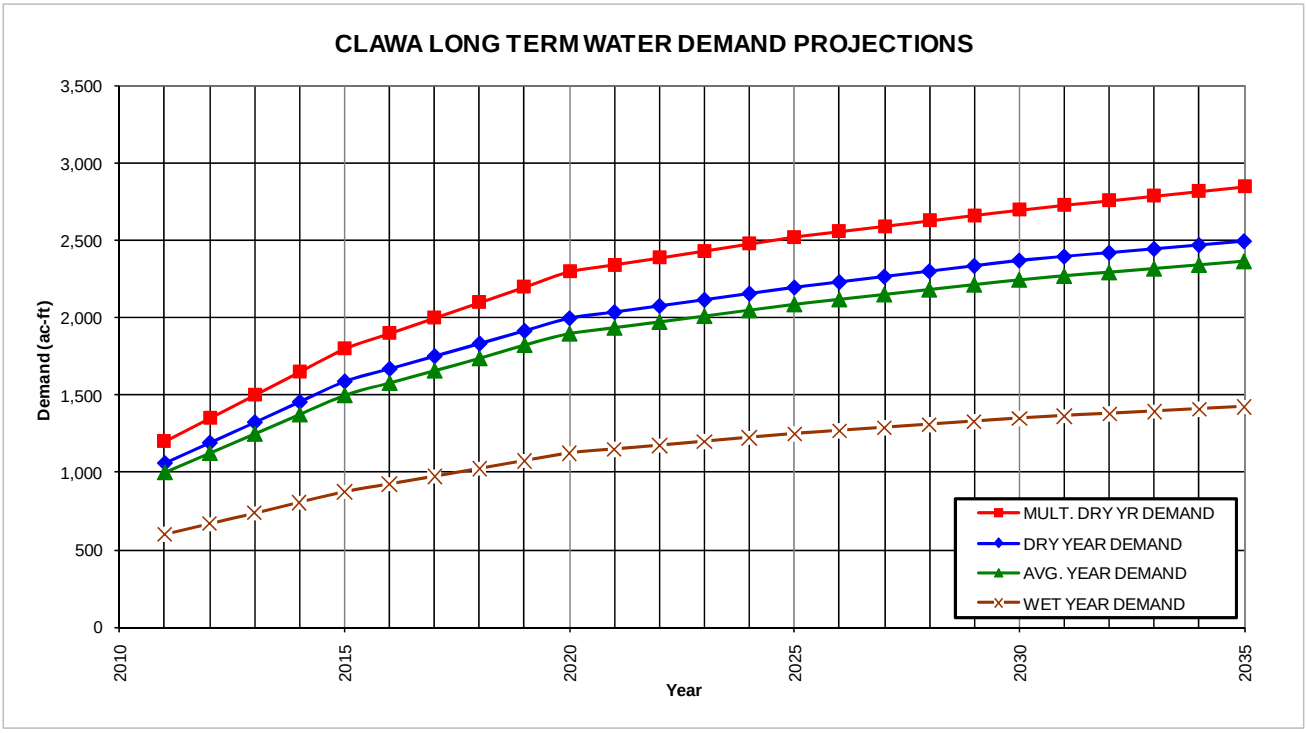
As set forth in the Transfer and Exchange discussion above, CLAWA has agreements in place with SGPWA and SBVMWD that allow the Agency to receive additional SWP water under certain conditions for use within the Agency. In the future CLAWA is planning to request that its State Board permits for Houston Creek water rights be changed to licenses.

Section 5: Water Supply Reliability and Water Shortage Contingency Planning

Water Supply Reliability

CLAWA's total Table A contract amount from the SWP is 5,800 ac-ft of water annually. As described in the previous section, the SWP water travels from northern California to Lake Silverwood via a complex series of lakes, rivers, canals, pipelines and pump stations. A detailed map of these facilities is included as Appendix C. The Agency's total average demand over the past 21 years has been approximately 1,500 ac-ft per year (26% of CLAWA'S Table A amount). A peak demand of about 2,702 ac-ft (46.5% of Table A amount) occurred in the year 2007. Based upon demand projections for supplemental water in its wholesale service area, along with population projections (see Figure 3) and estimated water consumption rates in its retail service area (about 0.2 ac-ft per connection per year), CLAWA's total water demand during normal, single-dry or multiple-dry years is not expected to reach 5,800 ac-ft/year until well beyond the year 2035 (see Figure 5), if ever. For additional information and discussion regarding the Agency's current and projected water demands for wholesale and retail service, please refer to Section 3 and Tables 4 and 4A above.

FIGURE 5
CLAWA'S PROJECTED WATER DEMAND



Source: Albert A. Webb Associates

CLAWA's experience from late 1978 to mid 2011 provides data to evaluate the reliability of the Agency's SWP supply for average, single-dry, and multiple dry water years. Figure 6 shows the approved SWP allocations each year between 1978 and 2011. The average approved allocation for these years is approximately 87%. CLAWA further evaluates the reliability of its SWP supply according to information and analyses prepared by DWR. In September 2010, DWR released its Final 2009 SWP Delivery Reliability Report (herein, the "DWR Report"), which forecasts additional reductions to SWP supplies in comparison to the 2007 Report. (A copy of the DWR Report is included as Appendix D to this Plan.) According to the DWR Report, the long-term average delivery of contractual SWP Table A supply is projected to be 60 percent under current and future conditions over the 20-year projection. (DWR Report at 43, 48, Tables 6.3 and 6.12.) Within that long-term average, SWP Table A deliveries can range from 7 percent (single dry year) to 68 percent (single wet year) of contractual amounts under current conditions, and from 11 percent (single dry year) to 97 percent (single wet year) under future conditions. (Id. at 43-44, 49, Tables 6.4, 6.5, 6.13 and 6.14.) Over the 20-year projection, contractual amounts are projected to range from 32 to 38 percent during multiple-dry year periods, and from 68 to 97 percent during single wet periods. (Id. at 43-44, 49, Tables 6.4, 6.5, 6.13 and 6.14.)

An interesting feature of the DWR Report is its recognition that SWP contractors may be able to utilize higher projection figures on an individualized basis than the projections set forth above that apply generally to all of the contractors. The DWR Report states that "the CALSIM II simulations model the practice of certain contractors to carry over water supply from the year in which it was allocated and have it delivered in the following year, as allowed by Article 56 of their contract." (See 2009 DWR Report at 57.) Under certain criteria, Article 56 allows a SWP contractor to "carry over" a portion of its Table A water that it does not use during the year. Generally, carryover water is water that has been exported from the Delta during the year, has not been delivered to the contractor, and has remains stored in the San Luis Reservoir for delivery in the following year, provided it does not interfere with DWR's operation and management of SWP supplies. According to the DWR Report, while the long-term average percentage values of SWP Table A deliveries continue to be directly applicable to all SWP contractors (i.e., 60% of Table A during normal conditions over the 20-year projection), values for individual years or averages over shorter periods of time, such as a dry-year period or a wet-year period, can vary among the contractors according to the amount of water they may hold over from one year to the next under Article 56. (See 2009 DWR Report at 57.) Those projections for individual SWP contractors are maintained by DWR through its SWP Delivery Reliability website. (See http://baydeltaoffice.water.ca.gov/swpreliability/index.cfm.)

For CLAWA, the noticeable difference in projected deliveries of SWP supplies is during wet year periods. Whereas the DWR Report indicates generally that single-wet year deliveries of Table A supplies will range from 68 percent under current conditions to 97 percent under future conditions (i.e., 100 percent never being available), the projections that are specific to CLAWA show the Agency's ability to receive 79 percent of its Table A supplies in a single-wet year during current conditions and 100 percent under future conditions. Notwithstanding this difference in favor of CLAWA, this 2010 Plan assumes

and utilizes the lower wet-year projections that apply generally to all SWP contractors.

To ensure a conservative analysis, the DWR Report expressly assumes and accounts for the institutional, environmental, regulatory, and legal factors having the potential to affect SWP supplies, including but not limited to: water quality constraints, fishery protections, requirements under State Board Water Rights Decision 1641, and the operational limitations imposed by the biological opinions issued by the U.S. Fish & Wildlife Service for the protection of delta smelt (December 2008) and the National Marine Fisheries Service for the protection of anadromous species (June 2009). The DWR Report also considers the potential effects of Delta levee failures and other seismic or flood events. (*See*, *e.g.*, DWR Report at 19-24, 25-28, 29-35, Appendices A, A-1, A-2, B.) Notably, the DWR Report assumes that all of these restrictions and limitations will remain in place over the next 20-year period and that no actions to improve the Delta will occur, even though numerous legal challenges, various Delta restoration processes, and new legal requirements for Delta improvements are currently underway (i.e., Bay Delta Conservation Plan, Delta Vision, Delta Plan, etc.). Finally, DWR's long-term SWP delivery reliability analyses expressly incorporate assumptions that account for potential supply shortfalls related to global climate change. (*See*, *e.g.*, DWR Report at 19, 29-30, Appendices A-B.) Based on these and other factors, the DWR Report presents extremely conservative projections of SWP delivery reliability, which makes the projections useful from a long-range urban water supply planning perspective. (*See*, *e.g.*, *Sonoma County Water Coalition v. Sonoma County Water Agency* (2010) 189 Cal.App.4th 33; *Watsonville Pilots Association v. City of Watsonville* (2010) 183 Cal.App.4th 1059; *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412.)

In addition to the discussion above and the information and analyses provided in the DWR Report, Appendix G to this Plan includes a detailed summary and discussion of the various recent factors having the potential to affect SWP supplies. Indeed, recent rulings in various legal actions affecting Delta water supplies, along with other factors, may support higher estimates of average annual SWP deliveries than projected in the 2009 DWR Report. While this may lead DWR to increase its projections in its next scheduled report, the 2009 DWR Report remains the best available information concerning the long-term delivery reliability of SWP supplies. In accordance with the UWMP Act and the discussions herein, Figure 7 shows the projected availability of SWP supplies during normal, single-dry, and multiple dry year scenarios over the next 20-year projection and beyond.

FIGURE 6
HISTORICAL SWP ALLOCATIONS, 1978-2011

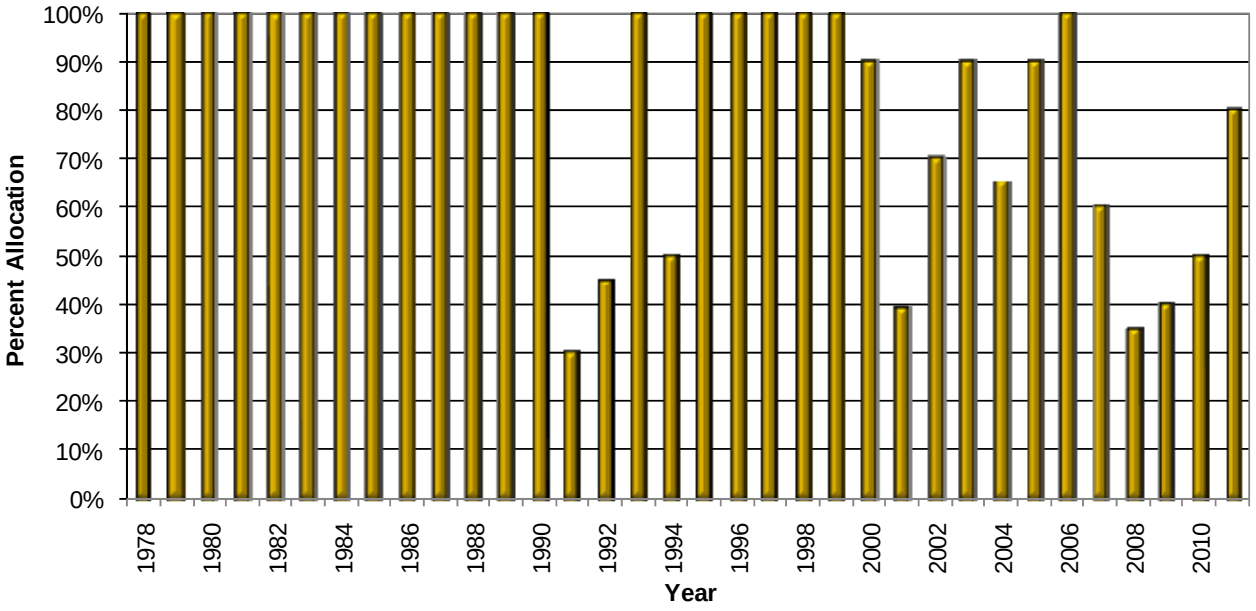


FIGURE 7
PROJECTED SWP ALLOCATIONS

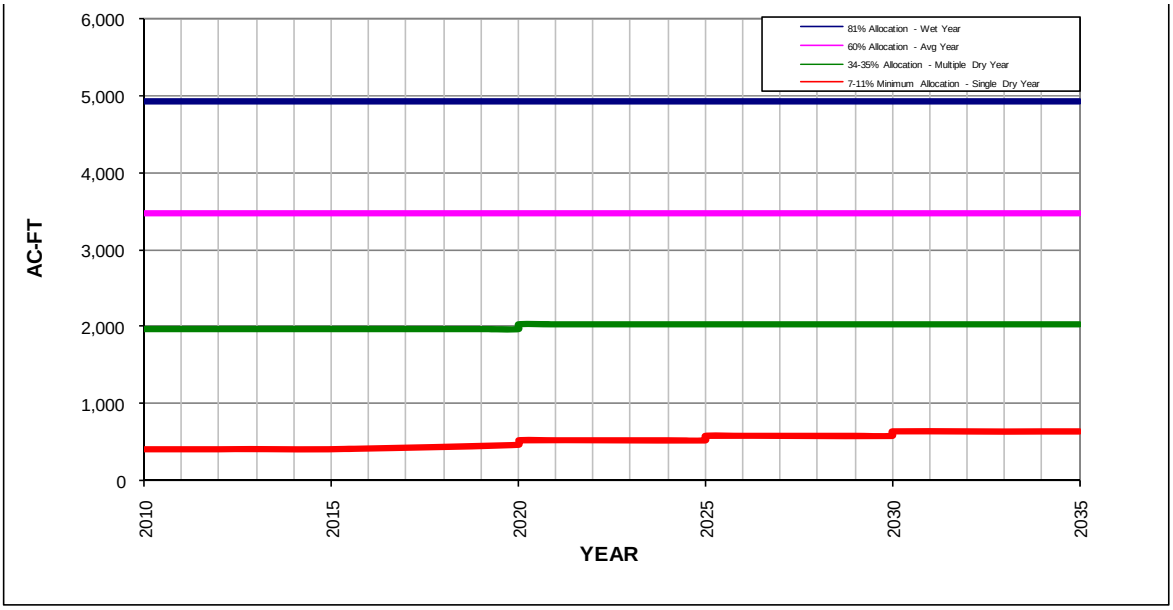
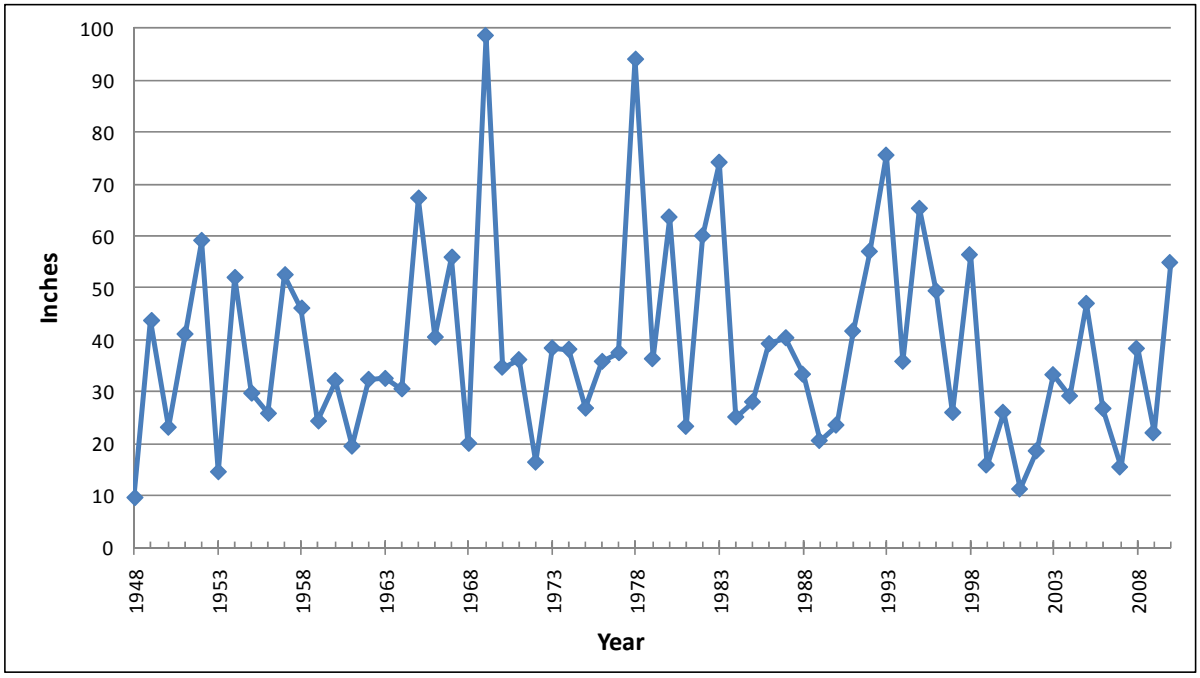


FIGURE 8
HISTORICAL PRECIPITATION AT LAKE ARROWHEAD, 1948-2005



Source: NCDC 2008. Data for Lake Arrowhead reporting station.

As reflected herein, the DWR Report indicates that SWP deliveries to CLAWA can be as low as 7 to 11 percent of the Agency's Table A allocation during single-dry year events over the next 20-year planning horizon. Based on CLAWA's Table A allocation of 5,800 acre-feet per year, a single-dry year scenario according to the DWR Report could result in Table A deliveries of 406 to 638 acre-feet. Notably, in the 50-year history of the SWP, DWR has never implemented a final Table A percentage allocation down to 7 or 11 percent. Moreover, and as explained above, the projections in the DWR Report for normal, single-dry, and multiple-dry year periods are based on several conservative assumptions, several of which no longer exist in fact. Notwithstanding, CLAWA's 2010 Plan relies upon the DWR Report and its SWP delivery projections to ensure a conservative analysis and estimate of future SWP deliveries.

The possibility of CLAWA receiving a SWP Table A allocation of only 7 to 11 percent in a single-dry year scenario does not mean that the Agency will not have sufficient supplies to meet its projected demands. To the contrary, CLAWA has rights and access to other resources that add to its overall water supply reliability. Thus, in a single-dry (or multiple-dry) scenario affecting SWP supplies from Northern California, CLAWA's Houston Creek supplies in Southern California may be available in normal or above-normal amounts. Table 5A above shows that CLAWA has obtained an average of 481 acre-feet per year from Houston Creek over the last 20-year period and that those diversions have averaged approximately 580 acre-feet per year since 2002-2003 and were as high as 1,082 acre-feet in 2007-2008. CLAWA also has access to stored water supplies. As described above, CLAWA can access 1,000 acre-feet of water under certain conditions pursuant to its agreement with the San Gorgonio Pass Water Agency, and up to a total of 1,650 acre-feet of water under certain conditions pursuant to its agreement with the San Bernardino Valley Municipal Water District (SBVMWD). Also discussed above, CLAWA's agreement with SBVMWD and the Lake Arrowhead Community Services District (LACSD) gives CLAWA the right during years of low SWP allocation to utilize a portion of the water it otherwise delivers to LACSD. Furthermore, CLAWA's contractual relationship with DWR provides flexibility regarding the amount of SWP supplies the Agency may receive in a single-dry year to meet minimum demands for domestic supply, fire protection, and sanitation purposes. (See DWR Contract, Article 18(a).) For example, in 1991, the state faced a serious shortfall and reduced approved allocations to 30%. During that time, CLAWA requested DWR to approve a minimum water delivery of 1,950 ac-ft/year for domestic, health and safety, and fire protection purposes, which was approved by DWR. In the future DWR has the same authority to approve SWP deliveries to CLAWA that are greater than 7 to 11 percent of its Table A allotment to meet the Agency's minimum demands for domestic supply, fire protection, and sanitation purposes.

In addition to the factors discussed above which help ensure a sufficient water supply to CLAWA during potential shortage periods, it should be noted that in critical dry years, DWR has organized a program known as the Drought Water Bank or the Dry Year Water Purchase Program. Under the program, DWR purchases water from willing sellers (primarily from water suppliers upstream of the Delta), and makes those supplies available for purchase by water agencies that are at risk of experiencing water shortages

and require supplemental water supplies to meet anticipated demands. (DWR, 2011.) Additional information regarding the Drought Water Bank and related issues can be found at: http://www.water.ca.gov/drought/bank.

Also notable, to help ensure system reliability in dry-year periods, in 1999 DWR completed construction of a new tunnel intake structure in Lake Silverwood (at which time CLAWA also installed two new 100 horsepower pumps in the intake structure). Those improvements enable CLAWA to reliably pump water in the event of lower lake levels, which is a vital feature for single-dry, multiple-dry, or emergency conditions. In addition, during the 2004-05 year CLAWA added a single 500 horsepower electric motor-driven pump at one of its six transmission booster stations to further increase system reliability and fire protection capabilities.

Beyond the various ways that CLAWA is able to manage its supply during shortage conditions, the Agency is equally equipped to manage its demands. In 1991, CLAWA adopted Ordinances No. 44 & 45 which established an Agency-wide water conservation plan (copies of these ordinances are included as Appendix E). Also in 1991, CLAWA submitted a comprehensive conservation plan to the State Water Resources Control Board (copy of the plan is included as Appendix F). These ordinances and conservation plan remain in effect today and CLAWA's Board is authorized to implement the provisions of those plans as necessary. A more detailed discussion of the Agency's water conservation and water shortage contingency plans are presented in Section 6 below entitled Demand Management Measures.

Based on the information and analyses above, Table 6 below summarizes the reliability of SWP and Houston Creek supplies available to CLAWA during average, single-dry, and multiple dry-year periods. As explained in this 2010 Plan, a dry period affecting Northern California and the SWP does not necessarily mean that the same dry conditions are affecting Southern California and Houston Creek. This relationship and mix of resources provides an added element of reliability to the Agency's overall water supply portfolio. In fact, as reflected in Table 5A and Figure 6 above, the Agency has been able to divert substantial quantities of water from Houston Creek in years when the SWP is experiencing dry year allocations. The type of complex modeling that has been prepared to predict the availability of SWP supplies during normal, single-dry, and multiple-dry year periods has not been prepared for Houston Creek. Therefore, based on the data discussed above regarding water supplies historically available to CLAWA, the Agency has employed the conservative approach of assuming that average amounts of Houston Creek water will be available to the Agency during single-dry and multiple-dry periods affecting the SWP. This approach is conservative because Houston Creek amounts have been above 481 acre-feet in previous dry years affecting the SWP, and in years when Houston Creek has experience dry conditions, SWP allocations generally have been normal or above normal. (See Table 5A and Figure 6.)

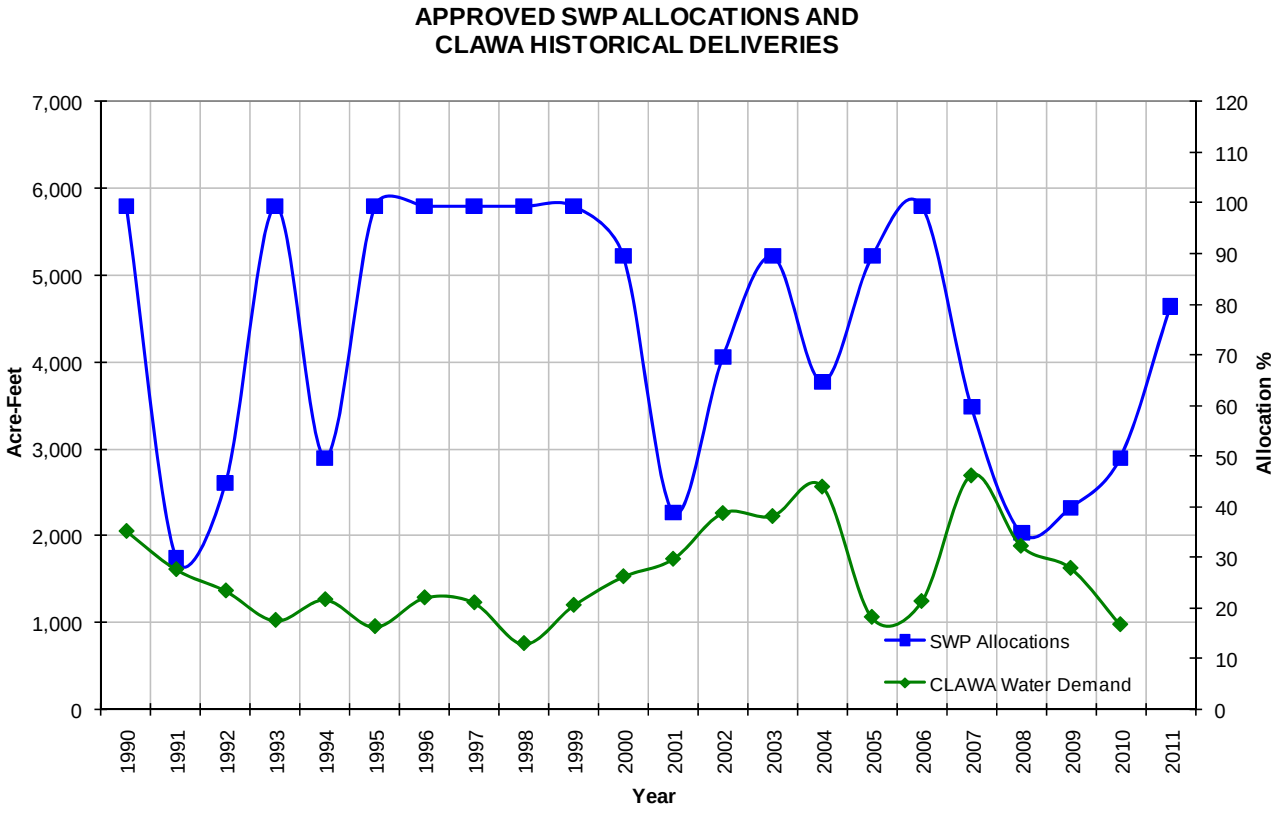
TABLE 6
WATER SUPPLY RELIABILITY

Source	Average Water Year (60% SWP & Avg HC)	Supply (Ac-Ft)	Single Dry Water Year (7-11% SWP & Avg HC)	Supply (Ac-Ft)	Multiple Dry Water Year (34-35% SWP & Avg HC)	Supply (Ac-Ft)
SWP	60% Allocation	3,480	7-11% Allocation	406-638	34-35% Allocation	1,972-2,030
Houston Creek	HC	481	HC	481 *	HC	481*
Total Supply		**3,961**		**886-1,119**		**2,453-2511**

* Average Houston Creek appropriations from 1989-2010 have been 481 ac-ft/year.

