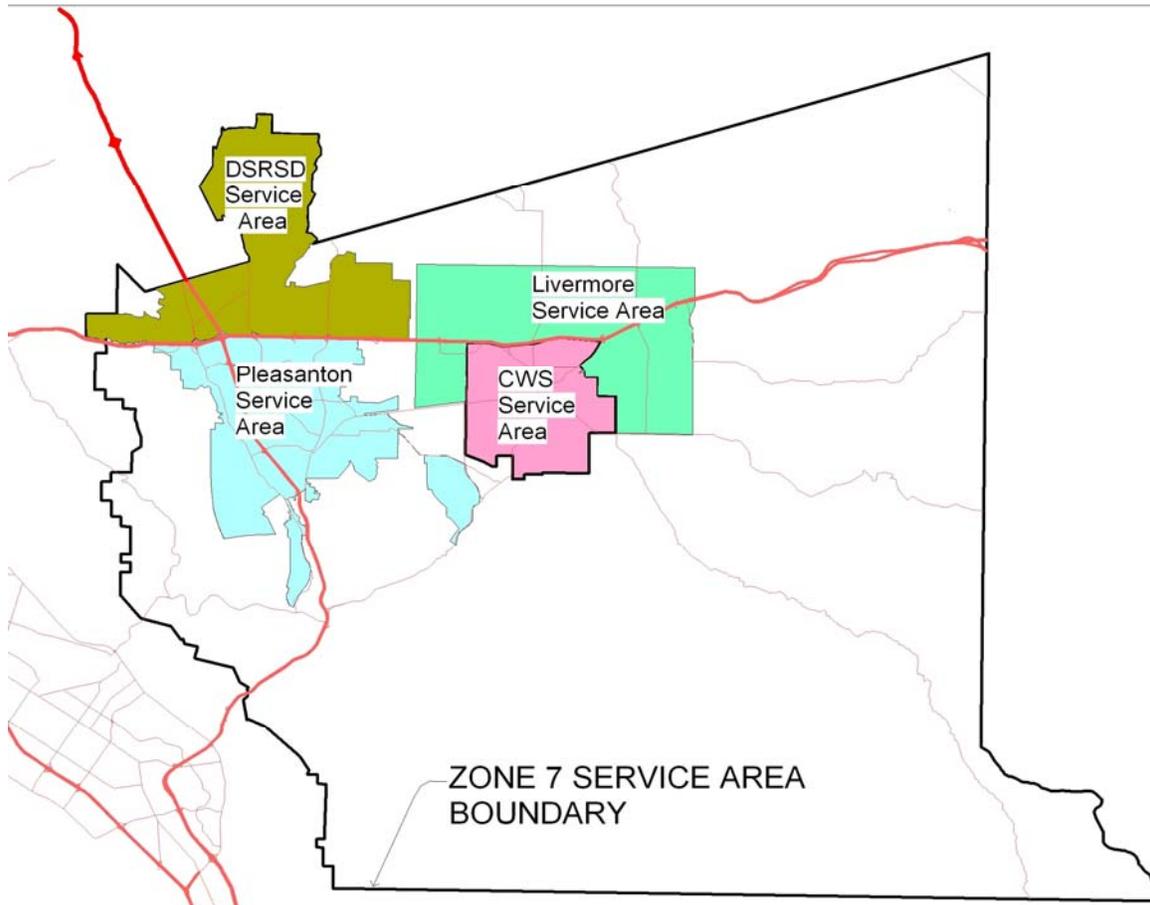


# URBAN WATER MANAGEMENT & WATER SHORTAGE CONTINGENCY PLAN



**Zone 7 Water Agency**

**2005 Update**

**September 2005**

**Conformed – Sept. 23, 2005**

*Prepared by: Zone 7 Staff*

# Urban Water Management and Water Shortage Contingency Plan - 2005

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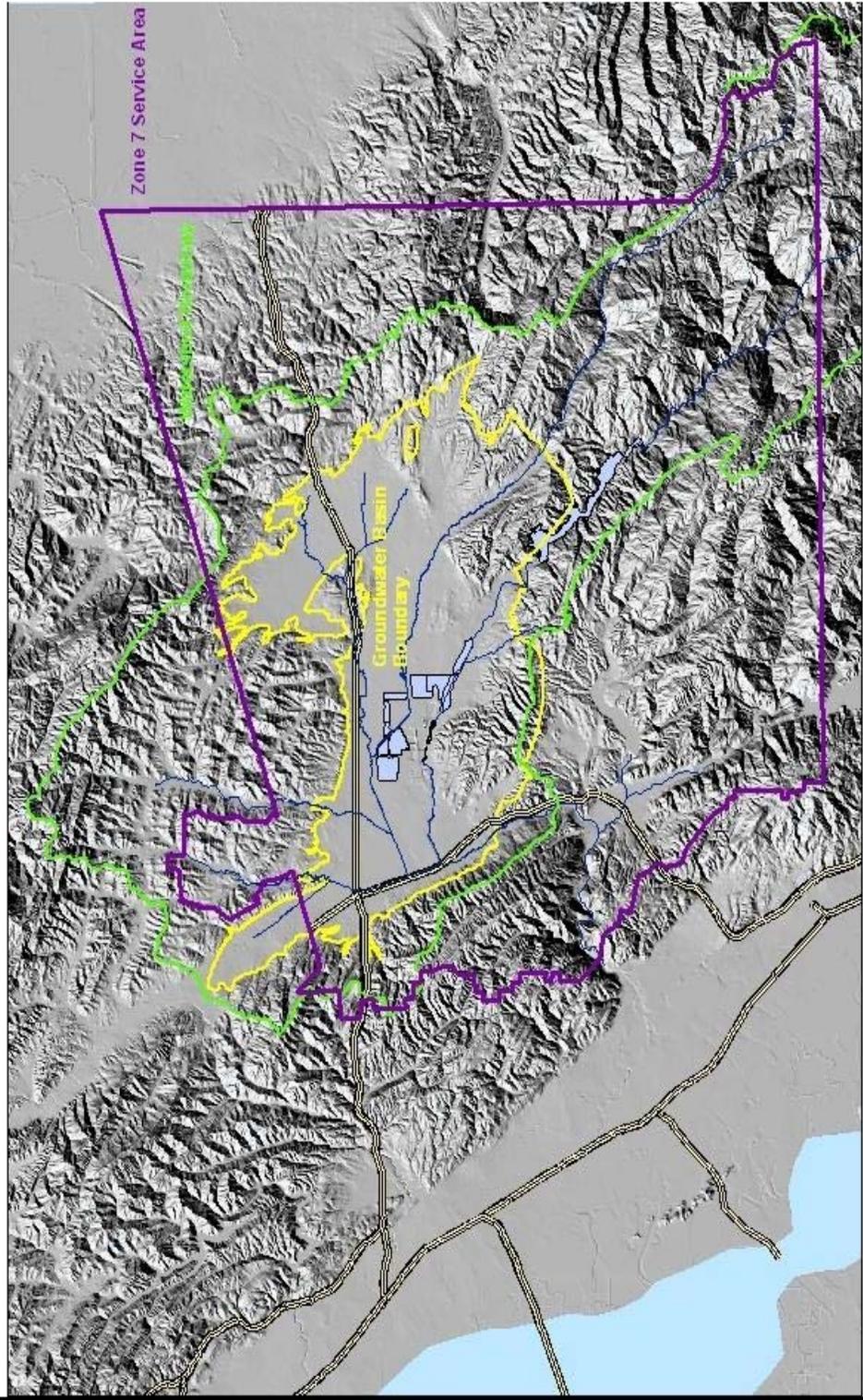
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Wholesale Water Supplier  
State Water Project Contractor

Zone 7 Water Agency is committed to providing a reliable supply of high quality water and an effective flood control system to the Livermore-Amador Valley. In fulfilling our present and future commitments to the community, we will develop and manage the water resources in a fiscally responsible, innovative, proactive, and environmentally sensitive way.