Figure 9 shows the historical allocations from the SWP and the total water deliveries made by CLAWA (including SWP and Houston Creek supplies). The discussion above and Figure 9 below show that the Agency's combined supplies from the SWP and Houston Creek are very reliable in meeting Agency demands. While fluctuations may occur with either source, the SWP has been able to deliver an average allocation of 75% over the past 15 years and Houston Creek diversions have averaged 481 ac-ft per year over the last 20 years. Going forward, the SWP is anticipated to deliver approximately 65% allocations in 50% of the years. (See Appendix D, 2009 DWR Report, Executive Summary, Figure 1.)

FIGURE 9
SWP APPROVED ALLOCATIONS AND CLAWA'S WATER DELIVERIES



Water Shortage Contingency Planning

Water Shortage Stages of Action and Triggering Mechanisms

CLAWA has developed a staged plan designed for reducing supplies to its wholesale customers and limiting retail customers to a base-line amount. The Agency enacted Ordinance No. 44 in February of 1991, establishing a water conservation program, which is implemented by Ordinance No. 45, adopted in April of 1991.

These ordinances will implement the Agency's water shortage contingency plan. Copies are provided in Appendix E.

Response Plan for Catastrophic Interruption of Water Supplies

The most likely events which could cause CLAWA to sustain a catastrophic interruption in water supply are wildland fires, earthquakes, and system failure. CLAWA has recently prepared emergency response plans and participated in the preparation of a regional hazard mitigation plan. Each of these plans attempts to mitigate the effects of these catastrophic interruptions in water supply.

The primary effect of fires and earthquakes on water supply is the interruption of electrical power throughout the San Bernardino Mountains. During the 2003 “Old Fire”, most of CLAWA’s service area was without electrical power for approximately two weeks. CLAWA was able to successfully avoid water supply interruptions by installing permanent natural gas engine operated standby generators at each of its main treatment, pumping, and operations facilities. The primary concern related to earthquakes is the potential damage to CLAWA’s treatment, storage and transmission/distribution facilities. In order to minimize system damage during an earthquake, CLAWA’s facilities have been designed and/or upgraded in accordance with the most current building and safety requirements and have generally been constructed with multiple units where feasible to minimize the system disruption if a single unit is damaged.

CLAWA has also stockpiled various materials necessary to repair pipeline breaks and leaks in order to minimize outages during catastrophic events.

Three Year Minimum Water Supply

In accordance with Section 10632(a)(2) of the UWMP Act (2011), Table 7 below lists the estimated minimum water supply available over the next three years, based upon the driest three year sequence on record for the Agency. As explained in this Plan, CLAWA’s supplies are mainly comprised of SWP Table A deliveries and diversions from Houston Creek. The advantage provided by this mix of resources is that a dry period affecting Northern California and the SWP does not necessarily mean that the same dry conditions are affecting Southern California and Houston Creek. In fact, the Agency has been able to divert substantial quantities of water from Houston Creek in

years when SWP allocations have been below normal. This relationship provides an added element of reliability to the Agency's overall supply portfolio. At the same time, however, it serves as a unique factor in evaluating the Agency's driest three year sequence on record. Notably, the Agency's withdraws from Silverwood Lake in any given year are deemed to be supplies derived from Houston Creek up to the total amount of supply available from that source. In a typical scenario, the Agency then uses its SWP Table A supplies to meet the difference between total annual demand and the amount available from Houston Creek. Accordingly, a dry sequence for Houston Creek means that the Agency utilizes more of its SWP Table A supply.

Based on this approach and its existing and projected service area demands, CLAWA considers its SWP Table A allotment as the Agency's primary water supply. Therefore, for purposes of evaluating the Agency's estimated minimum water supply available over the next three years based upon the driest three year sequence on record, the Agency believes the most conservative approach is to base its evaluation on the driest three years on record for SWP deliveries. The driest three years on record for CLAWA's SWP supply were from 2008-2010. During that period, the approved SWP Table A allocations from DWR were 35%, 40%, and 50% respectively (resulting in an average approved allocation of 41% or 2,378 ac-ft per year). The next driest three-year period was from 1991-1993 when the average approved allocation was 58% or 3,364 ac-ft per year. It should be noted that CLAWA's average annual demand is not anticipated to reach 3,300 ac-ft in one year until approximately the year 2040. Therefore, on average, CLAWA is projected to be able to satisfy its total projected demands throughout the 20-year planning horizon and well beyond that time, even during single-dry and multiple dry year scenarios.

TABLE 7
ESTIMATED 3-YEAR MINIMUM WATER SUPPLY

Multiple Dry Water Years[1]		
Year 1 2008 (Volume)	**Year 2 2009 (Volume)**	**Year 3 2010 (Volume)**
2,030 (35%)	2,320 (40%)	2,900 (50%)

[1] Unit of Measure: Ac-ft/Year. Actual three driest years on record for CLAWA for SWP allocations.

Water Shortage Emergency Response

Catastrophic Supply Interruption Plan

The most likely events which could cause CLAWA to sustain a catastrophic interruption in water supply are wildland fires, earthquakes, and system failure. CLAWA has recently prepared emergency response plans and a participated in the preparation of a regional hazard mitigation plan. Each of these plans attempts to mitigate the effects of these catastrophic interruptions in water supply.

The primary effect of fires and earthquakes on water supply is the interruption of power throughout the San Bernardino Mountains. During the 2003 Old Fire, most of CLAWA's service area was without power for approximately two weeks. CLAWA was able to successfully mitigate this situation by installing standby generators at each of its main treatment, pumping, and operations facilities. The primary concern related to earthquakes is the potential damage to CLAWA's treatment, storage and distribution facilities. In order to minimize system damage during and earthquake, CLAWA's facilities have been designed in accordance with the most current building and safety requirements and have generally been constructed with multiple units to minimize the system disruption if a single unit is damaged.

As indicated above, the 2009 DWR Report addresses a variety of issues having the potential to affect the availability and reliability of SWP supplies, including the potential for catastrophic failures in the Delta. For instance, the DWR Report states the following with regard to vulnerability of Delta levees to failure: Delta levees provide constant protection from flooding because most lands in the Delta are below sea level. Most Delta levees, however, do not meet modern engineering standards and are highly susceptible to failure. Levees are subject to failure at times of high flood flows, but also at any time of the year due to seepage or the piping of water through the levee, slippage or sloughing of levee material, or sudden failure due to an earthquake. According to the URS Corp./Jack R. Benjamin & Associates report, *Delta Risk Management Strategy (DRMS), Phase 1: Risk Analysis* (DWR, 2008), the risk of levee failure in the Delta is significant, as shown by the fact that most islands in the Delta have flooded at least once over the past 100 years, with many flooding at least twice. Since 1900, there have been 158 levee failures. A breach of one or more levees and island flooding may affect Delta water quality and water operations. Depending on the hydrology and the size and locations of the breaches and flooded islands, a significant amount of saline water may be drawn into the interior Delta from Suisun and San Pablo bays. At the time of island flooding, exports may be drastically reduced or ceased to evaluate the salinity distribution in the Delta and to avoid drawing higher saline water toward the pumps. The introduced salinity then could become dispersed and degrade Delta water quality for a prolonged period because of complex relationships between delta inflows, tidal mixing, and the time taken to repair the breaches. (See 2009 DWR Report at 31.)

A large earthquake in the Delta causing significant levee failures and island flooding could lead to multiyear disruptions in water supply, significant water quality degradation,

as well as permanent flooding of several islands. Such permanent multi-island flooding would probably lead to increased salt water intrusion into the Delta during seasonal low inflows. Maintaining Delta water quality when several islands are flooded and breaches are open would require additional Delta inflow because the volume of water coming into the Delta on the flood tide would increase, requiring more fresh water from the rivers to prevent the saline water from extending into the Delta. When SWP and CVP pumping are restarted, Delta inflow would need to increase again beyond the pumping amount in order to prevent water quality degradation in the Delta. This chain of events would significantly affect water supply reliability by limiting pumping and requiring additional reservoir releases to generate the needed higher Delta inflows. A worst case scenario for water supply effects would be a moderate or large earthquake causing extensive levee failure in the late summer or fall of a dry year. The levee break on Middle River and subsequent flooding of Upper Jones Tract in 2004 is a small-scale example of this phenomenon. Following the break, Delta pumping was curtailed for several days to prevent seawater intrusion. Water shipments down the California Aqueduct were continued through unscheduled releases from San Luis reservoir. Also, Shasta and Oroville reservoir releases were increased to provide for salinity control in the Delta. A growing concern about the long-term viability of the Delta's levee system led to the initiation of the Delta Risk Management Strategy. (See 2009 DWR Report at 31.)

In connection with its analysis of potential levee failures in the Delta, the DWR Report also discusses the Delta Risk Management Strategy, as follows: The Delta Risk Management Strategy is being developed in two phases. Phase 1 is the analysis of the risk of levee failures and the associated potential economic, environmental, and public health and safety effects. The final Phase 1 Report was completed in February 2009. Phase 2, expected to be completed by Summer 2010, is to develop and evaluate strategies to reduce risks from levee failures. [The Phase 2 Report was recently completed and released in June 2011.] The risk analysis includes the likely occurrence of earthquakes of varying magnitudes in the region, future rates of subsidence given continued farming practices, the likely magnitude and frequency of storms, and the potential effects associated with global climate change (sea level rise, climate change, temperature change). Estimated risks to the Delta were made for 50-, 100-, and 200-year projections since risk can be expected to increase with time. The Delta Risk Management Strategy looks a several hazards to levees: seismic events that cause levee failures, flood flows that can overtop levees or cause levee failure by increased pressure and seepage, undetected problems during non-flood flow periods, and erosion due to high wind waves. The level of risk of failure of Delta levees was determined by considering: the frequency of different magnitudes of hazards that can challenge the integrity of Delta levees, how vulnerable different levee reaches are to hazards, how hazards and levee vulnerabilities combine to produce levee failure, and the economic and ecosystem effects due to levee failure. The analysis assumes that existing regulatory and management practices will continue. (See 2009 DWR Report at 32.)

With respect to potential interruption or disruption of SWP deliveries due to an earthquake scenario, the DWR Report states the following: A strong earthquake affecting the Delta could cause simultaneous levee failures on several islands, with these

islands flooding simultaneously. Preliminary analysis indicates that some water may not be treatable by municipal agencies for many months due to high organic carbon concentrations. This would extend the period that Delta water supply would be unavailable for urban users. Key findings of the Phase 1 report on possible effects on SWP deliveries due to earthquake are:

- A moderate to large earthquake capable of causing multiple levee failures could happen in the next 25 years.
- There is about a 40% chance of 27 or more islands simultaneously failing during a major earthquake.
- Extensive levee failure would most likely occur in the west and central Delta.
- Levee repairs could take more than 2.5 years and exports from the Delta could be disrupted for about a year with a loss of up to 8 maf of water.
- By 2050, the risk of island flooding from seismic events is expected to increase by 35% over 2007 conditions, if a seismic event has not occurred. (See 2009 DWR Report at 32.)

The DWR Report also discusses potential interruption or disruption of SWP deliveries due to floods, a "sunny day" event (levee failure during non-flood times that is not caused by an earthquake), and combined events. (See 2009 DWR Report at 32-33.)

In light of these factors, the DWR Report also discusses the emergency preparedness and response plan that has been prepared by DWR. The DWR Report describes that plan as follows: As part of its efforts to reduce effects to the SWP should a levee failure occur, DWR has initiated the development of the DWR Delta Flood Emergency Preparedness and Response Plan. DWR has emergency response procedures for a Delta levee failure in place but the DWR Delta Flood Emergency Preparedness and Response Plan will enhance the state's ability to prepare for, respond to, and recover from a catastrophic Delta levee failure. This new scalable plan will provide DWR with updated techniques and procedure should a catastrophic Delta levee failure occur. This plan will be DWR's roadmap for coordinating the protection of life and property with our local, state, and federal partners in a levee disaster while protecting the state's water system. DWR has completed the first of two phases of engineering design work intended to enhance the state's ability to respond to large-scale levee failures or floods in the Delta. In the first phase, DWR conducted a discovery process to analyze previously developed plans and procedures and to identify current DWR capabilities for response to emergencies and disasters in the Delta. In the second phase, DWR will further engage its response partners in local, state, and federal government, and in the private sector to develop a more detailed DWR Delta Flood Emergency Preparedness and Response Plan. This response plan will be consistent with and in compliance with California's Standardized Emergency Management System and with the National Incident Management System. The main goal of the plan is to reduce the recovery time from a catastrophic levee failure of Delta water users. This will be achieved through the development of new response tools, enhanced response methods, and clarifying response roles in the Delta. (See 2009 DWR Report at 33-34.)

In the event of an emergency condition in the Delta as described above, CLAWA is uniquely and advantageously situated with respect to its continued access to water supplies. As indicated herein, CLAWA derives its water supply from Silverwood Lake, which acts like a storage reservoir for the SWP and Houston Creek supplies available to the Agency. In fact, CLAWA's water supply from Houston Creek provides the first line of defense and response to any catastrophic event affecting SWP supplies. As discussed herein, CLAWA maintains the right to appropriate up to 1,302 acre-feet per year from Houston Creek and, over the last 20-year period, CLAWA has been able to divert an average of 481 acre-feet per year from that source. Since 2002-2003, CLAWA's diversions from Houston Creek have averaged approximately 580 acre-feet per year. (See Table 5A above.) Despite the historic reliability of Houston Creek, the potential scenario must be noted (although it appears to have occurred only once in the last 20 years) that critical drought conditions in the San Bernardino Mountains could result in no water being available to CLAWA from that source. (See Table 5A above.) In that event, the following additional measures are in place to help ensure an adequate supply is available to meet the Agency's minimum demands for domestic, fire protection, and sanitation purposes.

CLAWA also has access to stored water supplies during an emergency situation affecting the Delta. As described above, CLAWA can access 1,000 acre-feet of water under certain conditions pursuant to its agreement with the San Gorgonio Pass Water Agency. CLAWA can also access a total of 1,650 acre-feet of water under certain conditions pursuant to its agreement with the San Bernardino Valley Municipal Water District (SBVMWD). All of those supplies are held in Silverwood Lake and are thus can function as a local water resource in the event of an interruption to Delta deliveries. Also discussed above, CLAWA's agreement with LACSD and SBVMWD gives CLAWA the right during years of low SWP allocation to utilize a portion of the water it otherwise delivers to LACSD. Under that arrangement, water deliveries to LACSD and/or CLAWA are limited to 15% of SBVMWD's approved SWP allocations for that year, which can provide substantial assistance under emergency conditions. For example, even where SBVMWD received only 10% of its SWP allocation (i.e., 10,260 ac-ft), up to 15% of that (i.e., 1,539 ac-ft) could be available for delivery to CLAWA and LACSD.

Another important factor in an emergency situation is that DWR maintains the final authority and discretion regarding SWP deliveries to CLAWA and CLAWA's ability to utilize the water supplies contained in Silverwood Lake. That authority and discretion of DWR is expressly set forth in CLAWA's contract for SWP water, which states:

> In any year in which there may occur a shortage due to drought or any other cause whatsoever, in the supply of project water available for delivery to the contractors, with the result that such supply is less than the total of the annual entitlements of all contractors for that year, the State shall allocate the available supply in proportion to each contractor's annual entitlement as set forth in its Table A for that year and shall reduce the allocation of project water to each contractor using such water for

> agricultural purposes and to each contractor using such water for other purposes by the same percentage of their respective annual entitlements for that year; *Provided*, that the State may allocate on some other basis if such is required to meet minimum demands of contractors for domestic supply, fire protection, or sanitation during the year. (DWR Contract, Article 18(a) – Shortages; Delivery Priorities.)

DWR has exercised this type of authority and discretion in the past with respect to CLAWA's SWP allocation. As discussed above, the SWP faced a serious shortfall in 1991, and DWR reduced SWP allocations to 30 percent of Table A. To ensure a sufficient and reliable supply, CLAWA requested DWR to approve a minimum water delivery of 1,950 ac-ft/year for domestic, health and safety, and fire protection purposes, and that request was approved by DWR. The DWR Report indicates that a catastrophic levee failure, earthquake, or other emergency event in the Delta could cause a complete interruption to SWP deliveries such that no allocations could be made by DWR. As provided above, DWR has several emergency preparedness and response plans in place to restore Delta deliveries as safely and quickly as possible. In the intervening period, Article 18(a) above shows that DWR also maintains complete authority and discretion in how to allocate limited SWP supplies that may already exist south of the Delta. For instance, DWR could implement a temporary response whereby SWP contractors that do not have access to sufficient groundwater, local surface water, or other supplies could rely more heavily on SWP supplies contained in storage and/or regulating reservoirs within the SWP system. As applied to CLAWA, although other SWP contractors utilize Silverwood Lake to obtain their SWP supplies, many of those agencies have access to substantial emergency supplies such as groundwater and regional and local surface reservoirs. As one example, the Metropolitan Water District's Diamond Valley Reservoir is said to hold an emergency supply capable of satisfying all of Metropolitan's demands for up to six months. In light of these and other factors, DWR would be authorized to allocate an amount of SWP supplies to CLAWA to meet the Agency's minimum demands for domestic supply, fire protection, and sanitation purposes.

For any emergency scenario affecting SWP supplies, it must also be noted that water agencies on a statewide, regional, and local basis would implement their respective water shortage contingency plans and related measures to achieve extraordinary water conservation. As a general matter, and including a scenario of a local earthquake affecting facilities used to pump water from Silverwood Lake to the regulating tanks and reservoirs in Crestline, CLAWA would convene a meeting among the local water agencies to coordinate a plan for using and distributing water in the mountain area to satisfy minimum demands. Such a plan could involve maximizing the use of local surface and groundwater supplies, using existing infrastructure to deliver water to most critical needs, requesting non-permanent residents and visitors to leave the mountain area, and using bottled water as needed. In addition, CLAWA would implement and enforce specific actions according to its existing ordinances to minimize water demands among its wholesale and retail customers. Those actions are further discussed below,

TABLE 8
PREPARATION ACTIONS FOR A CATASTROPHE

Possible Catastrophe	Summary of Actions
Regional power outage	Standby generators have been installed at all critical facilities to ensure continuous operation during a power outage. Staff will monitor facilities to ensure proper operation.
Earthquake	CLAWA's facilities have been designed and retrofitted if necessary to ensure safety during seismic events. CLAWA has also stockpiled essential materials to fix broken or leaking pipelines throughout the transmission and distribution systems. Standby generators have been installed at all critical facilities to ensure continuous operation during a power outage. Staff will monitor facilities to ensure proper operation.
Wildland Fires	CLAWA field crew actively performs weed abatement to minimize potential damage to facilities during fires. Standby generators have been installed at all critical facilities to ensure continuous operation during a power outage. Staff will monitor facilities to ensure proper operation.

Prohibitions, Penalties, and Consumption Reduction Methods

Mandatory Prohibitions on Wasting Water

Ordinance No. 44 contains mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting using water to wash cars or buildings. Please see Appendix E for specifics on wasteful practices which are prohibited by Ordinance No. 44.

Consumption Reduction Methods in the Most Restrictive Stages

CLAWA's water conservation ordinance includes methods to reduce consumption on a staged basis. For wholesale customers, CLAWA will use 2004 as a base year and determine the amount of water which the Agency delivered to each wholesale customer during each month of 2004. Each wholesale customer will then be allowed to receive from CLAWA, each month, a percentage of the quantity of water which the Agency delivered to that wholesale customer during the corresponding month of the base year. Each stage progressively reduces the percentage of the base year allocation as water shortages worsen.

All retail customers are charged a base rate up to a certain quantity of water without

payment of an additional charge. During a shortage, surcharges for water consumption in excess of the base quantity are increased in each restrictive stage. The ordinance also provides for increasingly stringent prohibitions of nonessential uses of water.

Penalties or Charges for Excessive Use

Ordinance No 44, Section 4A, includes surcharges for water use in excess of a basic allocation. Both the allocation and the surcharges become more stringent in more severe water shortages.

Water Shortage Contingency Financial Planning

Effects of Water Shortage on CLAWA Revenues and Expenditures

CLAWA currently has sufficient funds to cover yearly shortfalls in revenue as a result of decreased water supply and deliveries. In 2005, the Agency created separate accounts within the general fund in order to allocate money for things such as capital improvement projects, debt service, and operations.

Draft Water Shortage Contingency Resolution or Ordinance

CLAWA's Water Shortage Contingency Resolution has already been enacted. Please see Appendix F, Resolution 475, Resolution of the Board of Directors of Crestline-Lake Arrowhead Water Agency Adopting an Urban Water Shortage Contingency Plan.

Mechanism to Determine Reductions in Water Use

CLAWA monitors its water supply, use, and system losses on a monthly basis. When a water shortage occurs and a stage of water conservation is declared, Agency staff will continue to monitor water use in order to determine actual reductions in water use.

Supply Management

In addition to the water shortage contingency plans discussed above, the Agency is developing means to manage the effects of low allocation years on the SWP. Figure 10 depicts a scenario in which the average demand within the Agency is greater than the available supply. As discussed below, and as partially depicted in Figures 10A through 12, various management measures would be available to CLAWA to reduce and replace the shortfall, including, but not limited to, the following:

- Implement mandatory conservation efforts as described in the Agency's water shortage ordinance and conservation plan to reduce actual demands of its wholesale and retail customers.
- Utilize the water available as part of the water transfer agreement with LACSD and SBVMWD (see discussion above). It is anticipated that at least 500 ac-ft of

additional water supply can be achieved through this transfer in any given year through the year 2020. In addition, under critical shortage conditions, CLAWA can request DWR to provide sufficient SWP supplies to meet the Agency's minimum demands for domestic, fire protection, and sanitation purposes pursuant to Article 18(a) of CLAWA's contract for SWP deliveries (see discussion above).

- During critically dry years, additional drought relief water is typically available through DWR for purchase by the SWP contractors at a higher price (see discussion above regarding the DWR Drought Water Bank). The Agency plans to utilize such water to further supplement supply if necessary.
- Long-term storage of CLAWA's excess SWP supplies continues to be a viable strategy for the Agency. Preliminary talks have taken place between CLAWA and other SWP contractors to explore long-term storage and transfer agreements (see discussion above). Figures 10A through 12 depict water available to be stored when supply exceeds demand.

FIGURE 10 (WITH FIGURES 10A THROUGH 12)
LOW WATER SUPPLY MANAGEMENT MEASURES

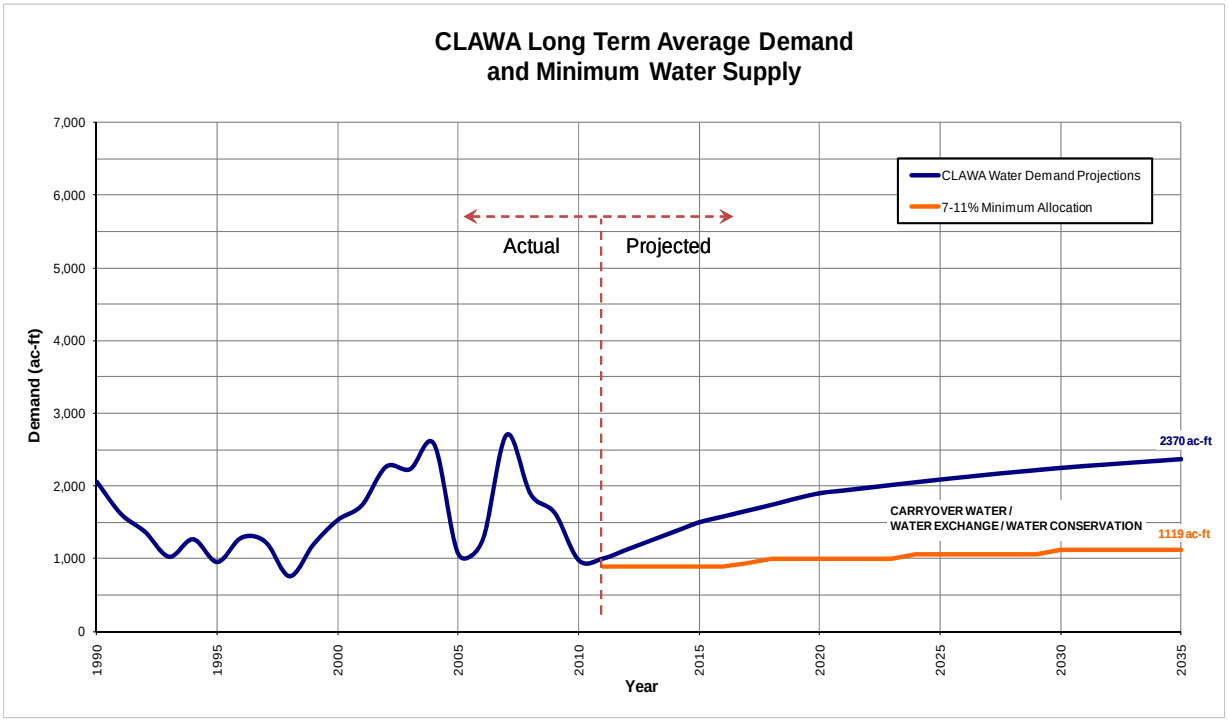


FIGURE 10A (WITH FIGURES 10, 11 AND 12)
POTENTIAL WATER STORAGE

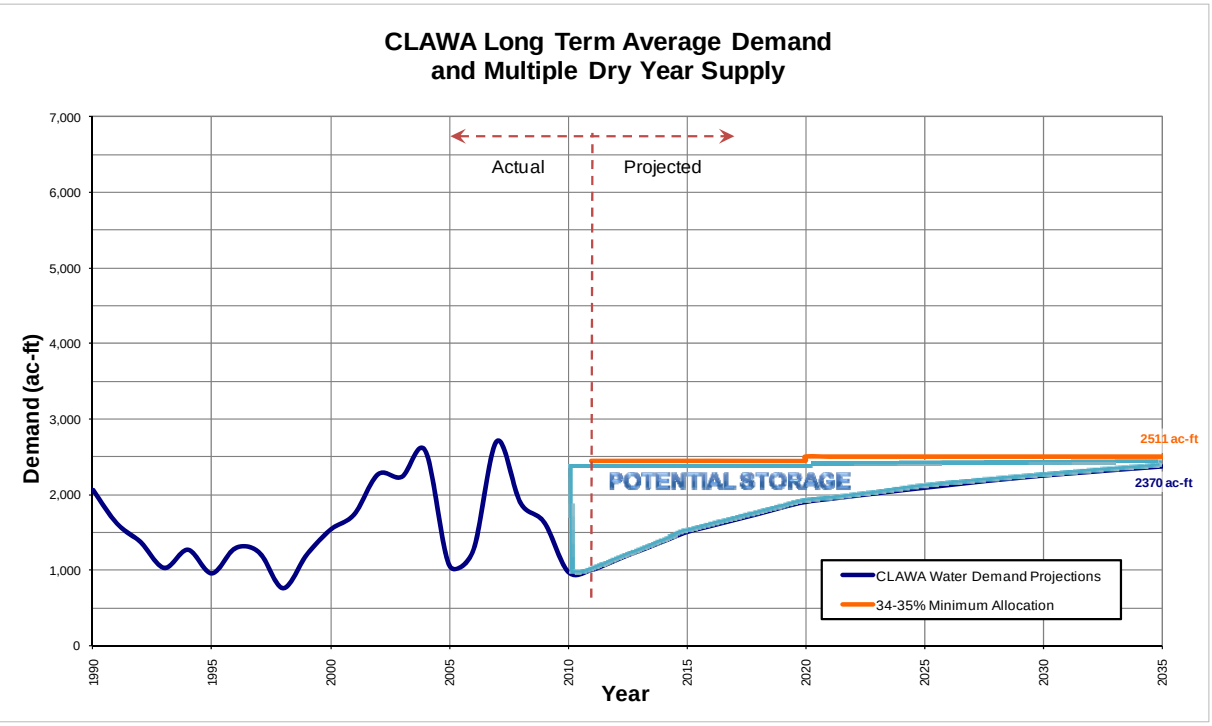


FIGURE 11 (WITH FIGURES 10, 10A AND 12)
POTENTIAL WATER STORAGE

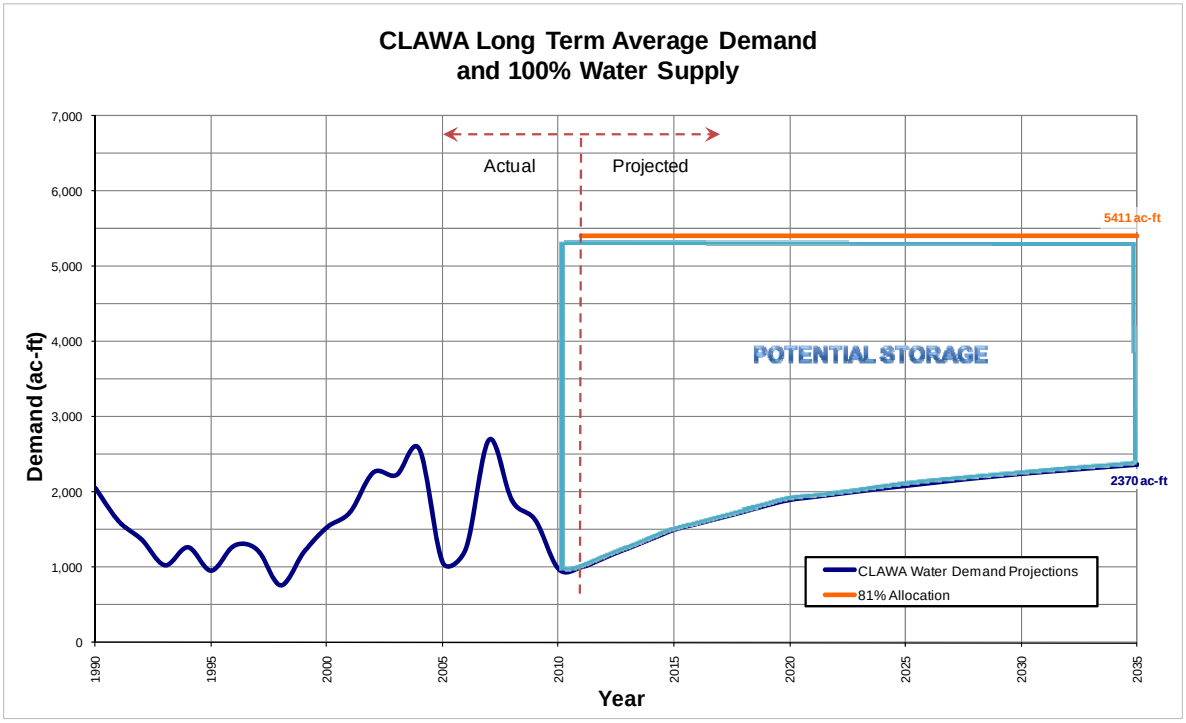
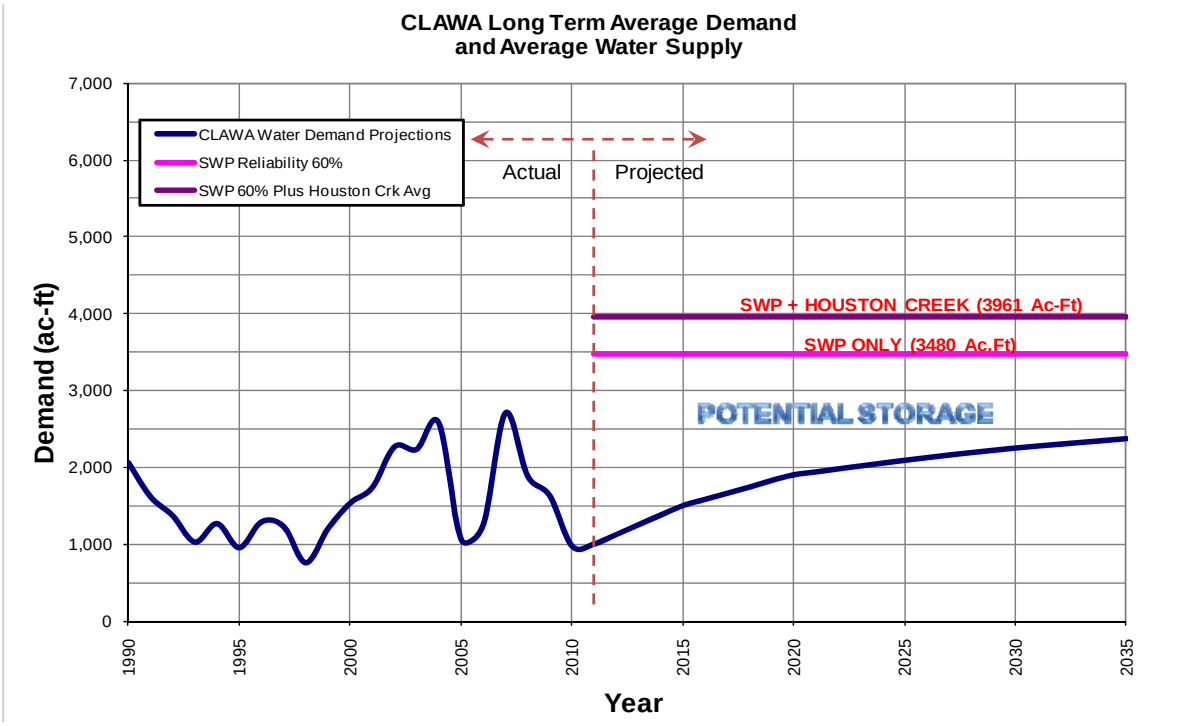


FIGURE 12 (WITH FIGURES 10A THROUGH 11)
POTENTIAL WATER STORAGE



Water Quality Impacts on Reliability

The quality of the Agency's potable water supply has been historically very good. In January of 2003 the Agency placed four granular activated carbon (GAC) vessels in service at its treatment plant site to reduce the level of trihalomethanes (THMs) in the drinking water supply and to improve the taste of the treated water. That proved to be an outstanding success, reducing THMs to levels far below the levels permitted by the Health Department. In June of that same year, the Agency installed a second set of four additional GAC vessels at the treatment plant site to accommodate increased flows resulting from the increased demand experienced during the summer. In March of 2004, the Agency installed the third set of four additional GAC vessels, for a total of 12 GAC vessels at the treatment plant site to handle current maximum plant design capacity. The GAC treatment provides a permanent solution to the THM problem.

In addition to the GAC treatment system, the Agency installed a pH control system at the Lake Silverwood Water Treatment Plant. This system has greatly reduced the corrosivity of the Agency's water entering the distribution system and has also enhanced the Agency's water quality.

The Agency does not anticipate any supply reductions in the future due to water quality problems associated with the SWP.

Water Service Reliability Charts

The charts below summarize a portion of the information and analyses provided above regarding the estimated availability and reliability of CLAWA's water supplies during average, single-dry, and multiple-dry year periods over the next 20-year planning horizon and beyond. In several respects, the charts below provide an extremely conservative analysis of the CLAWA's water supply projections. Foremost, they assume that no Houston Creek supplies would be available to the Agency during single-dry and multiple-dry year conditions affecting the SWP, even though the information and discussions in Section 5 above demonstrate that substantial amounts of Houston Creek water historically have been available to the Agency during such conditions. Furthermore, the charts do not include water supplies available to the Agency pursuant to its existing transfer and exchange agreements with other agencies. In addition, the charts do not account for the Agency's potential to store its excess SWP supplies, nor do they include additional SWP supplies available to the Agency as carryover water under Article 56, or as surplus water under Article 21 or the Turnback Pool program in above normal years. Particularly notable, the charts below do not include additional supplies available to CLAWA during potentially critical dry years pursuant to Article 18(a) of the Agency's contract with DWR to satisfy minimum demands for domestic, fire protection, and sanitation purposes. Nor do the charts account for CLAWA's ability to purchase needed supplies from the DWR Drought Water Bank. All of these additional supplies are identified and discussed in Section 5 above. When applied in concert with CLAWA's water conservation policies and programs, the total projected water supplies available to the Agency over the next 20-year projection are estimated to be sufficient to meet total projected demands during all hydrologic and emergency conditions.

Projected Normal Water Year Supply – AF/Y

	2015	2020	2025	2030	2035
Supply (SWP + Houston Creek)	3,961	3,961	3,961	3,961	3,961
% of Table A	60%	60%	60%	60%	60%

Projected Normal Water Year Demand – AF/Y

	2015	2020	2025	2030	2035
Demand	1,500	1,900	2,090	2,250	2,370
% of year 2010 [1]	154%	195%	214%	231%	243%

[1] 2010 was unusually low demand year of 976 AF.

Projected Normal Year Supply and Demand Comparison – AF/Y

	2015	2020	2025	2030	2035
Supply totals – Average Year [1]	3,961	3,961	3,961	3,961	3,961
Demand totals – Average Year	1,500	1,900	2,090	2,250	2,370
Difference (supply minus demand)	2,461	2,061	1,871	1,711	1,591
Difference as % of Supply	62%	52%	47%	43%	40%
Difference as % of Demand	164%	108%	90%	76%	67%

[1] SWP + Houston Creek.

Projected Single Dry Year Water Year Supply – AF/Y

	2015	2020	2025	2030	2035
Supply [1]	406	464	522	580	638
% of Table "A"	7%	8%	9%	10%	11%

[1] SWP only, under the most conservative assumption that no Houston Creek or other supplies would be available. Please refer to information and discussions in Section 5 above which demonstrate that substantial amounts of Houston Creek water historically have been available to the Agency during dry year conditions affecting SWP allocations.

Projected Single Dry Year Water Year Demand – AF/Y

	2015	2020	2025	2030	2035
Demand [1]	1,590	2,000	2,200	2,375	2500

[1] See Table 4A and Figure 5.

Projected Single Dry Year Supply and Demand Comparison – AF/Y

	2015	2020	2025	2030	2035
Supply (7-11% SWP Allocation)[1]	406	464	522	580	638
Demand totals	1,590	2,000	2,200	2,375	2,500
Difference (supply minus demand)	-1,184	-1,536	-1,678	-1795	-1,862
Difference as % of Supply	-291%	-331%	-321%	-309%	-292%
Difference as % of Demand	-74%	-77%	-76%	-76%	-74%

[1] SWP only, under the most conservative assumption that no Houston Creek or other supplies would be available.

Average supply during recent 3-Year Multiple Dry Year period ending in 2010 – AF/Y

	2008	2009	2010
Supply [1]	2,030	2,320	2,900
% of Table A	35%	40%	50%

[1] SWP only, under the most conservative assumption that no Houston Creek or other supplies would be available. Please refer to information and discussions in Section 5 above which demonstrate that substantial amounts of Houston Creek water historically have been available to the Agency during dry year conditions affecting SWP allocations. Based upon years 2008 – 2010, which is the driest three-year sequence on record for CLAWA with respect to SWP allocations.

Average demand during recent 3-Year Multiple Dry Year period ending in 2010 – AF/Y

	2008	2009	2010
Demand	1,886	1,629	976
% of Average Year [1]	126%	109%	65%

[1] Average Year = 1,500 AF/Y.

Average Supply & Demand Comparison during recent 3-Year Multiple Dry Year period ending in 2010 –AF/Y

	2008	2009	2010
Supply totals [1]	2,030	2,320	2,900
Demand totals	1,886	1,629	976
Difference (supply minus demand)	144	691	1,924
Difference as % of Supply	7%	30%	66%
Difference as % of Demand	8%	42%	197%

[1] SWP only, under the most conservative assumption that no Houston Creek or other supplies would be available.

Projected supply during 4-Year Multiple Dry year period ending in 2015 – AF/Y

	2012	2013	2014	2015
Supply [1]	1,972	1,972	1,972	1,972
% of Table A	34%	34%	34%	34%

[1] SWP only, under the most conservative assumption that no Houston Creek or other supplies would be available. Please refer to information and discussions in Section 5 above which demonstrate that substantial amounts of Houston Creek water historically have been available to the Agency during dry year conditions affecting SWP allocations. Based upon SWP allocation of 34% according to 2009 DWR Report.

Projected demand during 4-Year Multiple Dry year period ending in 2015 – AF/Y

	2012	2013	2014	2015
Demand [1]	1,350	1,500	1,650	1,800

[1] See Table 4A and Figure 5.

Projected Supply & Demand Comparison during 4-Year Multiple Dry year period ending in 2015- AF/Y

	2012	2013	2014	2015
Supply totals [1]	1,972	1,972	1,972	1,972
Demand totals	1,350	1,500	1,650	1,800
Difference (supply minus demand)	622	472	322	172
Difference as % of Supply	32%	24%	16%	9%
Difference as % of Demand	46%	31%	20%	10%

[1] SWP only, under the most conservative assumption that no Houston Creek or other supplies would be available. Based upon SWP allocation of 34% according to 2009 DWR Report.

Projected supply during 4-Year Multiple Dry year period ending in 2030 – AF/Y

	2027	2028	2029	2030
Supply [1]	2,030	2,030	2,030	2,030
% of projected normal	35%	35%	35%	35%

[1] SWP only, under the most conservative assumption that no Houston Creek or other supplies would be available. Please refer to information and discussions in Section 5 above which demonstrate that substantial amounts of Houston Creek water historically have been available to the Agency during dry year conditions affecting SWP allocations. Based upon SWP allocation of 35% according to 2009 DWR Report.

Projected demand during 4-Year Multiple Dry year period ending in 2030 – AF/Y

	2027	2028	2029	2030
Demand [1]	2,595	2,630	2,665	2,700

[1] See Table 4A and Figure 5.

Projected Supply & Demand Comparison during 4-Year Multiple Dry year period ending in 2030- AF/Y

	2027	2028	2029	2030
Supply totals [1]	2,030	2,030	2,030	2,030
Demand totals	2,595	2,630	2,665	2,700
Difference (supply minus demand)	-565	-600	-635	-670
Difference as % of Supply	-28%	-30%	-31%	-33%
Difference as % of Demand	-22%	-23%	-24%	-25%

[1] SWP only, under the most conservative assumption that no Houston Creek or other supplies would be available. Based upon SWP allocation of 35% according to 2009 DWR Report.

Section 6: Demand Management Measures

The Crestline-Lake Arrowhead Water Agency has had a Water Conservation Program in effect since 1991. The program was prepared and submitted to the State Department of Water Resources as a condition of permits issued to CLAWA.

CLAWA has also become a member of the California Urban Water Conservation Council by executing the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU) (CUWCC 1994, as amended June 9, 2010). The Council is a voluntary organization whose members agree to implement reasonable water conservation measures. The Memorandum of Understanding identifies specific Best Management Practices (BMPs) for water conservation. All signatory agencies have agreed to make a good faith effort to implement these BMPs.

CLAWA has committed itself to make a good faith effort to implement the BMPs that lie within its authority, are technically and economically feasible, and are environmentally and socially responsible. CLAWA's authority in this regard extends to its own activities and those of its direct retail customers. CLAWA's wholesale customers are independent entities, each of which is responsible for its own water management and water conservation efforts. CLAWA's water conservation programs are not applicable to its wholesale purveyors or their customers. Section 10620(c) of the Water Code provides:

> An urban water supplier indirectly providing water shall not include planning elements in its urban water management plan . . . that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

Nevertheless, in accordance with Water Code section 10608.36, the conservation measures and BMPs discussed herein serve as an assessment of CLAWA's present and proposed future measures, programs, and policies to help urban retail water agencies within the Agency's service area achieve their respective water use reductions required by the Water Conservation Act of 2009. CLAWA has advised all of its water purveyor wholesale customers of the preparation of this plan, and encourages purveyors to implement their own similar programs. CLAWA will also make the Memorandum of Understanding available to all purveyors, with the recommendation that they consider joining the Council.

CLAWA's customers and purveyors already use their water in an extremely efficient manner as compared to other areas of southern California. CLAWA's annual average water consumption is less than 125 gallons/person/day depending on local precipitation. In other areas of California, water agencies are attempting to reduce their water consumption down from much higher gallon/person/day. The Agency's water rates are also much higher when compared to other areas. This rate structure contributes to efficient water use within CLAWA's service area.

Because water conservation is already strongly practiced within the Agency's service area, specific water conservation measures may yield less benefit in the CLAWA area than they would in other areas of the state which use more water on a per capita basis. For this reason, the reasonableness and effectiveness of each proposed conservation measure needs to be carefully analyzed in light of the conditions unique to the San Bernardino Mountains area.

The following sections identify each BMP as defined in the MOU (in boxed text), and discuss CLAWA's activities related to it. Signatories of the MOU are not required to provide detailed discussion and analysis of each BMP in their Urban Water Management Plans. (Water Code § 10631(j).) Nevertheless, the following discussion is provided to outline and summarize some of CLAWA's existing practices and highlights some issues which will be evaluated in more detail by CLAWA in the future.

Best Management Practices

BMP 1 Interior and Exterior Water Audits and Incentive Programs for Single Family Residential, Multifamily Residential, and Governmental/Institutional Customers

CLAWA does not currently perform water audits for its customers. The California Department of Water Resources has published a Water Efficiency Guide for Business Managers and Facility Engineers (DWR 1994) which provides detailed guidance to users for conducting water audits of their facilities. This publication is available free and includes many specific suggestions for water conservation tailored to particular categories of businesses and facilities. Agency staff will review this guide to evaluate its potential usefulness to Agency customers.

BMP 2 Plumbing, New and Retrofit

Implementation methods shall be at least as effective as delivering retrofit kits including high quality low-flow showerheads to pre-1980 homes that do not have them and toilet displacement devices or other devices to reduce flush volume for each home that does not already have ULF toilets; offering to install the devices; and following up at least three times.

a. Enforcement of Water Conserving Plumbing Fixture Standards Including Requirement for Ultra Low Flush ("ULF") Toilets in All New Construction Beginning January 1, 1992

The State of California has mandated the use of low flow fixtures in new construction.

b. Support of State and Federal Legislation Prohibiting Sale of Toilets Using

More than 1.6 Gallons per Flush

Status of BMP 2b: Inactive. State legislation prohibiting sale of toilets using more than 1.6 gallons per flush was enacted in October, 1992.]"

The Agency is not currently involved in code enforcement that would prohibit the sales of toilets using more than 1.6 gallons per flush.

c. Plumbing Retrofit

In 1978, CLAWA purchased and distributed water conservation kits to all customers within its own retail service area. These kits included toilet displacement devices, shower flow restrictors, dye tablets for detecting leaks, and water conservation pamphlets. CLAWA purchased water conservation kits again in 1988 consisting of the same materials. CLAWA distributed these kits to retail customers who could be contacted at their premises. Those who could not be contacted received notices from CLAWA that the kits were available for their use.

In addition, a kit was mailed to each of CLAWA's wholesale purveyor customers along with a notice encouraging each of them to implement similar water conservation measures within their own retail service areas. A number of these wholesale customers obtained water conservation kits for distribution to their retail customers. In some cases, these kits were obtained from CLAWA's stockpile; in at least one case, a wholesale customer arranged separately to purchase water conservation kits from another source.

As part of its Water Conservation Program established in January 1991, CLAWA has continued to provide these water conservation kits at no charge to any interested customer (CLAWA 1991). CLAWA also sends notices to its customers periodically reminding them that these conservation kits are available. (See CLAWA Water Conservation Plan.)

BMP 3 Distribution System Water Audits, Leak Detection and Repair

> *Implementation methods shall be, at least as effective as, once every three years completing a water audit of the water supplier's distribution system using methodology such as that described in the American Water Works Association's "Manual of Water Supply Practices, Water Audits and Leak Detection"; advising customers whenever it appears possible that leaks exist on the customers' side of the meter; and performing distribution system leak detection and repair whenever the audit reveals that it would be cost effective.*

Corrosion of water mains and pipes can eventually result in leaks and other problems. Therefore, CLAWA will include corrosion control measures in its overall water conservation program. As part of this corrosion control effort, CLAWA has expanded and improved its treatment plant in order to meet drinking water quality requirements.

CLAWA's treatment process now includes pH adjustment which significantly lessens the corrosivity index of CLAWA's water.

CLAWA will also begin a program to refurbish its main line appurtenances. As part of this refurbishment, the main line appurtenances will be replaced with corrosion-resistant materials.

CLAWA began a valve exercising program in 1989 by hiring a contractor to examine each valve in its wholesale distribution system and to exercise, grease, and repair valves where necessary. Thus, if CLAWA has a leak problem, it will be able to isolate the problem relatively quickly to minimize water waste.

CLAWA will continue to check every valve every two to three years and will extend this program to cover inspection of retail valves as well.

CLAWA has installed a clarifying unit in its treatment plant to remove turbidity from the backwash water. The backwash water is then reclaimed and re-circulated back to the headwaters of the treatment plant. A lift station boosts the backwash water up to two water storage tanks and then to the clarifying unit. Using this new clarifying unit will result in reclaiming all backwash water from the treatment plant which was previously lost. (See CLAWA Water Conservation Plan.)

BMP 4 Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections

Implementation methods shall be, requiring meters for all new connections and billing by volume of use; and establishing a program for retrofitting any existing un-metered connections and billing by volume of use; for example, through a requirement that all connections be retrofitted at or within six months of resale of the property or retrofitted by neighborhood.

CLAWA has 16 wholesale customers, four improvement districts which serve approximately 1,199 retail connections. CLAWA's system is completely metered. Meters are regularly serviced and replaced as necessary to ensure the accurate recording of water quantity delivered. CLAWA's rate structure is based upon the quantity of water delivered, not upon a flat rate regardless of quantity delivered.

BMP 5 Large Landscape Water Audits and Incentives

Implementation methods shall be at least as effective as identifying all irrigators of large (at least 3 acres) landscapes (e.g., golf courses, green belts, common areas, multi-family housing landscapes, schools, business parks, cemeteries, parks and publicly owned landscapes on or adjacent to road rights-of-way); contacting them directly (by mail and/or telephone); offering landscape audits

using methodology such as that described in the Landscape Water Management Handbook prepared for the California Department of Water Resources; and cost-effective incentives sufficient to achieve customer implementation; providing follow-up audits at least once every five years; and providing multi-lingual training and information necessary for implementation.

There are no irrigators of large landscapes within CLAWA's service area.

BMP 6 Landscape Water Conservation Requirements for New and Existing Commercial, Industrial, Institutional, Governmental, and Multifamily Developments

Implementation methods shall be enacting and implementing landscape water conservation ordinances, or if the supplier does not have the authority to enact ordinances, cooperating with cities, counties and the green industry in the service area to develop and implement landscape water conservation ordinances pursuant to the 'Water Conservation in Landscaping Act' ("Act") (California Government Code 65590 et seq.). The ordinance shall be at least as effective as the Model Water Efficient Landscape Ordinance being developed by the Department of Water Resources. A study of the effectiveness of this BMP will be initiated within two years of the date local agencies must adopt ordinances under the Act.

The Agency does not have specific landscape water conservation reviews; however, it does review water use during its Will-Serve and Application for Water Service process.

BMP 7 Public Information

Implementation methods shall be at least as effective as ongoing programs promoting water conservation and conservation related benefits including providing speakers to community groups and the media; using paid and public service advertising; using bill inserts; providing information on customers' bills showing use in gallons per day for the last billing period compared to the same period the year before; providing public information to promote other water conservation practices; and coordinating with other governmental agencies, industry groups and public interest groups.

CLAWA will implement a public information program regarding water conservation. This program consists of several components.

First, CLAWA will place a fact sheet regarding water conservation along with the water quality report it sends annually to its customers. CLAWA will also utilize the Agency website to post relevant information regarding water conservation. As noted in the Department of Water Resources' "Water Conservation Reference Manual, Urban

Conservation Measures" (March 1984), fact sheets are easy to update and work well for "changeable information." CLAWA's fact sheet will indicate how water users can conserve water (e.g., around the home) and will describe the measures that CLAWA itself is using to conserve its overall supply.

Second, in the past, CLAWA has posted outdoor signs near public streets and roadways throughout its service area reminding its customers to conserve water. CLAWA will refurbish and repaint these signs and will assure that the signs are placed in strategic locations.

Third, CLAWA will issue press releases on a periodic basis in the local newspaper urging water conservation and suggesting ways to reduce water use.

Fourth, CLAWA will send each customer an annual notice reminding customers to winterize their pipes to prevent breakage and leaking during the winter months. This notice will also indicate that CLAWA is entitled to shut off service to property if it suspects that breaks or leaks have occurred. (See CLAWA Water Conservation Plan.)

BMP 8 School Education

> *Implementation methods shall be, at least as effective as, ongoing programs promoting water conservation and conservation related benefits including working with the school districts in the water supplier's service area to provide educational materials and instructional assistance.*

CLAWA does not currently offer a school education program, although the Agency will provide speakers to schools upon request.

BMP 9 Commercial and Industrial Water Conservation

> *Implementation methods shall be at least as effective as assuring the review of proposed water uses for new commercial and industrial water service and making recommendations for improved water use efficiency before completion of the building permit process.*

CLAWA does not currently have a program of contacting high water users. However, the Agency does work closely with water users upon request.

BMP 10 New Commercial and Industrial Water Use Review

Implementation methods shall be at least as effective as assuring the review of proposed water uses for new commercial and industrial water service and making recommendations for improved water use efficiency before completion of the building permit process.

CLAWA reviews water use during its Will-Serve and Application for Water Service process. CLAWA serves few commercial accounts and no industrial users.

BMP 11 Conservation Pricing

Implementation methods shall be at least as effective as eliminating non-conserving pricing and adopting conserving pricing. For signatories supplying both water and sewer service, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make good faith efforts to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.
"Non-conserving pricing provides no incentives to customers to reduce use. Such pricing is characterized by one or more of the following components:
"a. Rates in which the unit price decreases as the quantity used increases (declining block rates);
"b. Rates that involve charging customers a fixed amount per billing cycle regardless of the quantity used;
"c. Pricing in which the typical bill is determined by high fixed charges and low commodity charges.
"Conservation pricing provides incentives to customers to reduce average or park use, or both. Such pricing includes:
"a. Rates designed to recover the cost of providing service; and
"b. Billing for water and sewer service based on metered water use.
"Conservation pricing is also characterized by one or more of the following components:
"c. Rates in which the unit rate is constant regardless of the quantity used (uniform rates) or increases as the quantity used decreases (increasing block rates);
"d. Seasonal rates or excess-use surcharges to reduce peak demands during summer months;
"e. Rates based upon the long-run marginal cost or the cost of adding the next unit or capacity to the system;
"f. Lifeline rates.

CLAWA implements conservation pricing in its rate schedule in accordance with item a, b, and c in the conservation pricing guidelines above. The Agency's water rates are based on cost of providing service, metered water use and no change in water regardless of usage.

BMP 12 Residential Landscape Water Conservation for New and Existing Single Family Homes

Implementation methods shall be at least as effective as providing guidelines, information and incentives for installation of more efficient landscapes and water saving practices (e.g., encouraging local nurseries to promote sales and use of low water using plants,

providing landscape water conservation materials in new home owner packets and water bills, sponsoring demonstration gardens); and enacting and implementing landscape water conservation ordinances or, if the supplier does not have the authority to enact ordinances, cooperating with cities, counties, and the green industry in the service area to develop and implement landscape water conservation ordinances pursuant to the 'Water Conservation in Landscaping Act' ("Act") (California Government Code a65590 et seq.). The ordinance shall be at least as effective as the Model Water Efficient Landscape Ordinance being developed by the Department of Water Resources.

Although the Agency does not have specific landscape water conservation reviews for single family homes, it does review water use during its Will-Serve and Application for Water Service process.

BMP 13 Water Waste Prohibition

Implementation methods shall be enacting and enforcing measures prohibiting gutter flooding, single pass cooling systems in new connections, nonrecirculating systems in all new conveyer car wash and commercial laundry systems, and nonrecycling decorative water fountains.
"Signatories shall also support efforts to develop state law regarding exchange-type water softeners that would: (1) allow the sale of only more efficient, demand-initiated regenerating (DIR) models; (2) develop minimum appliance efficiency standards that (a) increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used; and (b) implement an identified maximum number of gallons discharged per gallon of soft water produced; (3) allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply.

Signatories shall also include water softener checks in home water audit programs and include information about DIR and exchange-type water softeners in their educational efforts to encourage replacement of less efficient timer models.

Ordinance No. 44 prohibits water waste during times of water shortage and discourages excessive water use at any time. These prohibitions include running water into streets or gutters, washing of autos or buildings, ornamental water use, leaks, as well as other restrictions.

BMP 14 - Water Conservation Coordinator

Implementation methods shall be at least as effective as designating a water conservation coordinator responsible for preparing the conservation plan,

managing its implementation, and evaluating the results. For very small water suppliers, this might be a part-time responsibility. For larger suppliers this would be a full-time responsibility with additional staff as appropriate. This work should be coordinated with the supplier's operations and planning staff.

The Agency does not currently have a formally appointed water conservation coordinator. This duty falls under the General Manager position.

BMP 15 - Financial Incentives

Implementation methods shall be at least as effective as:
a. Offering financial incentives to facilitate implementation of conservation programs. Initial recommendations for such incentives will be developed by the Council within two years of the initial signing of the MOU, including incentives to improve the efficiency of landscape water use; and
b. Financial incentives offered by wholesale water suppliers to their customers to achieve conservation

The Agency offers financial incentives for water conservation in its retail water rate structure by charging a basic rate per cubic foot of water used up to a base amount. Rates are increased per cubic foot above the base amount. Rates become more restrictive during times of shortage.

BMP 16 - Ultra-Low Flush Toilet Replacement

Water suppliers agree to implement programs for replacement of existing high-water-using toilets with ultra-low-flush toilets (1.6 gallons or less) in residential, commercial, and industrial buildings. Such programs will be at least as effective as offering rebates of up to $100 for each replacement that would not have occurred without the rebate, or requiring replacement at the time of resale, or requiring replacement at the time of change of service. . . .

This BMP requires detailed analysis to assess its feasibility in the Agency's case. The MOU contains additional technical materials spelling out analytical approaches and assumptions which can be used to evaluate the feasibility of this specific measure. The circumstances in CLAWA's service area are such that the advisability of implementing ultra-low-flush toilet replacement is in question. The MOU does provide for exemptions from particular BMPs under certain conditions. Further analysis will be undertaken for the Agency.

APPENDIX A

CALIFORNIA WATER CODE, DIVISION 6
PART 2.6 – URBAN WATER MANAGEMENT PLANNING

WATER CODE
SECTION 10610-10610.4

10610. This part shall be known and may be cited as the "Urban Water Management Planning Act."

10610.2. (a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) 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.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.

(4) 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.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) 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.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

10610.4. The Legislature finds and declares that it is the policy of the state as follows:

(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.

(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.

(c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

WATER CODE
SECTION 10611-10617

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

10611.5. "Demand management" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

10612. "Customer" means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

10613. "Efficient use" means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

10614. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

10616. "Public agency" means any board, commission, county, city and county, city, regional agency, district, or other public entity.

10616.5. "Recycled water" means the reclamation and reuse of wastewater for beneficial use.

10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more

than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

WATER CODE
SECTION 10620-10621

10620. (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d) (1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621. (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

WATER CODE
SECTION 10630-10634

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(A) An average water year.

(B) A single dry water year.

(C) Multiple dry water years.

(2) For any water source that may not be available at a consistent

level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multifamily residential customers.

(B) Residential plumbing retrofit.

(C) System water audits, leak detection, and repair.

(D) Metering with commodity rates for all new connections and retrofit of existing connections.

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

(I) Conservation programs for commercial, industrial, and institutional accounts.

(J) Wholesale agency programs.

(K) Conservation pricing.

(L) Water conservation coordinator.

(M) Water waste prohibition.

(N) Residential ultra-low-flush toilet replacement programs.

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

(1) Take into account economic and noneconomic factors, including

environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

(j) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivisions (f) and (g) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.

(k) Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

10631.1. (a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

(b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.

10631.5. (a) (1) Beginning January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures described in Section 10631, as determined by the department pursuant to subdivision (b).

(2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This section does not apply to water management projects funded by the federal American Recovery and Reinvestment Act of 2009 (Public Law 111-5).

(3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

(4) (A) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

(B) For purposes of this paragraph, "not locally cost effective" means that the present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure.

(b) (1) The department, in consultation with the state board and the California Bay-Delta Authority or its successor agency, and after soliciting public comment regarding eligibility requirements, shall develop eligibility requirements to implement the requirement of paragraph (1) of subdivision (a). In establishing these eligibility requirements, the department shall do both of the following:

(A) Consider the conservation measures described in the Memorandum of Understanding Regarding Urban Water Conservation in California, and alternative conservation approaches that provide equal or greater water savings.

(B) Recognize the different legal, technical, fiscal, and practical roles and responsibilities of wholesale water suppliers and retail water suppliers.

(2) (A) For the purposes of this section, the department shall determine whether an urban water supplier is implementing all of the water demand management measures described in Section 10631 based on either, or a combination, of the following:

(i) Compliance on an individual basis.

(ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the eligibility requirements.

(B) The department may require additional information for any determination pursuant to this section.

(3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.

(c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).

(d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.

(e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit biennial reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

(f) This section shall remain in effect only until July 1, 2016, and as of that date is repealed, unless a later enacted statute, that is enacted before July 1, 2016, deletes or extends that date.

10631.7. The department, in consultation with the California Urban Water Conservation Council, shall convene an independent technical panel to provide information and recommendations to the department and the Legislature on new demand management measures, technologies, and approaches. The panel shall consist of no more than seven members, who shall be selected by the department to reflect a balanced representation of experts. The panel shall have at least one, but no more than two, representatives from each of the following: retail water suppliers, environmental organizations, the business community, wholesale water suppliers, and academia. The panel shall be convened by January 1, 2009, and shall report to the Legislature no later than January 1, 2010, and every five years thereafter. The department shall review the panel report and include in the final report to the Legislature the department's

recommendations and comments regarding the panel process and the panel's recommendations.

10632. (a) The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:

(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions that are applicable to each stage.

(2) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

(3) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

(4) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

(5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

(6) Penalties or charges for excessive use, where applicable.

(7) An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

(8) A draft water shortage contingency resolution or ordinance.

(9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

(b) Commencing with the urban water management plan update due December 31, 2015, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type,

place, and quantity of use.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

WATER CODE
SECTION 10635

10635. (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

(c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.

(d) Nothing in this article is intended to change existing law concerning an urban water supplier's obligation to provide water service to its existing customers or to any potential future customers.

WATER CODE
SECTION 10640-10645

10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630).

The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

10641. An urban water supplier required to prepare a plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water demand management methods and techniques.

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

10643. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

10644. (a) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

(b) The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall identify the exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

(c) (1) For the purpose of identifying the exemplary elements of

the individual plans, the department shall identify in the report those water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section 10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.

(2) The department shall distribute to the panel convened pursuant to Section 10631.7 the results achieved by the implementation of those water demand management measures described in paragraph (1).

(3) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

WATER CODE
SECTION 10650-10656

10650. Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.

(b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board and the Public Utilities Commission, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board or the Public Utilities Commission requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

10654. An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water

conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the "Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

10656. An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

APPENDIX B

RESOLUTION TO ADOPT THE UWMP

RESOLUTION NO. 742

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CRESTLINE-LAKE ARROWHEAD WATER AGENCY ADOPTING THE 2010 URBAN WATER MANAGEMENT PLAN

WHEREAS, the Urban Water Management Planning Act, Water Code section 10610 et seq. ("Act"), requires every urban water supplier to prepare and adopt an updated Urban Water Management Plan ("Plan") at least once every five (5) years on or before December 31, in years ending in five and zero, and whereby pursuant to SBX7-7 (adding Water Code section 10608 et. seq.) and SB 1478 (amending Water Code section 10608.20), the time for urban water suppliers to adopt their 2010 Plans was extended to July 2011; and

WHEREAS, the Crestline-Lake Arrowhead Water Agency ("Agency") is an "urban water supplier" for purposes of the Act because it provides water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre feet of water annually; and

WHEREAS, the Agency has prepared a 2010 Plan and, in accordance with applicable law, including but not limited to Water Code sections 10620(d), 10621(b), and 10642, the Agency has undertaken certain agency notification and coordination, public involvement and outreach, public comment, public notice, and other procedures in relation to its 2010 Plan; and

WHEREAS, as authorized by Water Code section 10620(e), the Agency has prepared its 2010 Plan with its own staff, with the assistance of consulting professionals, and in cooperation with other governmental agencies, and has utilized and relied upon industry standards and the expertise of industry professionals in preparing its 2010 Plan, and has also in part utilized and relied upon the DWR Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan (March 2011) and the DWR Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use (For the Consistent Implementation of the Water Conservation Act of 2009) (February 2011) in preparing its 2010 Plan; and

WHEREAS, in accordance with applicable law, including Water Code section 10642 and Government Code section 6066, the Agency made its Draft 2010 Plan available for public inspection, and caused to be published within the jurisdiction of the Agency at least two notices of the public hearing regarding the Agency's 2010 Plan to be held on July 7, 2011; and

WHEREAS, pursuant to said July 7, 2011 public hearing on the 2010 Plan, the Agency encouraged the active involvement of diverse social, cultural, and economic elements of the population within the Agency's service area with regard to the preparation of the 2010 Plan and provided members of the public and other interested entities with the opportunity to be heard in connection with proposed adoption of the 2010 Plan; and

WHEREAS, the Board of Directors of the Agency has reviewed and considered the purposes and requirements of the Act, the contents of the 2010 Plan, and the documentation contained in the administrative record in support of the 2010 Plan, and has determined that the factual analyses and conclusions set forth in the 2010 Plan are supported by substantial evidence;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Crestline-Lake Arrowhead Water Agency as follows:

1. The Recitals set forth above are incorporated herein and made an operative part of this Resolution.

2. The Board hereby adopts the 2010 Urban Water Management Plan.

3. The Board hereby authorizes and directs the General Manager to include a copy of this Resolution in the Agency's 2010 Plan.

4. The Board hereby authorizes and directs the General Manager, in accordance with Water Code Section 10644(a), to submit copies of the 2010 Plan to the California Department of Water Resources, the California State Library, and any city or county within which the Agency provides water supplies no later than thirty (30) days after this adoption date.

5. The Board hereby authorizes and directs the General Manager, in accordance with Water Code Section 10645, to make the 2010 Plan available for public review during normal business hours no later than thirty (30) days after filing a copy of the 2010 Plan with the California Department of Water Resources.

6. The Board hereby authorizes and directs the General Manager, in accordance with Water Code Section 10635(b), to provide that portion of the 2010 Plan prepared pursuant to Water Code Section 10635(a) to any city or county within which the Agency provides water supplies no later than sixty (60) days after filing a copy of the Plan with the California Department of Water Resources.

7. The Board hereby authorizes and directs the General Manager to implement the 2010 Plan in accordance with the Urban Water Management Planning Act and to take any and all other action necessary to implement the 2010 Plan in accordance with the Act.

8. The Board hereby authorized and directs the General Manager to recommend to the Board additional steps necessary or appropriate to effectively carry out the implementation of the 2010 Plan and the Urban Water Management Planning Act.

ADOPTED this 4th day of August 2011.

President of the Board of Directors

ATTEST:

Secretary of the Board of Directors

APPENDIX C

CALIFORNIA STATE WATER PROJECT MAP

CALIFORNIA STATE WATER PROJECT

APPENDIX D

STATE WATER PROJECT
DELIVERY RELIABILITY REPORT, 2009
SUMMARY

California Department of Water Resources
Bay-Delta Office
September 27, 2010

Summary:

Final State Water Project Delivery Reliability Report, 2009

The *State Water Project Delivery Reliability Report 2009* updates DWR's estimate of the current (2009) and future (2029) water delivery reliability of the SWP. The report is produced every two years as part of a settlement agreement signed in 2003.

The report shows that future SWP deliveries will be impacted by two significant factors. The first is significant restrictions on SWP and Central Valley Project (CVP) Delta pumping required by the biological opinions issued by the U.S. Fish and Wildlife Service (December 2008) and National Marine Fisheries Service (June 2009). The second is climate change, which is altering the hydrologic conditions in the State.

This report represents the state of water affairs if no actions for improvement are taken. It shows continued erosion of SWP water delivery reliability under the current method of moving water through the Delta. The updated analysis shows that the primary component of the annual SWP deliveries (referred to as Table A deliveries) will be less under current and future conditions, when compared to the preceding report (*State Water Project Delivery Reliability Report 2007).*

The report discusses areas of significant uncertainty to SWP delivery reliability:

- restrictions on SWP and CVP operations due to State and federal biological opinions to protect endangered fish such as delta smelt and spring-run salmon;
- climate change and sea level rise; and
- the vulnerability of Delta levees to failure due to floods and earthquakes.

As in previous reports, estimates of SWP deliveries are based upon operation simulations with DWR's CalSim II model using an extended record of runoff patterns. These patterns have been adjusted to reflect the levels of development in the source areas and, for future conditions, possible impact due to climate change and accompanying sea level rise. Potential deliveries under current conditions are estimated at the 2009 level and assume current methods of conveying water across the Delta and the current operational rules contained in the federal biological opinions. Potential deliveries under future conditions are estimated at the 2029 level and are also based on the assumptions that no changes will be made in either the way water is conveyed across the Delta or in the operational rules. The analysis of future conditions incorporates a climate change scenario from DWR's 2009 report, *Using Future Climate Projections to Support Water Resources Decision Making in California,* which represents the median effects of the 12 scenarios contained in the report.

The 2009 report shows greater reductions in water deliveries on average when compared to the 2007 report. The 2007 report incorporates the interim operation rules established by Judge Wanger in the federal court in 2007. It shows very significant reductions in SWP deliveries when compared to the 2005 report, which assumes operation rules that were less restrictive. The 2007 report shows current SWP annual Table A deliveries averaging 63% (2595 taf) of the maximum contract amount of 4,133 thousand acre-feet (taf) per year. The 2009 report shows a corresponding value of 60% (2485 taf). The 2007 report projects an annual average of 66% to 69% (2725-2850 taf) for the future condition, whereas the updated report has 60%.

Although the averages of the updated estimates are less than were estimated in the 2007 report, the annual deliveries during drier conditions are projected to be somewhat higher than estimated in the 2007 report. This is due to the updated analysis incorporating the ability of SWP contractors to save water allocated in one year for delivery in the subsequent year and because water stored upstream cannot be delivered in some years due to export restrictions and is, therefore, available in drier times. This phenomenon is illustrated in the tables and curves below.

Under current conditions, annual SWP Table A deliveries from the Delta average 60% of the maximum annual amount of 4,133 taf per year. Over the 82-year simulation period, annual SWP Table A deliveries range from 7% to 81% of the maximum amount. Over multiple-year dry periods, average annual Table A deliveries vary from 34% to 36% of the maximum Table A amount, while average annual deliveries over multiple-year wet periods range from 67 to 71% of the maximum Table A amount. Under current conditions, annual SWP Article 21 deliveries, a secondary component of annual deliveries, average 85 taf and range from 2 taf to 850 taf over the 82-year simulation period.

Under future conditions, annual SWP Table A deliveries from the Delta also average 60% of the maximum Table A amount. Over the 82-year simulation period, annual SWP Table A deliveries range from 11% to 97% of the maximum amount. Over multiple-year dry periods, average annual Table A deliveries vary from 32% to 38% of the maximum Table A amount, while average annual deliveries over multiple-year wet periods range from 72 to 93% of the maximum Table A amount. Under future conditions, annual SWP Article 21 deliveries average 60 taf, ranging from 1 taf to 540 taf over the 82-year simulation period.

The *State Water Project Delivery Reliability Report, 2009* is available for public review at, http://baydeltaoffice.water.ca.gov. The report is an update to the *State Water Project Delivery Reliability Report, 2007* issued as final in 2008.

Table 1. Highlighted SWP Table A delivery percent exceedence values under Current Conditions

Exceedence	Annual SWP Table A Delivery (taf)		Change in delivery compared to 2007 report (taf)
	2007 SWP Delivery Reliability Report, Study 2007	Updated Studies (2009)	
25%	3218	2920	-298
50%	2976	2675	-301
75%	2168	2397	+229

Table 1 compares the probability estimates for current conditions from the 2007 report and the 2009 report. The comparison is also shown in Figure 1. The 2009 report estimates that for any given year in the future,

- There is a 25% chance that SWP deliveries will be at or above 2,920 taf.
- There is an equal chance (50%) that SWP deliveries will be above or below 2,675 taf. (Illustrated by the dotted lines.)
- There is 75% chance that SWP deliveries will be above 2,397 taf. Another way to state this is that there is a 25% chance that deliveries will be below this value.

Figure 1 SWP Table A delivery probability under Current Conditions

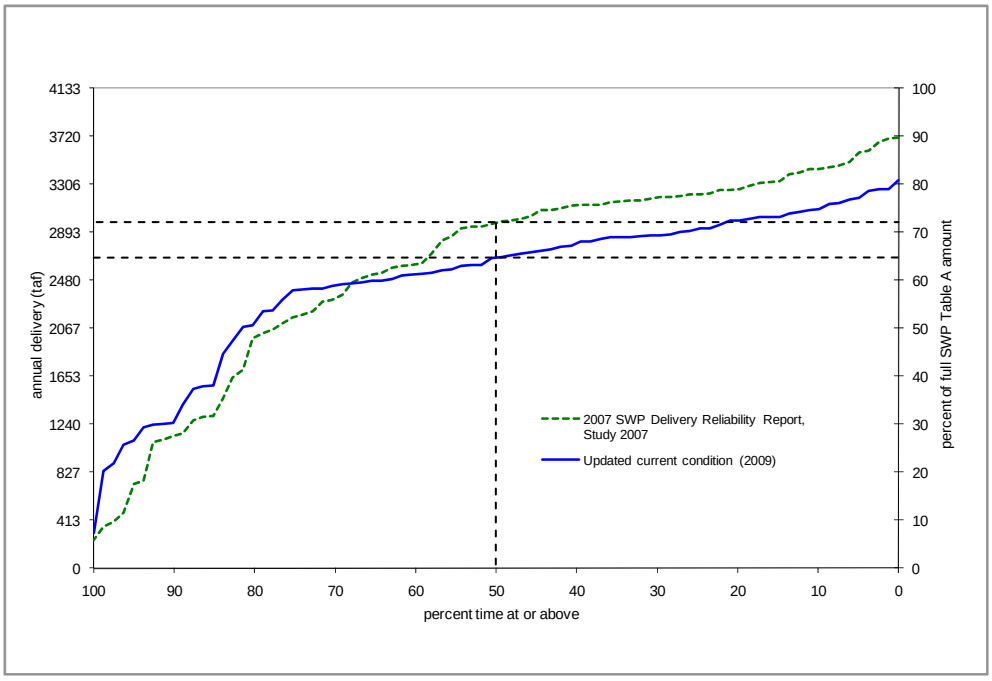


Figure 1 is a plot of all the annual estimates of SWP deliveries in ascending order, with the smallest value on the left and largest on the right.

Table 2 Highlighted SWP Table A delivery percent exceedence values under Future Conditions

Exceedence	Annual SWP Table A Delivery (taf)		Change in delivery in updated studies compared to 2007 report (taf)
	2007 SWP Delivery Reliability Report, Study 2027[1]	Updated Studies (2029)	
25%	3687 – 3815	2915	-772 to -900
50%	2967 – 3205	2596	-371 to -609
75%	1860 – 2077	2137	+60 to +277

1/ Range in value reflects four modified scenarios of climate change.

Table 2 compares the probability estimates for future conditions from the 2007 report and the 2009 report. The 2009 report estimates that for any given year in the future,

- There is 1 chance in 4 (25% chance) that SWP deliveries will be at or above 2,915 taf.
- There is an equal chance (50% chance) that SWP deliveries will be above or below 2,596 taf. (Illustrated by the dotted lines in Figure 2.)
- There is 75% chance that SWP deliveries will be above 2,137 taf. Another way to state this is that there is a 25% chance that deliveries will be below this range.

Figure 2 SWP Delta Table A delivery probability under Future Conditions

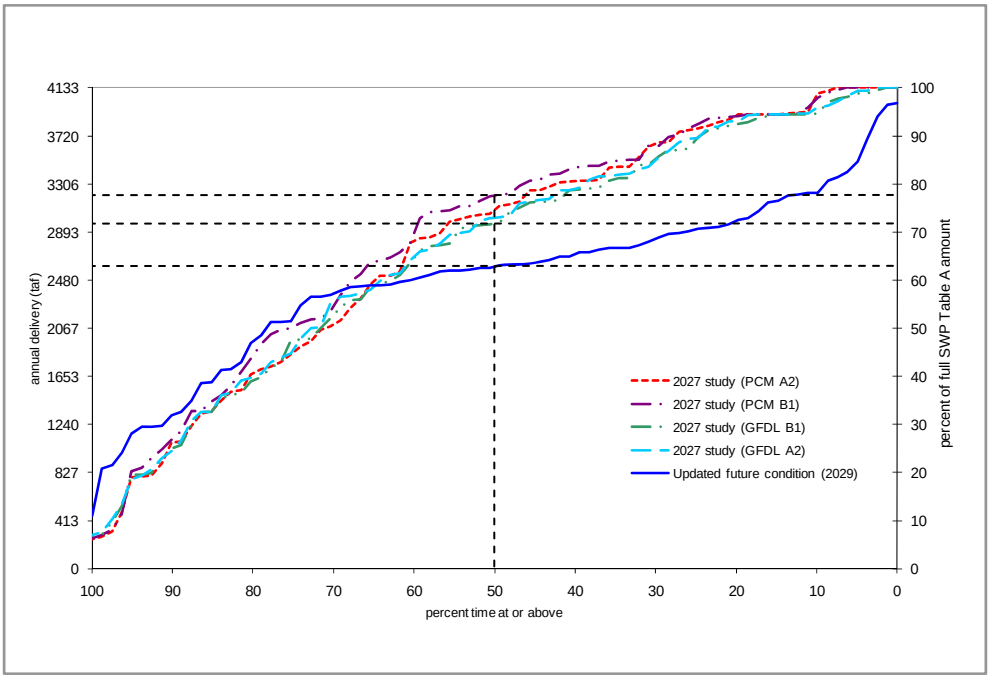


Figure 2 is the corresponding plot of all the annual delivery estimates for the future condition.

APPENDIX E

CLAWA ORDINANCE NO. 44
DECLARING AN EMERGENCY WATER STORTAGE AND ESTABLISHING A WATER CONSERVATION PROGRAM

And

CLAWA ORDINANCE NO. 45
AMENDING ORDINANCE NO. 44

ORDINANCE NO. 44

AN ORDINANCE OF THE BOARD OF DIRECTORS OF CRESTLINE-LAKE ARROWHEAD WATER AGENCY DECLARING AN EMERGENCY WATER SHORTAGE AND ESTABLISHING A WATER CONSERVATION PROGRAM

WHEREAS, Crestline-Lake Arrowhead Water Agency (hereinafter "Agency"), a public agency created by special act of the California State Legislature pursuant to Act 9099a of Deering's Water Code - Uncodified Acts (hereinafter the "Crestline-Lake Arrowhead Water Agency Law"), provides water service directly to the consumer within certain retail service areas located within its boundaries, and also supplemental water on a wholesale basis to other water purveyors, also located within the Agency's boundaries, for retail delivery to their own customers; and

WHEREAS, the Agency is one of thirty State Water Contractors in the State of California which obtain water from the State Water Project, and all of the water which the Agency delivers comes from Silverwood Lake, a facility of the State Water Project; and

WHEREAS, the Agency has been advised by the Department of Water Resources, which operates the State Water Project, that five consecutive years of drought have created Statewide drought emergency conditions which will prevent the State from delivering to the Agency all of the water which the Agency has requested from the State Water Project for 1991; and

WHEREAS, the Agency is authorized by Section 11 (13) and (14) of the Crestline-Lake Arrowhead Water Agency Law to restrict the use of Agency water during a threatened or existing water shortage, and to prohibit the waste or the use of Agency water during such periods for any purpose other than domestic uses or such other uses as may be determined by the Agency to be necessary; and

WHEREAS, the Agency is further authorized by Water Code Sections 350, et seq., to declare a water shortage emergency and by Water Code Sections 375-377 to adopt water conservation programs; and

WHEREAS, this Board of Directors determines that the adoption of water conservation rules and regulations is necessary to (1) protect the health, safety, and welfare of the inhabitants and customers of the Agency, (2) assure the maximum beneficial use of the water supplies of the Agency, and (3) ensure that there will be sufficient water supplies to meet the basic needs of human consumption, sanitation and fire protection; and

WHEREAS, the Board of Directors further determines that the specific rules, regulations and restrictions established herein are necessary as emergency measures to cope with an existing water supply shortage which may become even worse in the near future;

NOW, THEREFORE, BE IT ORDAINED by the Board of Directors of Crestline-Lake Arrowhead Water Agency as follows:

Section 1. Purpose and Findings.

This Board of Directors finds that a drought emergency and existing water shortage exists which require the enactment and enforcement of this Ordinance. The Agency has received notice from the Department of Water Resources of the State of California that scheduled deliveries to the Agency from the State Water Project during calendar year 1991 must be reduced 15% below the deliveries requested by the Agency, and that more severe reductions will likely be imposed if drought conditions continue during the first few months of 1991. These reductions will directly impact the wholesale and retail customers of the Agency, many of whom rely exclusively upon the Agency for their water supply. Therefore, the Agency must immediately impose regulations and restrictions and implement a water conservation program designed to reduce consumption within the Agency's service area in order to preserve a supply of water necessary to protect the health, safety and welfare of the

customers within the Agency's service area. The Agency's first priority in the implementation of these regulations and restrictions will be preservation of sufficient water to satisfy domestic consumptive needs, ensure adequate fire protection, and preserve the health and safety of the inhabitants and customers of the Agency.

Section 2. Definitions.

"Agency" -- Crestline-Lake Arrowhead Water Agency.

"Board" -- Board of Directors of the Agency.

"Retail customer" -- A customer receiving water service directly from the Agency, through a service connection, for his own use and not for resale or delivery to others.

"Waste" -- Any unreasonable or non-beneficial use of water or any unreasonable method of use of water, including, but not limited to, the specific uses prohibited and restricted by this Ordinance as hereinafter set forth.

"Water users" -- Any person, firm, partnership, association, corporation or entity using water obtained from the water system of Crestline-Lake Arrowhead Water Agency.

"Wholesale customer" -- A customer having a connection to the Agency's water system which purchases water from the Agency for resale or delivery to its own users, customers, or shareholders through its own

water system; the term "wholesale customer" shall include camps.

Section 3. Water Supply Plan for Emergency Water Shortage - Wholesale Customers.

Using 1990 as a base year, the Agency will determine the amount of water which the Agency delivered to each wholesale customer during each month of 1990. Each such customer shall then be allowed to receive from the Agency, each month, at the Agency's standard rate for wholesale water then in effect, a percentage of the quantity of water which the Agency delivered to that wholesale customer during the corresponding month of the base year. The percentage shall be determined by the stage of emergency declared by the Board, as follows:

STAGE OF EMERGENCY DECLARED BY BOARD	PERCENTAGE OF WATER DELIVERED DURING CORRESPONDING MONTH OF BASE YEAR
STAGE 1 EMERGENCY	95%
STAGE 2 EMERGENCY	90%
STAGE 3 EMERGENCY	80%
STAGE 4 EMERGENCY	70%
STAGE 5 EMERGENCY	60%

During a Stage 1 Emergency, water delivered for any month in excess of the applicable percentage shall be charged at twice the Agency's standard rate for wholesale water in effect at the time of delivery. For Stage 2 through Stage 5 Emergencies, water delivered for any month in excess of the applicable percentage shall be subject to such surcharges as the Board may establish by separate ordinance or resolution, at the time each such stage of emergency is declared by the Board.

Section 4. Water Supply Plan for Emergency Shortage - Retail Customers.

A. Surcharge for Excess Consumption. All retail customers are presently charged a minimum monthly charge which entitles them to use a certain quantity of water without payment of an additional charge. During a Stage 1 Emergency, the quantity of water which they are currently entitled to use for payment of the minimum monthly charge shall become the base quantity which they shall be entitled to use without payment of a surcharge. Consumption in excess of the base quantity during a Stage 1 Emergency shall be charged at twice the Agency's standard rate for such service. For Stage 2 through Stage 5 Emergencies, consumption in excess of the base quantity shall be subject to such surcharges as the Board may establish by separate ordinance or resolution at the time each such stage of emergency is declared by the Board.

B. Prohibited Uses. In addition, this Board finds the following uses constitute waste and are therefore prohibited for the Agency's retail customers:

(i) Running water into streets or gutters.

(ii) Washing automobiles or equipment with running water (as opposed to use of a bucket, other container or a commercial wash establishment using recycled or reclaimed water).

(iii) Washing down buildings (except windows), walks, driveways or streets.

(iv) Sprinkling for dust control.

(v) Water displays or ornamental water use (fountains, etc.) except when the display uses reclaimed or recycled water.

(vi) Dripping faucets, or other leaks, or unattended or excessively running hoses.

(vii) Watering lawns, parks, playgrounds or ballfields more than twice per week, which watering must occur after 9:00 p.m. and before 3:00 a.m.; provided there shall be no prohibition against watering with reclaimed water.

C. Installation and Use of Shut-off Valves. Each retail customer of the Agency is hereby required to install a shut-off valve on the customer's side of the meter, outside of the meter box, to allow on-site plumbing to be drained as necessary to prevent loss of water from frozen or broken pipes. It shall be the customer's responsibility to turn off the shut-off valve upon leaving the premises, and to insulate exposed pipes and valves to protect the pipes and valves against breaks when freezing conditions occur.

D. Construction Water Use. Although construction water use will not be prohibited altogether, such use will now incur the following rates and charges:

(i) $5 per day for rental of meter; and

(ii) $0.25 per cubic foot of water consumed.

Section 5. Adjustment of Base Quantities.

The base quantities established for wholesale and retail customers pursuant to Section 3 and Section 4 of this Ordinance may be adjusted by the Board, as the Board in

its discretion deems necessary, in order to equitably apply the provisions of this Ordinance and to achieve the purposes and objectives set forth herein. Customers seeking an adjustment must apply to the Board in writing and provide documentation to demonstrate that the adjustment is necessary in order to avoid inequitable application of the Ordinance. Upon granting or denying a requested adjustment, the decision of the Board shall be final.

Section 6. Use of Surcharge Revenues.

The surcharge revenues collected by the Agency as a result of customer consumption in excess of the base quantities set forth in Section 3 and Section 4 of this Ordinance shall be used by the Agency to assist in defraying the cost of measures employed by the Agency to cope with the water shortage emergency which necessitates the adoption of this Ordinance.

Section 7. Moratorium on Service Commitments and Connections.

Consistent with the provisions of Resolution No. 454, as adopted by the Board on January 14, 1991, or as subsequently revised, the Agency shall be prohibited from making any oral or written commitments to provide any new retail service and shall not approve the installation of a turnout to any new wholesale customer. Any such commitment shall be without authority from this Board and, therefore, shall be void and unenforceable. Furthermore, the Agency's wholesale customers are urged to impose a temporary moratorium on new service commitments.

Section 8. Declaration of Stage 1 Emergency.

This Board hereby declares a Stage 1 Emergency, effective as of March 1, 1991, thus placing into effect the provisions of this Ordinance. The Board may subsequently declare different stages of emergency without the necessity of amending the provisions of this Ordinance.

Section 9. Use of Water Saving Kits.

The Agency shall provide a water saving kit, free of charge, to each retail customer of the Agency who needs and requests one, so long as the Agency's stockpile of kits lasts. Retail customers are urged to use such kits and are alerted to the surcharges set forth in Section 4 for excess consumption. Furthermore, the Agency's wholesale customers are urged to assist their own retail customers in obtaining and installing water saving devices to minimize water consumption within their service areas.

Section 10. Lawns, Parks, Playgrounds and Ballfields.

Retail customers, schools and camps which receive water directly from the Agency shall be prohibited from watering lawns, parks, playgrounds or ballfields more than twice per week. All such watering must occur after 9:00 p.m. and before 3:00 a.m. There shall be no prohibition against watering with reclaimed water.

Section 11. Compliance.

Failure to comply with the provisions of this Ordinance shall constitute a misdemeanor punishable under Section 13 of the Crestline-Lake Arrowhead Water Agency Law and under Water Code Section 377. Upon conviction of such a misdemeanor, that person shall be punished by imprisonment in the county jail for not more than thirty (30) days or by a fine of not more than One Thousand Dollars ($1000), or both by such fine and imprisonment. The Agency reserves the right to take such civil enforcement action or other action as may be available or appropriate to compel compliance with the provisions of this Ordinance, including the right to discontinue service to customers who violate the provisions of this Ordinance.

Section 12. Rules and Regulations.

This Ordinance shall augment, and not supersede, the provisions set forth in the Agency's Rules and Regulations. Customers are urged to pay particular attention to Section 3.13(d) of the Rules and Regulations, which specifically prohibits the waste of water by causing or permitting the overflow of water storage reservoirs.

Section 13. Severability.

If any section, subsection, sentence, clause or phrase of this Ordinance is for any reason held to be unconstitutional or invalid by a court of competent jurisdiction, such decision shall not affect the remaining portions of this Ordinance and those shall remain in full force and effect.

Section 14. Repeal of Ordinance Nos. 11 and 13.

Ordinance Nos. 11 and 13 are hereby repealed.

Section 15. CEQA Exemption.

This Board finds and determines that the adoption of this Ordinance and implementation of the measures set forth herein are exempt from environmental assessment pursuant to Section 3.08 of the Agency's Local Guidelines for Implementing the California Environmental Quality Act, and directs the Agency's General Manager to file a Notice of Exemption with the County Clerk for the County of San Bernardino.

Section 16. Publication and Notice.

A copy of this Ordinance shall be published one time in a newspaper of general circulation within the Agency within ten (10) days after the adoption hereof pursuant to

Government Code Section 6061. In addition, copies shall be mailed to each wholesale customer of the Agency, the State Department of Water Resources, the State Department of Health Services, the State Water Resources Control Board (Division of Water Rights), the Association of California Water Agencies, the Board of Supervisors of the County of San Bernardino, the Building and Planning Departments of the County of San Bernardino, firefighting entities having jurisdiction within the Agency, and such State legislators as the General Manager of the Agency may deem appropriate.

ADOPTED this 14th day of February, 1991.

ATTEST:

Dorothy E. Haston
Secretary of the Board of Directors
CRESTLINE-LAKE ARROWHEAD WATER AGENCY

Thomas A. Thomas
President of the Board of Directors
CRESTLINE-LAKE ARROWHEAD WATER AGENCY

CERTIFICATION

I, Dorothy E. Horton, Secretary of the Board of Directors of the Crestline-Lake Arrowhead Water Agency, hereby certify that the foregoing is a full, true and correct copy of the Ordinance adopted by the Board of Directors of said Agency at the special meeting of said Board held on the 14th day of February, 1991, by the following vote:

AYES:	Director Barnes, Massey, Rucker and Newcombe
NOES:	None
ABSENT:	Director Horning
ABSTAIN:	None

Dorothy E. Horton, Secretary

ORDINANCE NO. 45

AN ORDINANCE OF THE BOARD OF DIRECTORS OF CRESTLINE-LAKE ARROWHEAD WATER AGENCY AMENDING ORDINANCE NO. 44 DECLARING AN EMERGENCY WATER SHORTAGE AND ESTABLISHING A WATER CONSERVATION PROGRAM

WHEREAS, Ordinance No. 44 of the Crestline-Lake Arrowhead Water Agency establishes a water conservation program which requires the implementation of different measures and different penalties for each stage of emergency as set forth in the ordinance; and

WHEREAS, Section 8 of Ordinance No. 44 declared a Stage 1 Emergency effective as of March 1, 1991; and

WHEREAS, unusally heavy snowfall in March rendered it impossible to implement all of the measures required during a Stage 1 Emergency, and this Board of Directors has determined that the implementation of such measures should become effective as of May 1, 1991;

NOW, THEREFORE, BE IT ORDAINED by the Board of Directors of Crestline-Lake Arrowhead Water Agency as follows:

1. The text of Section 8 of Ordinance No. 44 is hereby amended to provide as follows:

This Board hereby declares a Stage 1 Emergency, effective as of May 1, 1991, thus placing into effect the provisions of this Ordinance. The Board may subsequently declare different stages of emergency without the necessity of amending the provisions of this Ordinance.

2. This Ordinance shall be effective immediately upon adoption.

ADOPTED this 4th day of April, 1991.

President, Board of Directors
CRESTLINE-LAKE ARROWHEAD WATER AGENCY

ATTEST:

Secretary, Board of Directors
CRESTLINE-LAKE ARROWHEAD WATER AGENCY

APPENDIX F

CLAWA ORDINANCE NO. 475
ADOPTING AN URBAN WATER SHORTAGE CONTINGENCY PLAN

AND

CLAWA WATER CONSERVATION PROGRAM

RESOLUTION NO. 475

RESOLUTION OF THE BOARD OF DIRECTORS OF CRESTLINE-LAKE ARROWHEAD WATER AGENCY ADOPTING AN URBAN WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, the Crestline-Lake Arrowhead Water Agency (hereinafter "Agency") provides water service directly to consumers within certain retail service areas located within the Agency's boundaries, and also provides supplemental water on a wholesale basis to other water purveyors, also located within the Agency's boundaries, for retail delivery to their own customers; and

WHEREAS, in January, 1991, the Agency adopted a water conservation program in the form prescribed and approved by the State Water Resources Control Board, in coordination with the Department of Water Resources, in order to satisfy certain conditions set forth in permits from the State Water Resources Control Board authorizing the Agency to divert and appropriate water from Houston Creek in the San Bernardino Mountains; and

WHEREAS, the water conservation program was submitted to the State Water Resources Control board in January, 1991, was approved, and is currently on file with the State; and

WHEREAS, due to the effects of the ongoing drought in the State of California, on February 14, 1991, the Agency also adopted

Ordinance No. 44, the effective date of which was subsequently amended by Ordinance No. 45 adopted on April 4, 1991, declaring a water shortage emergency and establishing a water conservation program, which remains in effect and which prohibits certain uses of water within the Agency's retail service areas and allocates the Agency's limited water supply among existing customers of the Agency; and

WHEREAS, Section 10631(e) of the California Water Code, as amended by the State Legislature in 1991, now requires the Agency to provide the Department of Water Resources with an urban water shortage contingency plan ("Plan"), and the Department of Water Resources has also requested that the Plan conform to a prescribed format; and

WHEREAS, the water conservation program adopted in January, 1991, and Ordinance Nos. 44 and 45 adopted in February and April, 1991, are both consistent with and contain many elements of the Plan and are still in effect within the Agency; and

WHEREAS, the Agency wishes the Plan to augment and become a part of the water conservation program currently on file with the State Water Resources Control Board;

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of Crestline-Lake Arrowhead Water Agency hereby approves and adopts the following Urban Water Shortage Contingency Plan:

SECTION 1. Coordinated Planning

> California Water Code Section 10620(d)(2) - Each urban water supplier shall coordinate the preparation of its Urban Water Shortage Contingency Plan with other urban water suppliers and public agencies in the area, to the extent practicable.

Crestline-Lake Arrowhead Water Agency ("CLAWA" or the "Agency") provides both wholesale and retail water service to its customers. CLAWA is one of thirty State Water Contractors in the State of California. All the water which CLAWA delivers comes from Silverwood Lake, a facility of the State Water Project.

In January 1991, the Agency coordinated with the State Water Resources Control Board and the Department of Water Resources in preparing and adopting its Water Conservation Program, which was required in order for the Agency to comply with conditions imposed on Permit Nos. 20418 and 20419 of the State Water Resources Control Board allowing the Agency to divert water from Houston Creek, when available.

In addition, the Agency also conducted a series of public meetings prior to adoption of Ordinance Nos. 44 and 45, which declared a water shortage emergency and established a mandatory water conservation program. These ordinances are currently in effect (Appendix, Exhibit A). During the adoption process, the Agency coordinated efforts with its wholesale customers. Some of the larger wholesale customers who were involved with the adoption process are:

Crestline Village County Water District
Running Springs Water District
Lake Arrowhead Community Services District (Deer Lodge Park Area)
Arrowbear Park County Water District
City of Big Bear Lake (Rimforest Division)
Valley of Enchantment Mutual Water Company
Cedarpines Park Mutual Water Company

Before adopting this Urban Water Shortage Contingency Plan ("Plan"), CLAWA's Board of Directors conducted a properly noticed public hearing on February 6, 1992, to provide for public

participation in the Plan preparation process. The final version of this Plan was reviewed and adopted by CLAWA on February 6, 1992.

SECTION 2. Past, Current and Projected Water Use (1991-94)

> California Water Code Section 10631(e)(1) - Past, current and projected water use and, to the extent records are available, a breakdown of those uses on the basis of residential single family, residential multi-family, industrial, commercial, governmental, and agricultural use.

CLAWA serves about nine percent of its water on a retail basis for residential use. Approximately eighty-two percent of its water is provided to water utilities on a wholesale basis. One percent of its water is provided for commercial activities and about six percent is delivered for governmental use. There is no agricultural use. The Agency estimates about two percent water loss. (See Appendix, Exhibit B).

CLAWA has entitlement of up to 5,800 acre feet of water annually from the State Water Project pursuant to its contract with the State of California, Department of Water Resources. In addition, in 1990, CLAWA supplemented its State Water Project supply by receiving permits from the State Water Resources Control Board to divert up to 1,302 acre feet of water annually from Houston Creek, which flows naturally into Silverwood Lake.

In 1989, the estimated permanent population in CLAWA's service area was 20,600. That number is expected to increase to 32,000 by the year 2010. (See Appendix, Exhibit C) The percentage of CLAWA's total water deliveries, by month, is illustrated in the Appendix, Exhibit D. Exhibit E in the Appendix details how many acre feet of water the Agency actually delivered in each month of 1989.

At the present time, CLAWA estimates that its minimum water budget for 1992 will total 1,950 acre feet per year. By means of extreme conservation measures and better than anticipated local production (from local mountain wells), the Agency's customers were able to use less than this minimum budget in 1991. As of the date of adoption of this Plan, the Department of Water Resources has only approved delivery of 410 acre feet from the State Water Project for all of 1992. This quantity falls far short of the minimum amount necessary for the Agency to provide an adequate water supply for basic health, sanitation and fire protection.

The Agency has contacted the Department of Water Resources to request reconsideration of its proposed delivery limit in 1992 in

order to ensure a water supply which will at least provide adequate water for health, sanitation and fire protection.

Additionally, last year the Agency was able to obtain some supplemental water from the State's Emergency Drought Water Bank. The Agency intends to seek supplemental water from this source in 1992, if necessary.

SECTION 3. Worst Case Water Supply Availability for 12, 24 and 36 Months

> California Water Code Section 10631(e)(2) - An estimate of the minimum water supply available at the end of 12, 24 and 36 months, assuming the worst case water supply shortages.

CLAWA has a contract entitlement to 5,800 acre feet of water per year from the State Water Project. However, CLAWA has experienced a cutback in deliveries from the State Water Project due to the current six-year drought. The following paragraph estimates worst case water supply availability for 12, 24 and 36 months.

As of this date, the Department of Water Resources has approved delivery of 410 acre feet for this year (20% of the Agency's requested deliveries for 1992). However, it is possible that a continued or worsening drought condition could halt all further deliveries from the State Water Project. As these deliveries normally comprise the Agency's entire water supply, such an event would force the Agency to suspend deliveries to all customers. Although some of the Agency's customers do receive a minimum amount of local production from local wells, that production is entirely dependent upon rainfall in the local mountains and does not represent a reliable permanent source. The additional water occasionally appropriated from Houston Creek is also not available during periods of drought.

However, the Agency does not believe the Department of Water Resources will leave the Agency without an adequate supply to meet minimum health, sanitation and fire protection levels. Last year, the Department of Water Resources committed to provide, through several different sources, 1,950 acre feet for the year, and the Agency anticipates a similar delivery may be available in 1992.

SECTION 4. Stages of Action

California Water Code Section 10631(e)(3) - Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

CLAWA enacted an emergency water shortage and water conservation ordinance in 1991. (Appendix, Exhibit A) That ordinance establishes emergency stages and reduction goals for both wholesale and retail customers. (See Section 6)

As currently applied, each customer's supply, wholesale and retail, is reduced by a percentage of the customer's 1990 monthly use, with the percentage decreasing for each successive stage of emergency. During a stage one emergency, presently declared, customers are limited to 95% of their 1990 consumption. Consumption in excess of that percentage during a stage one emergency is charged at twice the Agency's standard rate for such service.

For stage two through stage five emergencies, consumption in excess of the allowable quantity is subject to such surcharges as the Board may establish by separate ordinance or resolution at the time each such stage of emergency is declared by the Board. The Board anticipates imposing such surcharges on excess consumption as are necessary in order to reduce actual consumption to the quantity available.

SECTION 5. Mandatory Prohibitions on Water Use

California Water Code Section 10631(e)(4) - Mandatory provisions to reduce water use which include prohibitions against specific wasteful practices, such as gutter flooding.

In its mandatory water conservation ordinance, presently in effect, CLAWA declared that the following uses constitute waste and prohibited these uses:

1. Running water into streets or gutters.

2. Washing automobiles or equipment with running water (as opposed to use of a bucket, other container or a commercial wash establishment using recycled or reclaimed water).

3. Washing down buildings (except windows), walks, driveways or streets.

4. Sprinkling for dust control.

5. Water displays or ornamental water use (fountains, etc.) except when the display uses reclaimed or recycled water.

6. Dripping faucets, or other leaks, or unattended or excessively running hoses.

SECTION 6. Consumption Limits

California Water Code Section 10631(e)(5) - Consumption limits in the most restricted stages. Each urban water supplier may use any type of consumption limit in its Water Shortage Contingency Plan that would reduce water use and is appropriate for its area. Examples of consumption limits that may be used include, but are not limited to, percentage reductions in water allotments, per capita allocations, an increase in block rate schedule for high usage of water with incentives for conservation or restrictions on specific uses.

CLAWA has established the following allocation method for retail and wholesale customers.

STATE OF EMERGENCY DECLARED BY BOARD	PERCENTAGE OF WATER DELIVERED DURING CORRESPONDING MONTH OF BASE YEAR
STAGE 1 EMERGENCY	95%
STAGE 2 EMERGENCY	90%
STAGE 3 EMERGENCY	80%
STAGE 4 EMERGENCY	70%
STAGE 5 EMERGENCY	60%

Consumption in excess of the percentage allocated during a stage one emergency is charged at twice the Agency's standard rate for such service. For stage two through stage five emergencies, consumption in excess of the base quantity shall be subject to such surcharges as the Board may establish by separate ordinance or resolution at the time each such stage of emergency is declared by

the Board. The Board will make the surcharges as high as necessary in order to reduce actual consumption to allowable limits.

SECTION 7. Penalties or Charges for Excessive Use

California Water Code Section 10631(e)(6) - Penalties or charges for excessive use.

Surcharges

During a stage one emergency, water delivered to customers in excess of percentage allocated is subject to a charge of twice the Agency's standard rate for wholesale water in effect at the time of delivery. For stage two through stage five emergencies, water delivered for any month in excess of the applicable percentage shall be subject to such surcharges as the Board may establish by separate ordinance or resolution, at the time each such stage of emergency is declared by the Board.

Penalties

In addition to the surcharges for excess consumption, failure to comply with the provisions of CLAWA's ordinance declaring an emergency water shortage and establishing a water conservation program is a misdemeanor punishable under Section 13 of the Crestline-Lake Arrowhead Water Agency Law and under Water Code Section 377. Upon conviction of such a misdemeanor, that person shall be punished by imprisonment in the county jail for not more than thirty (30) days or by a fine of not more than One Thousand Dollars ($1,000.00), or both by such fine and imprisonment. In addition, the Agency has reserved the right to take such civil enforcement action or other action as may be available or appropriate to compel compliance with the provisions of its Ordinance, including the right to discontinue service to customers who willfully violate the provisions of its Ordinance.

SECTION 8. Analysis of Revenue and Expenditure Impacts

California Water Code Section 10631(e)(7) - Analysis of the impacts of the Plan on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

Costs of obtaining water through the Agency's contract with the State are determined by the purchase price of the water imposed by the Department of Water Resources at the point of delivery, energy costs incurred in pumping the water through the Agency's system (i.e. the energy involved in pumping the water up from Silverwood

Lake), and costs of operating and maintaining the Agency's treatment and delivery facilities.

The Agency levies a tax on all property within the Agency's service area to pay its obligations under its contract with the State of California for water deliveries through the State Water Project. This tax covers all State Water Project contract obligations whether or not water is delivered.

The Agency has a standby charge program currently in place which can be used to pay ongoing costs of administration, personnel, operation and maintenance. The Agency uses funds obtained from imposition of these standby charges to cover any shortfall which occurs when revenues from water sales do not cover all operating expenses. Thus, the Agency has a revenue program in place which will ensure that the Agency remains solvent during periods of severe water shortage when water sales are curtailed.

SECTION 9. Implementation of the Plan

California Water Code Section 10631(e)(8) - A draft water shortage contingency resolution or ordinance to carry out the Urban Water Shortage Contingency Plan.

In 1991, CLAWA adopted Ordinance No. 44, which declared a water shortage emergency and established a water conservation program. This ordinance can be found in the Appendix as Exhibit A. This plan hereby incorporates Ordinance No. 44 by reference, as amended by Ordinance No. 45 and as it may be subsequently further amended or replaced.

SECTION 10. Water Use Monitoring Procedures

California Water Code Section 10631(e)(9) - A mechanism for determining actual reductions in water use pursuant to the urban Water Shortage Contingency Plan.

The Agency reads each customer's meter monthly. The Agency then uses a computer program to compare each customer's actual consumption with the customer's allowable consumption. The Agency then imposes its surcharge on any customer whose actual consumption exceeds the allowable consumption.

SECTION 11. Plan Adoption Standards

California Water Code Section 10631(a) - Each urban water supplier shall, not later than January 31, 1992, prepare, adopt, and submit to the department an amendment to its Urban Water Management Plan which meets the requirements of subdivision (e) of Section 10631.

CLAWA prepared this Water Shortage Contingency Plan during January 1992. The Plan was adopted on February 6, 1992 (see Appendix, Exhibit F) and will be submitted to the Department of Water Resources on February 7, 1992. The Plan includes all the information necessary to meet the requirements of subdivision (e) of California Water Code Section 10631.

SECTION 12. Public Inspections and Meetings

California Water Code Section 10642 - Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

A public hearing and the availability of copies of the draft Plan were properly noticed in a newspaper of general circulation pursuant to Government Code Section 6066. Copies of the draft Plan were available for public review at CLAWA's offices. CLAWA held a public hearing on the Plan on February 6, 1992. The Plan was adopted on February 6, 1992, following the public hearing.

SECTION 13.

California Water Code Section 10656 - An urban water supplier that does not submit an amendment to its Urban Water Management Plan pursuant to subdivision (a) of Section 10621 to the Department of Water Resources is ineligible to receive drought assistance from the State until the Urban Water Management Plan is submitted pursuant to Article 3 (commencing with Section 10640) of Chapter 3.

CLAWA will submit this Plan to the Department of Water Resources on February 7, 1992.

BE IT FURTHER RESOLVED that a copy of this Resolution, and the Urban Water Shortage Contingency Plan adopted herein, shall be filed with the State Water Resources Control Board and shall augment and become a part of the water conservation program currently on file in satisfaction of conditions imposed upon Permit Nos. 20418 and 20419 of the State Water Resources Control Board.

ADOPTED this 6th day of February, 1992

Raymond B. Lucker
President of the Board of Directors, CRESTLINE-LAKE ARROWHEAD WATER AGENCY

ATTEST:
Dorothy E. Horton
Secretary of the Board of Directors, CRESTLINE-LAKE ARROWHEAD WATER AGENCY

CERTIFICATION

I, Dorothy E. Horton, Secretary of the Board of Directors of the Crestline-Lake Arrowhead Water Agency, hereby certify that the foregoing is a full, true and correct copy of the Resolution adopted by the Board of Directors of said Agency at the regular meeting of said Board held on the 6th day of February, 1992, by the following vote:

AYES: Directors Rucker, Newcombe, Massey, McCrory and Pleasant

NOES: None

ABSENT: None

ABSTAIN: None

Dorothy E. Horton, Secretary

WATER CONSERVATION PROGRAM

FOR THE

CRESTLINE-LAKE ARROWHEAD WATER AGENCY

- - - - -

SUBMITTED TO:

STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

P.O. BOX 2000

SACRAMENTO, CALIFORNIA 95810

- - - - -

January 1991

INTRODUCTION

The Crestline-Lake Arrowhead Water Agency ("CLAWA") has prepared this water conservation program pursuant to permit numbers 20418 and 20419 issued by the State Water Resources Control Board ("SWRCB"). Condition number 16 of both permits provides that CLAWA shall prepare and implement a water conservation program.

In preparing this program, CLAWA has used the "Suggested Outline for the Preparation of a Water Conservation Program: Minor Urban Water Purveyors" provided by the SWRCB, Division of Water Rights (dated September 1984). Since CLAWA directly serves water to 3,000 or fewer customers and provides 3,000 or less acre feet of water annually, it is considered a "minor" urban water purveyor for purposes of this water conservation program.

I. STATEMENT OF WATER CONSERVATION GOALS.

A. General Statement of Conservation Goals.

Since its organization in 1962, CLAWA has recognized the importance of using its water supplies efficiently and has encouraged its more than 30 wholesale purveyor customers and all of its approximately 1,000 retail customers to do the same. CLAWA's water supply is from the State Water Project ("SWP"). This water travels over 600 miles from Northern California to Silverwood Lake where CLAWA takes the water and uses four booster stations to pump the water uphill a total of 3,800 feet and through its transmission facilities located across the San Bernardino Mountains. CLAWA also holds two permits from the SWRCB to divert water from Houston Creek which flows naturally into Silverwood Lake.

Since its water travels so far, CLAWA has always viewed its water supply as a valuable resource and has concentrated its past, present and future planning efforts

on efficient management of this resource. In fact, CLAWA recently received a certificate from the Association of California Water Agencies ("ACWA") recognizing CLAWA's efforts to use its water efficiently pursuant to ACWA's "Water Management Awareness Program." A photocopy of an article from the December 24, 1990 issue of the "ACWA News" is attached as Exhibit "A" documenting that award.

B. Description of Conservation Actions.

Pursuant to the outline provided by the Division of Water Rights for the preparation of a water conservation program, "minor" urban water purveyors which supply between 2,000 to 3,000 acre feet of water annually must adopt five conservation actions. CLAWA falls within this category and will adopt the five conservation actions discussed below.

1. Water saving devices and kits.

In 1978, CLAWA purchased and distributed water conservation kits to all customers within its own retail service area. These kits included toilet displacement devices, shower flow restrictors, dye tablets for detecting leaks and water conservation pamphlets. CLAWA purchased water conservation kits again in 1988 consisting of the same materials. CLAWA distributed these kits to retail customers who could be contacted at their premises. Those who could not be contacted received notices from CLAWA that the kits were available for their use.

In addition, a kit was mailed to each of CLAWA's wholesale purveyor customers along with a notice encouraging each of them to implement similar water conservation measures

within their own retail service areas. A number of these wholesale customers obtained water conservation kits for distribution to their retail customers. In some cases, these kits were obtained from CLAWA's stockpile; in at least one case, a wholesale customer arranged separately to purchase water conservation kits from another source.

As part of this January 1991 water conservation program, CLAWA will continue to provide these water conservation kits at no charge to any interested customer. CLAWA will also send a notice to its customers periodically reminding them that these conservation kits are available.

2. Public information program.

CLAWA will also implement a public information program regarding water conservation. This program will consist of several components.

First, CLAWA will include a "fact sheet" regarding water conservation along with the water quality report it sends annually to its customers. As noted in the Department of Water Resources' "Water Conservation Reference Manual, Urban Conservation Measures" (March 1984), fact sheets are easy to update and work well for "changeable information." CLAWA's fact sheet will indicate how water users can conserve water (e.g., around the home) and will describe the measures CLAWA itself is using to conserve its overall supply.

Second, in the past, CLAWA has posted outdoor signs near public streets and roadways throughout its service area reminding its consumers to conserve water. CLAWA will refurbish and repaint these signs and will assure that the signs are placed in strategic locations.

Third, CLAWA will issue press releases on a periodic basis in the local newspaper urging water conservation and suggesting ways to reduce water use.

Fourth, CLAWA will send each customer an annual notice reminding customers to winterize their pipes to prevent breakage and leaking during the winter months. This notice will also indicate that CLAWA is entitled to shut off service to property if it suspects breaks or leaks.

3. Corrosion control.

Corrosion of water mains and pipes can eventually result in leaks and other problems. Therefore, CLAWA will include corrosion control measures in its overall water conservation program. As part of this corrosion control effort, CLAWA plans to expand and improve its treatment plant in order to meet anticipated drinking water quality requirements. The design and construction of phase 1 of this treatment plant has already been approved by CLAWA's Board. Use of this plant is expected to significantly lessen the corrosivity index of CLAWA's water.

CLAWA will also begin a program to refurbish its main line appurtenances. As part of this refurbishment, the main line appurtenances will be replaced with more corrosion resistant materials such as brass.

4. Valve exercising program.

CLAWA began a valve exercising program in 1989 by hiring a contractor to examine each valve in its wholesale distribution system and to exercise, grease and repair valves where necessary. Thus, if CLAWA has a leak problem, it will be able to isolate the problem relatively quickly to minimize water waste.

CLAWA will continue to check every valve every two to three years and will extend this program to cover inspection of retail valves as well.

5. Reclamation.

CLAWA plans to install a clarifying unit in its treatment plant to remove turbidity from the backwash water. The backwash water will then be reclaimed and recirculated back to the headwaters of the treatment plant. This new feature will require the use of a lift station which will boost backwash water up to two water storage tanks and then to the clarifying unit. Using this new clarifying unit will result in reclaiming all backwash water from the treatment plant which was previously lost.

C. Compliance Schedule Pursuant to the Terms of Water Rights Permit.

Approval of this conservation program by the end of January 1991 will satisfy condition 16 of both of CLAWA's permits (nos. 20418 and 20419). CLAWA will implement each of the conservation actions listed above pursuant to the implementation schedule described in Section VIII of this program.

II. GENERAL INFORMATION REGARDING PLACE OF USE.

A. Map.

The SWRCB, Division of Water Rights, has requested a map showing the boundaries of place of use, points of diversion and a schematic of CLAWA's water distribution system. This map is attached as Exhibit "B".

B. Characteristics of Place of Use.

The Division of Water Rights has also requested information regarding present and projected population (20 years by five year increments) and present and projected land use patterns.

The service area of CLAWA covers much of the San Bernardino Mountains. It is bounded by the City of San Bernardino on the south, the High Desert on the north, Cedarpines Park on the west, and Arrowbear/Green Valley on the east. The Agency's boundary contains about 56,000 acres, approximately one-half of which is United States Forest Service land not subject to development except for infrequent land exchange parcels converted to private ownership.

In 1989, the Agency served an estimated permanent population of 20,600. Due to a large seasonal influx, the Agency served an estimated maximum seasonal

population of 25,200. Of the estimated permanent population, about 2,600 people reside within the Agency's retail service areas, and the remaining 18,000 estimated population are provided wholesale supplemental water from CLAWA via eighteen separate retail water purveyors located within the Agency's boundary.

The present land use for the developed portions of CLAWA is primarily single-family residential, with small amounts of multiple-unit residential, camps, commercial and public authorities. There is no industrial use.

The Agency estimates that future permanent population within CLAWA may be as set forth in Table 1 below:

TABLE 1

YEAR	ESTIMATED PERMANENT POPULATION
1995	22,000
2000	26,000
2005	30,000
2010	32,000

III. PURVEYOR'S WATER RIGHTS.

CLAWA's water supply comes from the State Water Project. CLAWA takes its water from Silverwood Lake and pumps it uphill to its water storage reservoirs. CLAWA has an entitlement to 5,800 acre feet of water annually pursuant to its contract with the State. CLAWA diverts this water throughout the year.

In 1990, CLAWA supplemented its State Water Project supply by receiving appropriative permits from the State Water Resources Control Board to divert up to 1,302

acre feet of water annually from Houston Creek which flows naturally into Silverwood Lake.

CLAWA has no pre-1914, court decreed or underground water rights. All of CLAWA's water is used for municipal use.

IV. WATER CONVEYANCE AND DISTRIBUTION SYSTEM.

CLAWA diverts its water from Silverwood Lake by using four booster stations to pump the water uphill a total of 3,800 feet and through its transmission facilities across the San Bernardino Mountains. Water tanks for storage are located strategically throughout the mountains. Water is regulated through the system by meters at each purveyor's turnout and at each turnout serving a retail service area of CLAWA. A map depicting CLAWA's conveyance and distribution system is attached as Exhibit "B".

CLAWA has approximately 1,000 retail customers and more than 30 wholesale purveyor customers. CLAWA's system is completely metered.

V. WATER BUDGET ANALYSIS.

A. Monthly estimate of past, present, and projected water use showing per capita demands.

TABLE 2

YEAR	ANNUAL WHOLESALE DELIVERIES/CONSUMPTION (MILLION GALLONS/YEAR)	ESTIMATED PERMANENT POPULATION (PEOPLE)	PER CAPITA DEMAND (GAL/PERSON/YR)
1986	459.2	12,756	36,000
1989	741.6	20,600	36,000
2010	1,152.0	32,000	36,000

Table 3	
MONTH	**TYPICAL PERCENTAGE OF ANNUAL WATER USE**
January	8.3
February	7.4
March	5.2
April	7.1
May	8.4
June	9.2
July	11.9
August	11.7
September	10.7
October	7.2
November	6.1
December	6.8
ANNUAL TOTAL:	**100%**

B. Monthly breakdown of use by development category.

Section 5 of CLAWA's 1989 Annual Report to the Department of Health Services, a copy of which is attached herewith as Exhibit "C," shows a monthly breakdown of use by residential, commercial, camps, public authority, and wholesale to water utilities.

C. Present monthly water supply during average and critical years.

CLAWA's "present" monthly water supply is illustrated by State Water Project

deliveries to the Agency during 1989, which was during the third consecutive year of drought conditions in California, as shown in the following Table 4.

TABLE 4

1989	SWP DELIVERIES TO CLAWA (ACRE-FEET)
January	184
February	166
March	115
April	152
May	178
June	197
July	254
August	251
September	229
October	152
November	141
December	151
TOTAL:	**2,170 ACRE-FEET**

D. Water budget for average and critical year.

At the present time, CLAWA estimates a minimum water budget totaling 2,170 acre-feet per year. Reviewing the Agency's recent delivery records, the trend for water deliveries appears to be leveling off somewhat. Factors which may be causing a slight reduction in water deliveries are water pricing, water conservation, effects of reported inflationary recession, the Agency's appropriation of water from Houston Creek (whenever available), and the continuing effect of the Agency's

Purveyor Turnout Resolution (included in Exhibit "D" attached herewith). Factors which would have the opposite effect and perhaps cause an increase in water deliveries would be the continuation of the existing state-wide drought, and the peak winter-time demand experienced by the Agency's wholesale and retail customers caused by leaks due to freezing on the customer side of residential meters.

E. Present and projected water supply deficiencies.

In general, CLAWA has been fortunate not to have suffered major deficiencies in its water supply program in the past. Since CLAWA obtains the majority of its water supply from the State Water Project, it has been able to provide its users with a steady and stable source of water without deficiencies thus far. All of CLAWA's supplies are for municipal purposes, so past deficiencies in deliveries of agricultural water from the State Water Project have not seriously impacted CLAWA.

CLAWA supports the Department of Water Resources' ("DWR") efforts to complete State Project facilities so that full entitlements can be delivered to all state contractors. In the event that there may be future deficiencies imposed by lack of rainfall or by DWR in its operations of the State Water Project, CLAWA proposes to allocate water deliveries to existing wholesale purveyors based upon historic use, with each wholesale purveyor receiving the same percentage cutback in deliveries. CLAWA also proposes to aggressively enforce water conservation measures imposed on CLAWA's own retail customers as described in this program.

VI. WATER MANAGEMENT PRACTICES.

A. Existing Water Conservation Actions, Ordinances, or Practices Within the Service Area.

As noted above, CLAWA recently received a certificate from the Association

of California Agencies ("ACWA") recognizing CLAWA's efforts to conserve water. All of CLAWA's existing water conservation actions, ordinances and practices within its service area are outlined in CLAWA's application for this certificate. Rather than repeating this information, CLAWA has attached its application materials as Exhibit "E."

B. Existing and Projected Water Prices and Rate Structure.

Pages 2 through 8 of the attached Exhibit F detail CLAWA's existing wholesale and retail water rates effective 7-1-90, and for comparison purposes also show the now superseded rates effective 7-1-89. Note, for example, that the present rate for purveyor wholesale (PE 3) is $695.00 per acre-foot, and that many retail, residential current rates (RL 1, etc.) are equivalent to $1,372.14 per acre-foot.

Enclosed as Exhibit "G" are copies of letters from the Agency's consulting engineers to CLAWA dated 1-23-90 and 9-7-90 regarding analysis of CLAWA's rates for wholesale water, including the following cost components: purchased water cost (DWR charge), power costs for pumping, water treatment cost, and transmission and distribution costs. Note that power cost for pumping makes up about 61% of the wholesale water rate.

Depending upon future costs for power for pumping, and other applicable cost components, projected water rates may increase significantly over present water rates.

C. Estimate of Present Unaccounted for Water.

Referring to Exhibit "C" herein, for the year 1989, CLAWA's annual water production totaled 741.59 million gallons, and the annual metered deliveries to wholesale and retail customers totaled 716.06 million gallons; indicating a 3.44% water loss (unaccounted for water).

D. Potential Cost Effective Water Conservation Actions Proposed to Alleviate Shortages, Deficiencies, or Growth Induced Demands.

All cost effective water conservation actions that CLAWA currently proposes to implement pursuant to the conditions of its water rights permits are set forth above. With regard to potential cost effective conservation actions, CLAWA is contemplating the implementation of a mandatory water conservation program which would contain disincentives designed to reduce water consumption.

VII. IMPLEMENTATION SCHEDULE.

A. Measure 1 (Water saving devices and kits): Implementation to begin immediately.

B. Measure 2 (Public information): Implementation to begin immediately.

C. Measure 3 (Corrosion control): Implementation to begin immediately.

D. Measure 4 (Valve exercising program): Implementation to begin immediately.

E. Measure 5 (Reclamation): Implementation to be completed before the end of 1992.

ACWA NEWS

Association of California Water Agencies
Since 1910

Vol. 18, No. 26

December 24, 1990

17 Districts Awarded Water Management Certification

ACWA awarded water management certification to 17 water districts for positive water managing achievements and a long-standing commitment to efficient water use.

The awards were presented during the association's fall conference in Palm Springs, November 28-30. Recipients of the award, administered annually by ACWA, have implemented a variety of water management measures. A total of 114 ACWA member districts have received the certification since the program began in 1985.

"California's water districts strive to make the most efficient use of water," ACWA Executive Director John P. Fraser said. "Our certification process is an important part of recognizing efforts that make a difference."

Agencies receiving certification include: Borrego Water District, San Diego County; Cawelo Water District, Kern County; Crestline-Lake Arrowhead Water Agency, San Bernardino County; Descanso

(See WATER MANAGEMENT, page 3)

ACWA Offers Board Members Seminar Feb. 8

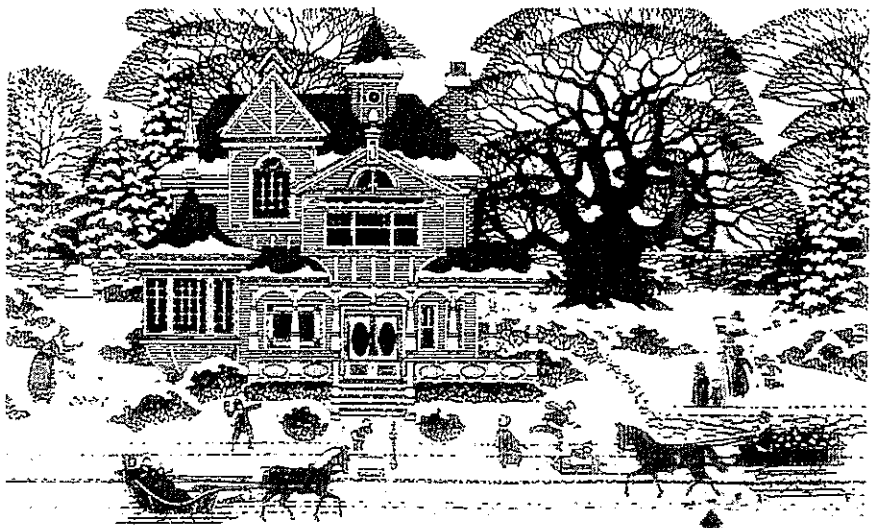
AN ACWA seminar outlining the role of the board member and the responsibilities included in this elected position will be held February 8, 1991, at the Hyatt Regency at the San Francisco Airport.

This all-day *"Board Members' Roles and Responsibilities"* seminar will help to:

- Make less overwhelming the requirements of laws and regulations on local government officials;
- Provide elected directors with an awareness of basic legal requirements; and

(See ACWA SEMINAR, page 3)

Happy Holidays



INSIDE:

WATER MANAGEMENT

(Continued from front page)

Community Water District, San Diego County; El Toro Water District, Orange County; Georgetown Divide Public Utility District, El Dorado County; Gravely Ford Water District, Madera County; Indian Wells Valley Water District, Kern County; and Kings River Conservation District, Fresno County.

Also receiving the award were Laguna Beach County Water District, Orange County; Lincoln Avenue Water Company, Los Angeles County; Lost Hills Water District, Kern County; Reclamation District #999, Yolo County; San Juan Suburban Water District, Placer County; Southern San Joaquin Municipal Utility District, Kern County; Summerland County Water District, Santa Barbara County; and Yuima Municipal Water District, San Diego County.

ACWA SEMINAR

(Continued from front page)

▲ Define the various roles and responsibilities facing directors as they strive to serve the public.

Several topics already on the agenda are: *"Conducting and Participating in Effective and Efficient Meetings," "You and the Fair Political Practices Commission (FPPC)," "How Directors and Managers Can Work More Effectively Together," "Board Members' Roles in Policy Development and Implementation," "The Brown Act,"* and *"Directors' Issues: Compensation, Ethics."*

Pre-registration cost for ACWA members is $100; non-members, $200. On-site cost for members is $125; non-members, $250. Pre-registration closes January 31. A brochure describing this seminar was mailed last week. If you didn't receive one and would like a copy, please call the ACWA office.

ACWA Offers Information on Written Injury Prevention Program

IN 1989, legislation (Senate Bill 198) passed which requires every employer to have a written injury prevention program by January 1, 1991. If your district does not yet have a written program or if you have questions regarding the requirements, information is available through the ACWA office.

The materials include a copy of the law, samples of written programs, checklists for putting together your program, and employee safety training. Telephone numbers for free consultation services through the California Occupational Safety and Health Administration (CAL/OSHA) are also included. If you would like an information packet, please call the ACWA office.

(Articles on SB 198 have been included in past issues of *ACWA News*. Please see page 11 of the October 29 issue and page 3 of the April 30 issue.)

Crestline-Lake Arrowhead
Water Agency
Roxanne Holmes
P. O. Box 3880
Crestline, CA 92325

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

URBAN WATER UTILITY STATISTICS

CALENDAR YEAR: 1989

SERVING CITY(IES) OF:

COUNTY OF: San Bernardino

SYSTEM NAME:

1. CLASSIFICATION AND NUMBER OF ACTIVE ACCOUNTS: Wholesale & Retail Outside of ID's

	~~INSIDE CITY LIMITS~~		~~OUTSIDE CITY LIMITS~~ ID's	
	FLAT-RATE	METERED	FLAT-RATE	METERED
RESIDENTIAL		5		913
COMMERCIAL		5		154
~~INDUSTRIAL (MFG.)~~ Camps		6		0
PUBLIC AUTHORITY		8		0
OTHER (Specify) Water Utilities (Whsle		18		0
TOTAL		42		1067

2. RESIDENTIAL:
PLEASE INDICATE: (a) Number of single family dwellings you serve 25 est.
(b) Number of all other dwelling units you serve (Retail) 946

3. ESTIMATED RESIDENT (PERMANENT) POPULATION SERVED:
~~INSIDE CITY LIMITS~~ Whsle & Retail Outside of ID's 18,000 est.
~~OUTSIDE CITY LIMITS~~ ID's 2,600

4. MONTHLY WATER PRODUCTION: 1/ (In millions of gallons)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR TOTAL
WATER INTO SYSTEM (Tower)	61.25	55.07	38.45	51.81	62.56	68.10	87.97	86.67	79.50	53.11	46.92	50.18	741.59
WASTE WATER RECLAMATION	0	0	0	0	0	0	0	0	0	0	0	0	0

1/ Because of normal system losses "Water Production" will be greater than "Total Delivered".

5. METERED DELIVERIES: (In millions of gallons)

RESIDENTIAL													
~~Apartments (Multiples)~~	6.37	5.08	4.23	5.86	7.40	7.65	8.03	7.34	10.1	5.75	4.80	4.42	77.03
~~Single Family~~	–	–	–	–	–	–	–	–	–	–	–	–	–
COMMERCIAL	0.027	0.021	0.021	0.038	0.059	0.045	0.14	0.17	0.10	0.060	0.096	0.087	0.86
~~INDUSTRIAL (MFG.)~~ (CAMPS)	0.24	0.047	0.48	0.54	1.23	1.76	1.93	2.33	1.13	0.52	0.20	0.15	10.56
PUBLIC AUTHORITY	1.44	1.08	1.33	2.78	5.53	4.94	6.17	5.74	5.85	4.12	1.26	1.06	41.3
OTHER WHSLE (WATER UTILITIES)	56.4	47.2	37.3	40.5	51.7	53.7	68.6	62.2	54.5	43.4	36.3	34.5	586.3
TOTAL DELIVERED 1/ (Your Service Area)	64.48	53.43	43.36	49.72	65.92	68.09	84.87	77.78	71.68	53.85	42.66	40.22	716.06

6. DELIVERY(IES) TO OTHER AGENCY(IES): X Yes ___ No NAME(S) OF AGENCY(IES): See Attachment 1

7. UNUSUAL EVENT, (i.e., annexation, major price change, new industry, etc.): None

8. DO YOU READ METERS MONTHLY X BIMONTHLY ___ OTHER

NAME, TITLE AND PHONE NUMBER OF OFFICIAL RESPONSIBLE FOR DATA: See Attachment A Webb Associates (714) 686-1070

3. Purveyors are prohibited from using any device which would alter the rate of flow through the connection such as automatic valves, altitude valves, manual valves or other devices. Any purveyor that violates this provision is subject to an additional charge for water delivered during the period of this violation. A purveyor also has 30 days to remove the device after receiving written notice or the General Manager can terminate water service to that purveyor. Water service will not be resumed until the purveyor demonstrates its ability and willingness to comply with the Resolution.

4. Each purveyor must monitor the rate of flow through each of its connections and must advise CLAWA at least twice each month if it wishes to continue its current rate of flow or wishes to adjust the flow. This provision places a certain amount of responsibility on each purveyor to manage its own allocation of water. Moreover, at least once a month, CLAWA will examine each purveyor connection to ensure that it is flowing water at the intended rate.

e. Water Conservation Kits

In 1978, CLAWA purchased and distributed water conservation kits to all of the customers within its own retail service areas. These kits included toilet displacement devices, shower flow restrictors, dye tablets for detecting leaks, and water conservation pamphlets.

CLAWA again purchased water conservation kits in 1988 consisting of the same materials. CLAWA distributed the kits in 1988 to retail customers who could be contacted at their premises. Those who could not be contacted received notices from CLAWA that the kits were available for their use. In addition, a kit was mailed to each of CLAWA's wholesale purveyor customers along with a notice encouraging each of them to implement similar water conservation measures within their own retail service areas. A number of these wholesale customers obtained water conservation kits for distribution to their retail customers. In some cases, these kits were obtained from CLAWA's stockpile; in at least one case, a wholesale customer arranged separately to purchase water conservation kits from another source.

CLAWA continues to provide water conservation kits at no charge to any interested customer.

f. Metering/Monitoring Quantity

All of CLAWA's customers, whether retail or wholesale, are provided water through meters which are regularly serviced and replaced as necessary to ensure the accurate recording of water quantity delivered. Moreover, CLAWA'S rate structure is based upon the quantity of water delivered, not upon a flat rate regardless of quantity delivered.

CLAWA's customers and purveyors already use their water in an extremely efficient way compared to other

areas. CLAWA's annual average water consumption is 160 gallons per connection per day. In other areas of California, water agencies are attempting to reduce their water consumption down to 250-300 gallons per connection per day. For example, the attached news article (Exhibit "D") indicates that the City of Ventura's water rationing ordinance limits each household to 294 gallons per day.

CLAWA's water rates are also extremely high compared to other areas. This rate structure contributes to efficient water use within its service area. CLAWA's rates are as follows:

- Purveyor/wholesale: $695/ acre foot
- Residential/retail: $1,372/acre foot
- Construction: $2,614/acre foot

g. System Maintenance

CLAWA keeps its service facilities in excellent condition so as to transport its water efficiently and without leakage. CLAWA's system as a whole is relatively new. The oldest portion of the retail system is only 12 years old and the wholesale system is only twenty years old.

Whenever requested to take over the operation of any retail system, CLAWA has required the users of that system to have financing in place to improve and refurbish the system. CLAWA will not provide service to those users until the retail system has been refurbished to excellent working condition. In this way, CLAWA can provide its high level of service to new retail users without disruptions or leaks.

6. Describe and Evaluate Alternative Water Management Measures.

Describe alternative water management measures evaluated which could improve the efficiency of water used by your agency, with an evaluation of the costs of these measures and other significant impacts, such as environmental, social, health, customer impact and technological factors.

There are certain alternative water management measures which could improve the efficiency of water use by CLAWA. One such measure would be for CLAWA to mandate the measures set forth in Ordinance No. 13, discussed above, which are currently voluntary. CLAWA could also reinstitute the misdemeanor provision in effect for Ordinance No. 11 prior to its amendment, and could update water conservation plans to better cope with the current drought. CLAWA could also better educate the public with press releases, customer meetings and public forums.

Because the Department of Water Resources could impose cutbacks in the delivery of State Project water for municipal and industrial uses, CLAWA has been contemplating an allocation program based on historic use. CLAWA would allocate a certain amount of water for each purveyor based on its historic use and would require each purveyor to reduce its water use by a certain percent. The burden would then be placed on each purveyor to reduce water consumption within its own retail service area in order to meet these reductions. CLAWA would also impose these cutbacks on its own retail improvement districts.

As noted above, CLAWA's system is well-maintained and is still relatively new. However, CLAWA's Board is currently studying the implementation of a leak detection program for its meters and other system appurtenances. The Board is also working on a rehabilitation program under which certain components of CLAWA's system would be refurbished as required on a priority basis.

All of the above described alternative water management measures are quite feasible from a cost and technological perspective. None of the measures would require building new facilities or implementing costly programs. (See infra Section 8.)

Moreover, none of the measures would cause significant environmental, social, or health impacts. The quality of CLAWA's water would not be affected. The measures would not place hardship on any purveyors or customers or displace any of CLAWA's employees.

Other water management measures would not be as effective in CLAWA's service area. For example, CLAWA has not found it necessary to impose restrictions on new development or landscape irrigation. Because of the geography of the San Bernardino Mountains, large-scale housing developments are not possible. New development occurs on a relatively small scale and the benefits of requiring conservation devices in these few homes would be minimal. Also as discussed in detail later, the residents

in CLAWA's service area do not usually landscape their property; thus, imposing limits on water use for landscaping is not necessary. There are also no industrial users in CLAWA's service area which tend to consume more water than municipal users.

7. Water Management Measures Anticipated to Be Practiced.

Measure Expected Implementation Date Cost

Please see responses to Item 6 and see below.

What changes in quantity of water use are expected from the listed "anticipated practices?"

Explain:

Precise implementation dates and costs for each measure have yet to be determined. As specific programs are authorized by the Board, a timetable and financial analysis will be prepared.

8. Describe the evaluation of the financial feasibility of the proposed measures.

In CLAWA's estimation, the proposed measures for water management are financially feasible. None of the proposed measures would be costly to implement. More aggressive enforcement of Ordinance No. 13 would require only that CLAWA personnel make surveys of water use in their area.

Likewise, requiring each purveyor to reduce its water use would not be costly. CLAWA already monitors the quantity of water delivered to each purveyor, and already imposes restrictions on the rate of flow that may be delivered. It would be quite easy and inexpensive to limit total quantity as well.

As for the cost of press releases, public forums and meetings with customers, the only expense would be the resulting staff time and professional consultant time involved.

9. Describe your public involvement procedures.

CLAWA maintains an excellent rapport with the local media, and in times of crisis has always been able to count on the media to deliver important messages to the residents of the San Bernardino Mountains. In the past, CLAWA has issued press releases which have succeeded in reaching most of CLAWA's customers. In addition, CLAWA's Board of Directors has conducted workshops with the public to discuss issues of concern. CLAWA's Board already meets publicly at least once each year with all of its wholesale purveyor customers to review their compliance with CLAWA's Rules and Regulations affecting turnout operations. The Board would not hesitate to conduct similar meetings in the future if warranted by the circumstances.

10. Describe the evaluation of the public's acceptance of the proposed measures.

In CLAWA's opinion, its water purveyors and water users would react positively to implementation of the proposed water management measures. As discussed above, CLAWA serves water users in the San Bernardino Mountains. There is a high energy cost associated with importing water pursuant to the State Water Project since this water must be lifted from Silverwood Lake (elevation 3,355 feet) to an elevation of about 7,155 feet at Green Valley. Thus, the price of water is very high compared to other State Water Project contractors (currently $695 per acre foot for wholesale deliveries). As a result, CLAWA's water users are acutely aware that water is a precious commodity in this area. Measures which would assist in using this water more wisely and more efficiently would be accepted positively by the great majority of the water users in this area.

Moreover, the public is well aware of the fact that we are currently in the fourth year of a statewide drought. This drought has heightened the importance of using water efficiently within CLAWA's service area. It is now becoming widely accepted that management strategies must be implemented to maximize the long-term use of any water supply.

Further, none of the proposed measures is particularly draconian and none would pose a great hardship for CLAWA's water users. Unlike some areas of Southern

California, most people in the Crestline-Lake Arrowhead area do not landscape their property. The natural vegetation in the mountains is very picturesque and most people who live there choose not to alter the natural vegetation on their property. As a result, it is not necessary for people to give up the watering of their lawns or ornamental plants with the implementation of these management measures.

11. Additional Comments.

CLAWA appreciates the opportunity to present its water management practices and goals to ACWA. CLAWA looks forward to continuing to serve its water users in an efficient manner and will continue to implement new programs which will help it to maximize its water supplies.

Exhibit A

R U L E S

A N D

R E G U L A T I O N S

(As Amended February 7, 1980)
(As Amended July 3, 1980)
(As Amended October 2, 1980)
(As Amended May 13, 1982
(As Amended August 1, 1985)
(As Amended February 4, 1988)
(As Amended July 7, 1988)
(As Amended April 27, 1989)
(As Amended July 12, 1989)

CRESTLINE-LAKE ARROWHEAD WATER AGENCY

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EXHIBIT "A"

CHAPTER III

GENERAL PROVISIONS

3.01. Effective Date. These Rules and Regulations shall become effective July 1, 1971, and shall remain in effect until amended or repealed by the Board.

3.02. Authority of Manager. The General Manager may prescribe and enforce any policies, rules, or regulations not in conflict or inconsistent with these Rules and Regulations which are necessary to implement the provisions hereof.

3.03. Effect of Rules and Regulations. All water supplied or made available by the Agency shall be subject to these Rules and Regulations, and any amendments thereto, and to rates and charges adopted by the Agency. Any person may review these Rules and Regulations, upon request, and may obtain a copy upon payment of the Agency's charge for reproduction. Each water user shall accept service upon the terms set forth herein and shall abide by these Rules and Regulations, including any amendments which may from time to time be adopted by the Board. The Agency may discontinue water service for failure to comply with or abide by such Rules and Regulations.

3.06. Right to Suspend Service Temporarily. The Agency, whenever it shall find it necessary for the purpose of making repairs or improvements to its system, shall have the right to suspend temporarily the delivery of water, but in all such cases, the Agency shall attempt to provide affected water users with such notice as may be reasonable under the circumstances, and the making of such repairs or improvements shall be accomplished as rapidly as feasible.

3.07. Water Quality. The quality of the water supplied by the Agency depends upon the quality of the supply received from the State of California, except as modified by the Agency's treatment and distribution. The Agency will attempt to provide a safe and potable supply of water, complying with all Health Department requirements, but cannot guarantee any particular quality.

3.08. Shortage. To the extent permitted by law, the Agency shall have the power to allocate its available supply, in the event of any emergency or water shortage, on such basis as it determines to be equitable and in the best interests of all concerned.

3.09. Responsibilities of Water User. Once the Agency has delivered water into the mains or system of any water user, the Agency shall have no responsibility or liability for any loss, damage, or personal injury to the prop-

meters, valves, or any other parts of the Agency water system, shall be liable to the Agency for all costs or damages incurred by the Agency in making such changes and repairs.

3.12. Changes in Water User's Equipment. Water users who wish to make any material change in the size, character, or extent of the equipment or operations utilizing water service, or whose change in operations will result in an increase in the use of water, shall apply to the Board for approval of the change in service conditions. The Board may deny approval, or may impose conditions which the Board deems necessary to protect the integrity of the Agency's system.

3.13. Unauthorized Use of the Agency's Water System and Waste of Water. It shall be a violation of these Rules and Regulations:

(a) To tap or make any connection into the Agency's mains or into any public or private fire-protection services;

(b) To open the valve or extract water from fire hydrants or other Agency facilities except for the suppression of fire, or except when written consent is given by the Agency for temporary construction water use;

(c) To cause or permit the waste of water from the Agency's water system or to maintain or cause

or permit to be maintained any leaky outlets, apparatus, or plumbing fixtures through which water is permitted to drop or run to waste;

(d) To cause or permit the overflow of water storage reservoirs.

3.14. Service to Property Not Subject to Agency Taxes. Water supplied to the following properties shall be furnished at special rates reflecting insofar as possible both the actual cost to the Agency of delivering such water and the tax revenues which would accrue to the Agency if the property served were subject to taxation:

(a) The Forest Service or any other agency of the United States;

(b) The State of California or any of its political subdivisions;

(c) Other public agencies for use on their own property;

(d) Any property exempt from ad valorem taxation.

3.15. Service Outside Agency Boundaries. Part of the Agency's costs are paid by taxation upon the property within its boundaries. For that reason, the Agency shall not provide water service outside its boundaries, except as permitted by law and by the Agency's contract with the State of California, Department of Water Resources, and with the express approval of the Board determining the terms and

Exhibit B

ORDINANCE NO. 13

AN ORDINANCE OF THE BOARD OF DIRECTORS OF CRESTLINE-LAKE ARROWHEAD WATER AGENCY CONTINUING AGENCY WATER CONSERVATION PROGRAM ESTABLISHED BY ORDINANCE NO. 11 AND AMENDING SAID ORDINANCE TO PERMIT USE OF WATER FOR CONSTRUCTION ACTIVITIES

WHEREAS, on June 2, 1977, the Board of Directors of the Crestline-Lake Arrowhead Water Agency ("Agency") adopted Ordinance No. 11 establishing a water conservation program restricting or eliminating certain water uses; and

WHEREAS, paragraph 8 of said Ordinance provides that in September of 1977, this Board will determine whether to continue the program in its present form, to amend it, or to make it mandatory in all respect; and

WHEREAS, this Board has reviewed said Ordinance and has determined to continue the voluntary water conservation program provided therein, and has further determined to amend said Ordinance to permit the use of water for construction activities;

BE IT ORDAINED by the Board of Directors of Crestline-Lake Arrowhead Water Agency as follows:

EXHIBIT "B"

1. Ordinance No. 11 shall be and is hereby amended by deleting paragraphs 4 and 7 thereof.

2. Said Ordinance as amended shall remain in full force and effect, and in May of 1978 this Board will determine whether to continue the water conservation program provided for therein, amend it, or to make it mandatory in all respects.

ADOPTED this 1st day of September, 1977.

President of the Board of Directors
of Crestline-Lake Arrowhead Water
Agency

ATTEST:

Secretary of the Board of Directors
of Crestline-Lake Arrowhead Water
Agency

I HEREBY CERTIFY that the foregoing Ordinance was duly and regularly adopted and passed by the Board of Directors of Crestline-Lake Arrowhead Water Agency at a regular meeting held on the 1st day of September, 1977, by the following vote of the members thereof:

AYES:

NOES:

ABSENT:

ABSTAINED:

Secretary of Crestline-Lake
Arrowhead Water Agency

ORDINANCE NO. 11

AN ORDINANCE OF THE BOARD OF DIRECTORS OF CRESTLINE-LAKE ARROWHEAD WATER AGENCY ESTABLISHING AGENCY WATER CONSERVATION PROGRAM RESTRICTING OR ELIMINATING CERTAIN WATER USES

WHEREAS, a serious drought now exists in parts of this State; and

WHEREAS, water supplies within the Agency are threatened and a water shortage presently exists here; and

WHEREAS, this Board of Directors has determined that current water conservation efforts must be continued and intensified to meet the emergency that now exists; and

WHEREAS, this Ordinance is enacted pursuant to Article 14, Section 3 of the California Constitution; California Water Code Sections 350-358; Sections 11(13) and 11(14) of the Agency's Principal Act; and Section 3.08 of the Agency's Rules and Regulations;

BE IT ORDAINED by the Board of Directors of Crestline-Lake Arrowhead Water Agency as follows:

1. This Board finds that a drought emergency and an existing water shortage exists and requires the enactment and enforcement of this Ordinance.

2. Water use by water purveyors within the Agency and by Agency residents and taxpayers must be curtailed. This Board is attempting by this Ordinance to establish a series of water use restrictions which will be carried out in the main by voluntary efforts. If however such a voluntary

program does not result in curtailed water use, this Board is prepared to enact a totally mandatory water conservation program and to invoke the criminal misdemeanor provisions of Water Code Appendix Section 104-13.

3. The Agency water conservation program shall be:

A. All nonessential water use, and water waste, should stop immediately.

B. All Agency water users should cut water consumption by 10 percent per month.

C. The following uses or practices should stop immediately:

Running water into streets or gutters;

Washing automobiles or equipment with running water (as opposed to use of a bucket or other container);

Washing down buildings (except windows), walks, driveways or streets;

Sprinkling for dust control;

Water displays or recreation (fountains, wading pools, children running through the sprinklers and the like);

Dripping faucets;

Leaks of any sort;

Excessive running of water for any domestic use.

4. In addition to the voluntary restrictions set forth in the Agency water conservation program above, the following uses are hereby found to be nonessential and are hereby prohibited:

A. Use of water for construction activities such as trenching, drilling or compacting, flushing culverts or pipes, or washing cement barrels or trucks. This prohibition does not prevent use of water for testing purposes or for dust control purposes in connection with construction activities.

5. This Ordinance shall be in full force and effect immediately upon its adoption.

6. The Secretary shall publish this Ordinance once in The Timberline Journal, a newspaper of general circulation printed, published and circulated within the Agency. Such publication shall occur within 10 days after adoption of this Ordinance.

7. Any violation of Section 4 of this Ordinance is a misdemeanor pursuant to Section 13 of the Agency's Principal Act, and pursuant to such section any person, firm or corporation convicted thereof shall be punished by being imprisoned in the County Jail for not more than 30 days or by fine of not more than $300, or by both such fine and imprisonment.

8. The General Manager shall report periodically to this Board on the results of the Agency water conservation program, and in September of 1977 this Board will determine whether to continue the program in its present form, to amend it, or to make it mandatory in all respects.

ADOPTED this 2nd day of June, 1977.

President, Board of Directors
Crestline-Lake Arrowhead Water Agency

ATTEST:

Secretary
Crestline-Lake Arrowhead
Water Agency

I hereby certify that the foregoing Ordinance was duly and regularly adopted and passed by the Board of Directors of Crestline-Lake Arrowhead Water Agency at a regular meeting held on the 2nd day of June, 1977, by the following vote of the members thereof:

AYES:
NOES:
ABSENT:
ABSTAINED:

Secretary of Crestline-Lake Arrowhead
Water Agency

Exhibit C

RESOLUTION NO. 443

RESOLUTION OF THE BOARD OF DIRECTORS
OF THE CRESTLINE-LAKE ARROWHEAD WATER AGENCY
REVISING OPERATIONAL PROCEDURES AND CRITERIA
FOR USE OF PURVEYOR TURNOUTS

WHEREAS, Resolution No. 435 of the Crestline-Lake Arrowhead Water Agency was adopted in 1989 to set forth the Agency's operational procedures and criteria for use of purveyor turnouts for fiscal year 1989-90; and

WHEREAS, upon review, this Board of Directors finds that the operational procedures and criteria have been effective in accomplishing the objectives which prompted the adoption of Resolution No. 435; and

WHEREAS, pursuant to Resolution No. 435, it is also incumbent upon the Board at this time to adjust flow rates to reflect actual consumption during the previous year;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Crestline-Lake Arrowhead Water Agency that effective July 1, 1990, the following operational procedures and criteria shall apply to water service from the Agency's purveyor turnouts:

1. Agency meters at purveyors' turnouts shall not be operated at less than the rates of flow set forth on Exhibit "A" attached hereto and incorporated herein, which shall be the minimum flow rates which this Board of Directors deems practical for each type and size of meter used for purveyor connections.

2. During any fiscal year, the Agency shall not deliver water to any purveyor at any metered turnout at a rate of flow which exceeds the highest average rate of flow either delivered by the Agency through that meter or calculated by the Agency to have been delivered through that meter during any consecutive seven (7) day period (168 hours) during the immediately previous calendar year (excluding from the calculation any excess flows permitted by the Agency on an emergency basis or to prevent hardship during

any such seven day period), rounded either up or down, at the option of the Agency, to the nearest five (5) gallons per minute for 2-inch meters and to the nearest ten (10) gallons per minute for larger meters. In the event that a new or existing purveyor did not take delivery of any water through a meter during the previous calendar year, the Agency shall establish the maximum rate of flow that may be delivered through each such meter for each fiscal year. For the fiscal year beginning July 1, 1990, the maximum rates of flow that may be delivered by the Agency through each of the Agency's purveyor connections have been calculated and shall be those set forth on Exhibit "B" attached hereto and incorporated herein. The Board of Directors, in its discretion, may adjust the maximum permissible rate of flow upward or downward upon a showing of significant change in the purveyor's service requirements or in the availability of alternative water supplies relied upon to satisfy such service requirements.

3. Each purveyor shall be entitled to four (4) adjustments per connection per month without additional charge by the Agency, provided that such adjustment occurs during the Agency's normal business hours, and further provided that subject to the provisions of Section 7 of this Resolution, a purveyor may apply the aggregate total number of such adjustments each month to any one or more of the purveyor's connections as that purveyor might select. There will be a charge of $50 per adjustment for each adjustment of a purveyor's connection at the instance and request of the purveyor in excess of the aggregate total number permitted herein, provided that each such adjustment occurs during the Agency's normal business hours. There will be a charge of $100 per adjustment for any adjustment by Agency personnel at the instance and request of the purveyor which is performed outside of the Agency's normal business hours or which is provided as an emergency request with less than the twenty-four (24) hour notice required by the Agency's Rules and Regulations, regardless of whether any adjustments have been made previously during the month. For purposes of this Section, the term "turnout adjustment" shall include the Agency's on-site visit required by Section 7 of this Resolution.

4. The minimum permissible change in the rate of flow through any purveyor connection shall be five (5) gallons per minute for a 2-inch meter, and ten (10) gallons per minute for any meter larger than 2-inch; provided, however, that any change in

the rate of flow may be limited as necessary to comply with Sections 1 and 2 of this Resolution.

5. A purveyor may not use any devices on the purveyor's side of the connection designed to alter the rate of flow through the connection. Devices which may not be used in this manner shall include automatic valves, altitude valves, manual valves, and any other devices which may be used to vary the rate of flow through a purveyor turnout. Any purveyor that violates this provision shall be subject to an additional charge of $0.05 per cubic foot of water delivered during the period of the violation, which shall be an additional charge for utilizing capacity in the Agency's facilities to meet its peak demands. Upon discovery that a purveyor has installed any device prohibited by this Section, the General Manager shall give the purveyor thirty (30) days written notice to remove the illegal device. If the device has not been removed within thirty (30) days after delivery of such notice, the General Manager shall terminate water service to that purveyor, and shall not resume such service until the purveyor can demonstrate its ability and willingness to comply with this Resolution and the Agency's Rules and Regulations.

6. The requested rate of flow through a purveyor connection may not be altered or terminated for a period of at least twenty-four (24) hours following a requested turn-on or adjustment.

7. At least once during the first half of each month and once during the second half of each month, each purveyor shall review the rate of flow through each of its connections and advise the Agency if it wishes to continue that same rate of flow or adjust the flow through that connection upward or downward. Regardless of whether the purveyor requests a change in the rate of flow through each such connection, at least once each month the Agency shall examine each purveyor connection to ensure that it is actually flowing water at the intended rate, and such examination shall constitute a turnout operation for purposes of Section 3 of this Resolution.

8. Except as otherwise provided in Section 3, a purveyor shall not register with the Agency more than one (1) request per turnout per day, with each such request

involving no more than one (1) turn-on and one (1) turn-off no less than twenty-four hours thereafter.

9. Each request for water service through a purveyor turnout, or for a change in the rate of flow through a purveyor turnout, must state the requested rate of flow in gallons per minute and the total requested delivery of water in gallons.

10. The Agency's General Manager may temporarily relieve any purveyor of any of the operational procedures and criteria set forth herein as she deems necessary, in her sole discretion, to cope with temporary hardship or emergency. However, each such event shall be reported to the Agency's Board of Directors at its next subsequent meeting. Any other exception to these operational procedures and criteria must be granted by the Agency's Board of Directors, and may be granted only upon a presentation of conclusive evidence that the purveyor has commenced and is diligently pursuing the measures necessary to achieve compliance with this Resolution and the Agency's Rules and Regulations.

11. As of July 1, 1990, this Resolution shall supersede the provisions of Resolution No. 435. The provisions of this Resolution shall be supplementary to, and shall not be deemed to replace or supersede, the provisions of the Agency's Rules and Regulations, as amended from time to time.

ADOPTED this 26th day of February, 1990.

President, Board of Directors
CRESTLINE-LAKE ARROWHEAD WATER AGENCY

ATTEST:

Secretary, Board of Directors
CRESTLINE-LAKE ARROWHEAD WATER AGENCY

APPENDIX G

Summary of Recent Factors Affecting State Water Project Supplies

RECENT FACTORS AFFECTING SWP SUPPLIES

Since the last round of Urban Water Management Plans (UWMPs) were prepared in 2005, the California Department of Water Resources (DWR) has twice updated its State Water Project (SWP) Delivery Reliability Report. In each of its updates, DWR has projected further reductions in average SWP water deliveries than were projected in 2005. The 2009 Report is the most recent update, and identifies several emerging factors that have the potential to affect the availability and reliability of SWP supplies. Although the 2009 Report presents an extremely conservative projection of SWP delivery reliability, particularly in light of events occurring since its release, it remains the best available information concerning the SWP. Following is information and a brief summary of several factors identified in the 2009 Report having the potential to affect the availability and reliability of SWP supplies.

New U.S. Fish and Wildlife Service Biological Opinion for Delta Smelt and Related Litigation Matters

SWP operations have been challenged in connection with potential impacts to the delta smelt, a small fish that resides only in the Delta and is protected under CESA and the ESA. In February 2005, the United States Fish and Wildlife Service (FWS) issued a "no jeopardy" determination and biological opinion (B.O.) analyzing potential impacts to the delta smelt in connection with the long-term coordinated operations of the California State Water Project (SWP) and the federal Central Valley Project (CVP) through the year 2030. The project/action evaluated in the B.O., formally known as the "Operations Criteria and Plan" (or OCAP), includes existing pumping operations, proposals to increase SWP pumping over the next 30-year period, and other proposed long-term operational changes. In February 2005, several environmental groups filed suit in federal court against FWS and the Secretary of the Interior challenging the validity of the B.O. (*Natural Resources Defense Council v. Kempthorne*, USDC Case No. 05-CV-1207-OWW.)

In May 2007, the Federal District Court for the Eastern District of California determined that the B.O. violated the requirements of the ESA. In order that the SWP and CVP could continue to operate, the court established interim operating requirements for the Projects that would remain in place until a new B.O. was completed (the Interim Remedies)(December 14, 2007). The Interim Remedies were based on various factors occurring in the Delta, such as prevailing hydrologic and flow conditions, and the distribution and spawning status of delta smelt. For the 2007-2008 water year, the Interim Remedies were reported to have reduced SWP supplies by approximately 500,000 acre-feet.

On December 15, 2008, FWS issued its new B.O. The B.O. concludes that the proposed long-term coordinated CVP and SWP operations will "jeopardize" the delta smelt and "adversely modify" its critical habitat according to ESA standards. Pursuant to the ESA, because the B.O. is a "jeopardy" opinion, FWS was required to formulate and adopt as part of the B.O. a "Reasonable and Prudent Alternative" (RPA) to the proposed action that FWS believes will not cause jeopardy to the delta smelt or adversely modify or destroy its critical habitat, and which can be implemented by Reclamation and DWR. (16 U.S.C. § 1536(b)(3)(A).) The RPA adopted as part of the B.O. imposed various new operating restrictions upon the CVP and SWP and has the potential to result in substantial water supply reductions from the Projects.

Soon after the B.O. was issued, DWR published information estimating that in comparison to the level of SWP exports from the Delta previously authorized under State Water Resources Control Board (State Board) Decision 1641 (D-1641),[1] the FWS B.O. could reduce those deliveries by 18 to 29 percent during average and dry conditions, respectively. As with the Interim Remedies, potential water supply restrictions under the new B.O. are dependent on highly variable factors such as hydrologic conditions affecting Delta water supplies, flow conditions in the Delta, migratory and reproductive patterns of delta smelt, and numerous other non-Project factors that impact the health and abundance of delta smelt and its critical habitat.

Due to a number of alleged scientific and other deficiencies in the new FWS B.O., in early 2009 the State Water Contractors, the San Luis and Delta-Mendota Water Authority and several individual State and Federal contractor water agencies filed legal challenges against the B.O., which were consolidated in the Federal District Court for the Eastern District of California. (*The Consolidated Delta Smelt Cases*, Lead Case No. 1:09-CV-00407-OWW-GSA.) Early on in the proceedings, several of the plaintiff water agencies and the federal defendants filed cross-motions for summary judgment to determine whether a violation of the National Environmental Policy Act (NEPA) occurred in connection with federal defendants' adoption and implementation of the NMFS B.O. and its RPA. In a Memorandum Decision issued in November 2009, the court ruled that the moving plaintiffs were entitled to summary judgment on their claim that the federal defendants violated NEPA by failing to perform any NEPA analysis prior to adopting and implementing the new FWS B.O. and its RPA. (*The Consolidated Delta Smelt Cases*, Doc. No. 399 at 46-47.)

Separately, several of the plaintiffs filed a motion for preliminary injunction against the implementation of Component 2 (Action 3) of the RPA that proposed to restrict Delta exports during a particular timeframe in spring and summer months, depending on certain biological and environmental parameters. In May 2010, the court issued its Findings of Fact and Conclusions of Law Regarding Plaintiffs' Request for Preliminary Injunction Against Implementation of RPA Component 2 (a/k/a Action 3). In that decision, the court reconfirmed its earlier ruling that the federal defendants failed to examine the potential environmental and human consequences of the RPA actions adopted under the B.O. in violation of NEPA. (*Consolidated Delta Smelt Cases*, Doc. No. 704 at 120-122.) The court also ruled that the plaintiffs were likely to prevail on their claims that FWS violated the ESA and the federal Administrative Procedure Act (APA) in formulating and adopting RPA Component 2 without support of the best available science and without adequate explanation regarding its biological benefit to delta smelt. (*Id.* at 123-125.)

In the meantime, the parties also filed cross motions for summary judgment to obtain a final ruling in the cases. Those motions were argued in early July 2010. In December 2010, the court issued a memorandum decision that invalidated the B.O. and RPA in several respects and remanded the matter to FWS. Several parties to the case have appealed certain issues to the Federal Ninth Circuit Court of Appeals. Further proceedings are also expected to address interim operations of the SWP and CVP.

Because delta smelt are also protected under the California ESA, the SWP and CVP are required to obtain take authorization from the California Department of Fish and Game (DFG).

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[1] See additional discussion below regarding SWP exports as authorized under D-1641.

In July 2009, DFG issued a "consistency determination" pursuant to Fish and Game Code section 2080.1. That determination provides that operations of the SWP and CVP are in compliance with CESA so long as those operations occur in accordance with the FWS delta smelt B.O. and RPA. Because the consistency determination posed a risk that the SWP could remain bound to the terms of the RPA even if the FWS B.O. was eventually overturned by a federal court, DFG's decision was challenged in state court by the State Water Contractors and the Kern County Water Agency. (*State Water Contractors v. California Department of Fish and Game, et al.*, Kern County Superior Court Case No. S-1500-CV-268074[2]; *Kern County Water Agency v. Department of Fish and Game, et al.*, Sacramento County Superior Court Case No. 34-2010-80000450.) The challenges assert, among other things, that DFG's consistency determination is invalid because it relies upon and seeks to enforce restrictions established under the new FWS B.O. that are alleged under *The Consolidated Delta Smelt Cases* to be invalid and unenforceable. The cases are currently stayed by stipulation of the parties.

These litigation matters challenging the validity of the FWS B.O. and the DFG consistency determination give rise to the possibility that the restrictions on SWP exports could be relaxed and that SWP exports may return to the levels allowed by the Interim Remedies (above) or State Board Decision D-1641[3] pending issuance of a new B.O. and/or the implementation of the Bay-Delta Conservation Plan (BDCP). As an additional factor, by letter dated May 3, 2010, the federal Secretaries of the Department of Interior and the Department of Commerce have announced a joint initiative to develop a single integrated B.O. for the Delta and related water operations of the CVP and SWP.[4] The timing, nature and extent of the regulatory measures to be contained in any such B.O., and whether those measures would be legally challenged or upheld, have not been predicted with any degree of certainty at this time.

New National Marine Fisheries Service Biological Opinion Salmon/Anadromous Species and Related Litigation Matters

SWP operations have also been challenged in connection with potential impacts to anadromous species in the San Francisco Bay-Delta estuary. In October 2004, the National Marine Fisheries Service (NMFS) issued a "no jeopardy" determination and B.O. analyzing potential impacts to federally listed winter-run and spring-run salmon and steelhead trout related to the long-term coordinated operations of the CVP and SWP through the year 2030. As with the 2005 FWS B.O. and *Kempthorne* case discussed above, OCAP was the project/action evaluated in the 2004 NMFS B.O., which included the Projects' existing Delta pumping operations, proposals to increase SWP pumping by 20 percent over the long term, and other operational

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[2] In June 2010, the case was transferred to Sacramento, California, where it is now referenced as *State Water Contractors v. California Department of Fish and Game, et al.*, Sacramento County Superior Court Case No. 34-2010-80000552.

[3] D-1641 implements the objectives of the 1995 Bay-Delta Plan and imposes flow and water quality objectives to assure protection of beneficial uses in the Delta. The requirements of D-1641 address, among other things, standards for fish and wildlife protection, municipal and industrial water quality, agricultural water quality, and salinity. D-1641 imposed a new operating regime for the Delta, including measures such as X2, an export/inflow ratio, and the Vernalis Adaptive Management Program (VAMP). The standards under D-1641 are accomplished through requirements and conditions imposed on the water right permits for the SWP, the CVP and others. (*See*, California Water Plan Update 2009, Regional Reports Volume 3, Sacramento-San Joaquin River Delta at DB-6.)

[4] http://www.doi.gov/news/pressreleases/upload/Key.pdf

changes. In August 2005, several environmental groups filed suit in federal court against NMFS and the Secretary of Commerce challenging the validity of the B.O. (*Pacific Coast Federation of Fishermen's Associations, et al. v. Gutierrez, et al.*, Case No. 1:06-CV-00245-OWW-GSA.)

In April 2008, the United States District Court for the Eastern District of California issued its decision invalidating the NMFS B.O. for failing to comply with the requirements of the federal ESA. As with the *Kempthorne* case (above), the court did not vacate the B.O., meaning that SWP and CVP operations were authorized to continue pending the preparation of a new B.O. and any interim remedies imposed by the court. Remedy proceedings were held similar to those conduced in the *Kempthorne* case discussed above and, in separate Findings of Fact and Conclusions of Law issued in July and October 2008, Judge Wanger determined that additional water supply restrictions beyond those required in *Kempthorne* (i.e., the Interim Remedies for delta smelt) were not required at that time for the anadromous species.

On June 4, 2009, NMFS issued a new B.O. regarding the effects of SWP and CVP operations on listed winter and spring-run salmon, steelhead trout, green sturgeon, and southern resident killer whales. Like the new FWS B.O. discussed above, the NMFS B.O. concludes that the proposed long-term coordinated operations of the CVP and SWP will jeopardize the species and adversely modify the critical habitats of most of those species. Pursuant to the ESA, because the B.O. is a "jeopardy" opinion, NMFS was required to formulate and adopt a Reasonable and Prudent Alternative (RPA) to the proposed action that NMFS believed would not cause jeopardy to the species or adversely modify or destroy their critical habitats, and which can be implemented by Reclamation and DWR. (16 U.S.C. § 1536(b)(3)(A).) The RPA adopted by NMFS imposed various new operating restrictions upon the CVP and SWP which have the potential to result in substantial reductions in water supply from the Projects.

NMFS calculated that its new B.O. has the potential to reduce SWP deliveries from the Delta by 7 percent in addition to the potential reductions under the new FWS B.O. for delta smelt (above). DWR has estimated that average annual reductions to SWP deliveries could be closer to 10 percent beyond the restrictions imposed under the FWS B.O. (thus, a total of 28 to 39 percent during average and dry conditions, respectively, in comparison to SWP exports authorized under D-1641). As with the FWS B.O., potential water supply restrictions under the NMFS B.O. are dependent on several variable factors, such as hydrologic conditions in the Delta region, migratory and reproductive patterns of protected salmonid species, and other non-Project factors that impact the health and abundance of the species and their habitats.

In June 2009, numerous legal challenges were filed against the new NMFS B.O. and consolidated in the United States District Court for the Eastern District of California alleging, among other things, that the operating restrictions set forth in the B.O. are in violation of the federal ESA, the federal APA, and other laws. (*The Consolidated Salmonid Cases*, Lead Case No. 1:09-CV-1053-OWW-DLB.) Early in the proceedings, several of the plaintiff water agencies and the federal defendants filed cross-motions for summary judgment to determine whether a NEPA violation occurred in connection with federal defendants' adoption and implementation of the NMFS B.O. and its RPA. The court heard oral argument on the motions in February 2010, and took the matter under submission.

Separately, in January 2010, several of the plaintiff water agencies filed applications for a

temporary restraining order and motions for preliminary injunction regarding the implementation of RPA Actions IV.2.1 and IV.2.3, which are designed to restrict Delta exports during a particular timeframe in spring and summer months, depending on certain biological and environmental parameters. In February 2010, the court issued its Memorandum Decision and Order Re Plaintiffs' Motion for Temporary Restraining Order. The decision found that federal defendants violated NEPA by failing to consider the potential human and environmental impacts caused by implementation of the RPA Actions, and that a temporary injunction against RPA Action IV.2.3 would not cause jeopardy to the species, whereas a failure to enjoin the Action would cause irreparable water supply impacts to the plaintiffs. (*The Consolidated Salmonid Cases*, Doc. No. 202 at 20-22.) In subsequent rulings issued in March 2010, the court ordered that plaintiffs were entitled to summary judgment on their claims that federal defendants violated NEPA by failing to prepare any NEPA documentation in the adoption and implementation of the NMFS B.O. and its RPA. (*The Consolidated Salmonid Cases*, Doc. Nos. 266 and 288 at 3.)

Plaintiffs' motions for a preliminary injunction were heard in April and May 2010, and in May 2010 the court issued Findings of Fact and Conclusions of Law Re Plaintiffs' Request for Preliminary Injunction. In that decision, the court reconfirmed its previous ruling that federal defendants violated NEPA by failing to undertake an analysis of whether the RPA Actions adopted by NMFS under its new B.O. would adversely impact humans and the human environment. (*The Consolidated Salmonid Cases*, Doc. No. 347 at 129-130, 138.) Further, the court ruled that the plaintiff water agencies had a substantial likelihood of being able to show that the federal defendants violated the ESA and the APA by failing to adequately justify, through generally recognized scientific principles, the precise flow prescriptions imposed by RPA Actions IV.2.1 and IV.2.3. (*Id.* at 130, 133-134.)[5]

Following its May 18th ruling, the court conducted further proceedings and accepted additional evidence to address the proposed injunction and whether the relief requested by the plaintiffs would adversely affect the species (namely, Central Valley spring-run Chinook salmon and Central Valley steelhead). Based on those proceedings, in June 2010, the court issued Supplemental Findings of Fact and Conclusions of Law Re Plaintiffs' Request for Preliminary Injunction. (*The Consolidated Salmonid Cases*, Doc. No. 380.) The Supplemental Findings noted that if RPA Actions IV.2.1 and IV.2.3 were enjoined through June 15, 2010, the FWS B.O. for delta smelt (above) would control Project operations between May 26th and June 15th, unless those restrictions were also enjoined, in which case Project operations would be controlled by D-1641.[6] (Doc. No. 380 at 12.) Accordingly, the court granted an injunction against RPA Actions

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[5] RPA Action IV.2.1 limits combined water exports by the CVP and SWP based on San Joaquin River flows as measured at Vernalis. (NMFS B.O. at 642.) When flows at Vernalis range from 0 to 6,000 cfs, Action IV.2.1 limits combined CVP and SWP exports to 1,500 cfs. (NMFS B.O. at 642.) When flows at Vernalis range from 6,000 to 21,750 cfs, Action IV.2.1 imposes an inflow to combined CVP and SWP exports ratio of 4:1. (NMFS B.O. at 642.) The pumping restrictions associated with Action IV.2.1 terminate May 31st. (NMFS B.O. at 641-642.) RPA Action IV.2.3 limits Old and Middle River (OMR) flows to no more negative than -2,500 cfs between January 1 and June 15, or until the average daily water temperature at Mossdale is greater than 72 degrees Fahrenheit for seven consecutive days, whichever occurs first. (NMFS B.O. at 648-650.)

[6] Among other things, D-1641 limits Project exports to a combined total of not more than 35 percent of total Delta inflow and further limits Project operations to ensure that certain water quality standards are met as measured by the location of the isohaline condition referred to as spring X2. (See *The Consolidated Salmonid Cases*, Doc. No. 380 at 12-14.)

IV.2.1 and IV.2.3 and authorized Project operations in accordance with D-1641, provided that export pumping could be reduced on shortened notice upon a showing of jeopardy to the species or adverse modification of its critical habitat. (*Id.* at 17-18.)

In August and November 2010, the parties also filed motions for summary judgment to obtain a final ruling in the cases. Those motions were argued on December 16 and 17, 2010, and the court is expected to issue a memorandum decision on the motions in 2011.

Because the salmon species covered by the new NMFS B.O. are also protected under CESA, the SWP and CVP are required to obtain take authorization from DFG. In September 2009, DFG issued a "consistency determination" pursuant to Fish and Game Code section 2080.1. That determination provides that operations of the SWP and CVP are in compliance with CESA so long as those operations occur in accordance with the RPA set forth in the NMFS B.O. Because the consistency determination posed a risk that the SWP could remain bound to the terms of the RPA even if the NMFS B.O. was eventually overturned by a federal court, DFG's decision was challenged in state court by the State Water Contractors and the Kern County Water Agency. (*State Water Contractors v. California Department of Fish and Game, et al.*, Kern County Superior Court Case No. S-1500-CV-268497.)[7] The challenge asserts, among other things, that DFG's consistency determination is invalid because it relies upon and seeks to enforce restrictions established under the NMFS B.O. that are alleged under *The Consolidated Salmon Cases* to be invalid and unenforceable. As described above, the Federal District Court for the Eastern District of California has ruled that plaintiffs have a strong likelihood of being able to show that portions of the NMFS B.O. fail to comply with the ESA and the APA, and has enjoined implementation of several RPA Actions. Because the court's ruling effectively modified aspects of the NMFS B.O. for 2010, DWR requested that DFG make a determination that the NMFS B.O., as modified by the court, remained consistent with the provisions of CESA. In May 2010, DFG issued a new consistency determination, finding the court-modified NMFS B.O. consistent with CESA. In June 2010, an amended complaint was filed against the May 24th consistency determination. By stipulation of the parties, the case is currently stayed.

The current legal challenges regarding the validity of the new NMFS B.O. and the DFG consistency determination give rise to the possibility that the restrictions on SWP exports could be relaxed and that SWP exports may return to the higher levels allowed by the Interim Remedies decision in *Kempthorne* (above) or D-1641 pending the issuance of a new B.O. and/or implementation of the BDCP. Furthermore, as noted above, in May 2010 the Department of Interior and the Department of Commerce announced a joint initiative to develop a single, integrated B.O. for the coordinated operations of the CVP and SWP in the Delta.[8] The timing, nature, and extent of the regulatory measures to be contained that B.O., and whether those measures would be legally challenged or upheld, cannot be predicted with any degree of certainty at this time.

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[7] In June 2010, the case was transferred to Sacramento, California, where it is now referenced as *State Water Contractors v. California Department of Fish and Game, et al.*, Sacramento County Superior Court Case No. 34-2010-80000560.

[8] http://www.doi.gov/news/pressreleases/upload/Ken.pdf

Watershed Enforcers v. California Department of Water Resources

Another litigation matter concerning SWP operations is *Watershed Enforcers v. Cal. Dept. of Water Resources* (2010) 185 Cal. App. 4th 969 (Alameda County Superior Court Case No. RG06292124). In that case, a plaintiffs group filed suit against DWR alleging the SWP was being operated without "take authorization" under CESA. The case was heard by the Alameda County Superior Court in November 2006 and, in April 2007, the court ordered DWR to cease and desist further operations of the Harvey O. Banks pumping plant facilities of the SWP unless DWR obtained proper authorization from DFG for the take of delta smelt and salmon species listed under CESA. The trial court decision was appealed by DWR and several water agency parties and the court's order was stayed pending the appeal, meaning that DWR was not required to cease its operations of the Banks facilities.

As discussed above, the new FWS and NMFS B.O.s were issued while the *Watershed Enforcers* case was pending on appeal. Based on those new B.O.s, DFG issued consistency determinations and take authorization for the SWP under CESA with respect to delta smelt and the listed anadromous species. (Also discussed above, those consistency determinations have been challenged in state court.) Thereafter, in September 2009, DWR and one of the water agency parties dismissed their appeals in the *Watershed Enforcers* case. The case remained active in 2009-2010, however, for purposes of resolving the discrete legal issue raised by the remaining water agency parties as to whether DWR is the type of entity that is subject to the take prohibitions under CESA. In a June 2010 decision, the First District Court of Appeal affirmed the trial court decision in all respects, including the determination that DWR qualifies as a "person" within the meaning of CESA, which means that DWR is subject to CESA's permitting requirements. (*Watershed Enforcers v. Department of Water Resources* (2010) 185 Cal. App. 4th 969, 973.)

California Department of Fish and Game Incidental Take Permit for Longfin Smelt and Related Litigation Matters

Regulatory actions related to longfin smelt also have the potential to affect the availability and reliability of SWP supplies. In February 2008, the California Fish and Game Commission (Commission) approved a petition to list the longfin smelt as a "candidate" species under CESA. Under CESA, once a species is granted candidate status, it is entitled to protections until the Commission determines whether to list the species as threatened or endangered. To afford such interim protection, in February 2008, the Commission adopted the first in a series of emergency take regulations that authorized the CVP and SWP to take longfin smelt, yet established certain operating restrictions on Project exports from the Delta in an effort to protect the species. The emergency regulations were proposed to remain in effect until February 2009, at which time the Commission was required to decide whether to list the longfin as a threatened or endangered species. Initially, the Commission's take regulation imposed the same Delta export restrictions that were established in the *Kempthorne* case (i.e., the Interim Remedies discussed above). In November 2008, however, the Commission revised its emergency regulations in a manner that threatened to impose export restrictions beyond those established for delta smelt. According to information published by DWR, the Commission's 2008-2009 revised emergency take regulations had the potential to reduce SWP supplies in the

January to February 2009 period by up to approximately 300,000 acre-feet under a worst-case scenario. Under other scenarios, however, the SWP delivery reductions were expected to be no greater than those imposed under the new FWS B.O. for delta smelt. In December 2008, several water agency interests filed suit against the Commission's revised take regulation, alleging it violated CESA.

In March 2009, the Commission determined that the listing of longfin smelt as a "threatened" species was warranted under CESA. CESA sets forth a general prohibition against the take of a threatened species except as otherwise authorized by statute. One such authorization is provided by California Fish and Game Code section 2081, wherein DFG may authorize the incidental taking of a threatened species in connection with an otherwise lawful activity through the issuance of a permit. In February 2009, in advance of an official listing of the species as threatened, DFG issued Incidental Take Permit No. 2081-2009-001-03 (Permit) to DWR which imposes terms and conditions on the ongoing and long-term operation of SWP facilities in the Delta for the protection of longfin smelt. The operating restrictions under the Permit are based in large part on the restrictions imposed on the SWP by the new FWS B.O. for delta smelt (see above).

In June 2009, the Commission officially listed longfin smelt as a threatened species under CESA. As with the FWS B.O., potential water supply restrictions under the Permit are dependent on several variable factors, such as hydrologic conditions in the Delta region, migratory and reproductive patterns of longfin smelt, and other non-Project factors affecting longfin smelt abundance in the Delta. DWR has not indicated whether any particular reductions in SWP exports are likely to result from the Permit. As noted above, however, DWR has estimated that the restrictions imposed by the FWS B.O. and RPA for delta smelt could reduce SWP deliveries between 18 and 29 percent in comparison to Project deliveries authorized under D-1641. In March 2009, due to a number of alleged scientific and other deficiencies in the Permit, the State Water Contractors challenged the Permit in Sacramento County Superior Court. (*State Water Contractors v. California Dept. of Fish and Game, et al.*, Sac. Sup. Ct. Case No. 34-2009-80000203.) That case puts DFG's ability to enforce the Permit into question.

California Drought Conditions

On June 4, 2008, the Governor of California proclaimed a statewide drought due to record-low rainfall in Spring 2008 and court-ordered restrictions on Delta exports as discussed above. (Executive Order S-06-08.) Soon thereafter, the Governor proclaimed a state of drought emergency to exist within the Counties of Sacramento, San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare and Kern. (Proclamation dated June 12, 2008.) On February 27, 2009, the Governor declared a statewide water supply emergency to combat California's third consecutive year of drought conditions, evidenced by low reservoir storage and estimated snowpack water content at that time. (Proclamation dated February 27, 2009.)

Since then, statewide hydrologic conditions have improved, although the State's water supply emergency declaration has not been lifted. In March 2010, DWR announced that both manual and electronic readings indicate that the water content in California's mountain snowpack was 107 percent of normal and stated that the "readings boost our hope that we will be

able to increase the State Water Project allocation by this spring to deliver more water to our cities and farms." Among these readings, DWR reported that electronic sensor readings showed northern Sierra snow water equivalents at 126 percent of normal for that date, central Sierra at 93 percent, and southern Sierra at 109 percent.[9] As of January 2011, DWR reported snow water equivalents for the northern Sierra at 164 percent of normal, 186 percent of normal for the central Sierra, and 260 percent for the southern Sierra.[10] According to DWR's California Data Exchange Center, hydrologic conditions in California as of December 1, 2010 were as follows: statewide precipitation was 155 percent of average; statewide runoff was 115 percent of average; and key historical average statewide reservoir storage was at 105 percent, with two of the state's largest reservoirs, Lake Shasta (CVP) and Lake Oroville (SWP), respectively storing 116 percent and 75 percent of their historical averages.[11]

Development of Delta Plan and Delta Flow Criteria Pursuant to New State Laws

In November 2009, the California Legislature enacted SBX7-1 as one of several bills passed as part of a comprehensive water package related to water supply reliability, ecosystem health, and the Delta. SBX7-1 became effective on February 3, 2010 and adds Division 35 to the California Water Code (commencing with Section 85300), referred to as the Sacramento-San Joaquin Delta Reform Act of 2009 (Act). Among other things, the Act creates the Delta Stewardship Council (Council) as an independent agency of the state. (Wat. Code § 85200.) SBX7-1 also amends the California Public Resources Code to specify changes to the Delta Protection Commission and to create the Delta Conservancy. (Pub. Res. Code §§ 29702-29780.) The Act directs the Council to develop a comprehensive management plan for the Delta by January 1, 2012 (Delta Plan) and to first develop an Interim Plan that includes recommendations for early actions, projects, and programs for the Delta. (*See generally*, Second Draft Interim Plan, Prepared for Consideration by the Delta Stewardship Council at 1.)

In addition to these and other requirements, SBX7-1 requires the State Board to use the best available scientific information to develop flow criteria for the Delta ecosystem necessary to protect public trust resources, including fish, wildlife, recreation and scenic enjoyment. Similarly, DFG is required to identify quantifiable biological objectives and flow criteria for species of concern in the Delta. In August 2010, the State Board adopted Resolution No. 2010-0039 approving its report entitled "Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem" (Flow Criteria). The State Board report concludes that substantially higher flows are needed through the Delta than in have occurred in previous decades in order to benefit zooplankton and various fish species. (Flow Criteria at 5-8.) Separately, in September 2010, DFG issued a draft report entitled "Quantifiable Biological Objectives and Flow Criteria for Aquatic and Terrestrial Species of Concern Dependent on the Delta" (DFG Report). The DFG Report is based on similar biological objectives and recommends Delta flows similar to those set forth in the State Board's Flow Criteria. (DFG Report at 13.) Notably, both the State Board and DFG recognize that their recommended flow criteria for the Delta do *not* balance the public interest or the need to provide an adequate and reliable water supply. (Flow Criteria at 4; DFG Report at 16.) Also of importance, both the State Board and DFG acknowledge that their

[9] http://www.water.ca.gov/news/newsreleases/2011/010311snow.pdf
[10] http://cdec.water.ca.gov/cgiprogs/snowDLYSWEQ
[11] http://cdec.water.ca.gov/cgiprogs/reports/EXECSUM

recommended flow criteria do not have any regulatory or adjudicatory effect; however, they may be used to inform the Council as it prepares the Delta Plan, and may be considered as the Bay Delta Conservation Plan (BDCP) process moves forward. (Flow Criteria at 3, 10; DFG Report at ES-4.)

DWR's Final 2009 SWP Delivery Reliability Report

DWR continues to evaluate the issues affecting SWP exports from the Delta and how those issues may affect the long-term availability and reliability of SWP deliveries to the SWP Contractors. In September 2010, DWR released its Final 2009 SWP Delivery Reliability Report (DWR Report), which forecasts additional reductions to SWP supplies in comparison to the 2007 Report. According to DWR, the long-term average delivery of contractual SWP Table A supply is projected to be 60 percent under current and future conditions over the 20-year projection. (DWR Report at 43, 48, Tables 6.3 and 6.12.) Within that long-term average, SWP Table A deliveries can range from 7 percent (single dry year) to 68 percent (single wet year) of contractual amounts under current conditions, and from 11 percent (single dry year) to 97 percent (single wet year) under future conditions. (Id. at 43-44, 49, Tables 6.4, 6.5, 6.13 and 6.14.) Contractual amounts are projected to range from 32 to 38 percent during multiple-dry year periods, and from 79 to 93 percent during multiple wet periods. (Id. at 49, Tables 6.13 and 6.14.)

To ensure a conservative analysis, the DWR Report expressly assumes and accounts for the institutional, environmental, regulatory, and legal factors affecting SWP supplies, including but not limited to: water quality constraints, fishery protections, other D-1641 requirements, and the operational limitations imposed by the FWS and NMFS B.O.s that are discussed above. The DWR Report also considers the potential effects of Delta levee failures and other seismic or flood events. (*See, e.g.*, DWR Report at 19-24, 25-28, 29-35, Appendices A, A-1, A-2, B.) Notably, the DWR Report assumes that all of these restrictions and limitations will remain in place over the next 20-year period and that no actions to improve the Delta will occur, even though numerous legal challenges, various Delta restoration processes, and new legal requirements for Delta improvements are currently underway (i.e., BDCP, Delta Vision, Delta Plan, etc.). Finally, DWR's long-term SWP delivery reliability analyses incorporate assumptions that are intended to account for potential supply shortfalls related to global climate change. (*See, e.g.*, DWR Report at 19, 29-30, Appendices A-B.) Based on these and other factors, the DWR Report presents an extremely conservative projection of SWP delivery reliability.

Conclusion

DWR's most recently published SWP Delivery Reliability Report (September 2010) demonstrates that the projected long-term average delivery amounts of contractual SWP Table A supplies have decreased in comparison to previous estimates. However, as noted, the projections developed by DWR are predicated on extremely conservative assumptions, which make the projections useful from a long-range urban water supply planning perspective.[12] Indeed, recent

[12] *See, e.g., Sonoma County Water Coalition v. Sonoma County Water Agency* (2010) 189 Cal.App.4th 33; *Watsonville Pilots Association v. City of Watsonville* (2010) 183 Cal.App.4th 1059; *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412.

rulings in various legal actions and other factors described above, among others, support higher estimates of average annual SWP deliveries than projected in DWR's 2009 Report. While this may lead DWR to increase its projections in its next scheduled Report, the 2009 Report remains the best available information concerning the long-term delivery reliability of SWP supplies.

APPENDIX H

REFERENCES

REFERENCES

- California Department of Water Resources Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan (March 2011)
- California Department of Water Resources Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use (For the Consistent Implementation of the Water Conservation Act of 2009) (February 2011)
- Urban Water Management Planning Act, California Water Code, Division 6, Part 2.6, section 10610 et seq.
- US Census Bureau, 2010 Census Data
- CLAWA's State Water Project Contract (5,800 AF/Year)
- CLAWA's Houston Creek Permits (two, totaling 1,302 AF/Year)
- CLAWA's Water Exchange Agreements