# Livermore-Amador Valley



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## **1.0 INTRODUCTION**

This Urban Water Management and Drought Shortage Contingency Plan (UWMP or Plan) has been prepared in response to the Urban Water Management Planning Act (Act), California Water Code Sections 10610 through 10650. The Act was adopted by the California Legislature as Assembly Bill 797 during the 1983-84 session and signed into law by Governor Deukmejian on January 1, 1984. The Act requires that “every urban water supplier shall prepare and adopt an Urban Water Management Plan.” Urban water supplier is defined as “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.” Under this definition, Zone 7 Water Agency and each of the four retail water supply agencies which it serves (City of Pleasanton, City of Livermore, Dublin-San Ramon Services District and California Water Service Company) are all urban water suppliers.

The Act has been amended several times since it was first signed into law in 1984. For instance, Assembly Bill (AB) 2853, passed in 1994, requires the UWMP to examine recycled water as a potential water source. Another amendment, AB 1845 (passed in 1995), mandates every urban water supplier to include, as part of its UWMP, a prescribed assessment of the reliability of its water supply for its customers during normal, dry, and critically dry water runoff years.

Zone 7 adopted its first UWMP in 1985. An updated UWMP, prepared by Zone 7 in cooperation with, and for, the Dublin San Ramon Services District (DSRSD), the City of Livermore, and the City of Pleasanton, was adopted in 1991. An Urban Water Shortage Contingency Plan was prepared in January 1992 to comply with the October, 1991 amendment to the Water Code. Zone 7 Water Agency adopted its most recent UWMP update in October 2000.

This 2005 UWMP represents an update of the earlier Plans. Zone 7 is almost exclusively a water wholesaler providing potable water for municipal uses indirectly through retail urban water suppliers, although it does provide treated water to a very small number of retail customers (significantly less than 3,000 service connections and only about 750 acre-feet annually). Since Zone 7 is primarily a water wholesaler, this UWMP addresses issues of water demand, supplies, and management on a general basis but does not include information on behalf of the retail water supply agencies. Urban Water Management Plans submitted by Zone 7's retail water supply agency customers (Dublin San Ramon Services District, California Water Services Company, and the Cities of Livermore and Pleasanton) are expected to provide more detailed information about these issues at the consumer level. Urban Water Management Plans are to be adopted by each urban water supplier and submitted to the Department of Water Resources by December 31, 2005.

The California Environmental Quality Act (CEQA) does not apply to the preparation and adoption of Urban Water Management Plans (Water Code Section 10652).

Zone 7's UWMP includes a broad overview of its service area and operational facilities, as well as a general description of Livermore-Amador Valley's water conservation, water recycling, and water supply and demand management activities. Being almost exclusively a water wholesaler, Zone 7 coordinates its water conservation efforts with its retail water supply agencies. As such, this UWMP will focus on Zone 7 activities and will not include a description of individual retailer conservation programs, since each

retailing agency is an urban water supplier and will each prepare its own urban water management plan. Similarly, details of recycled water treatment and distribution are left to the UWMP's of the two urban water suppliers who perform these tasks in the area.

This UWMP addresses all Water Code requirements for such a plan. The following is a road map to where each Water Code requirement is addressed in the UWMP (in the order of the referenced Water Code Section).

Table 1.1: UWMP Road Map and Checklist

<i>Water Code Section</i>	<i>Chapter</i>	<i>Section</i>	<i>Content Description</i>
10620(d)	3.0		Agency Coordination
10620 (f)		3.1	Resource Maximization / Import Minimization Plan
10621 (a)	1.0		Updated Plan in Years Ending in Five and Zero
10621 (b)	4.0		City and County Notification and Participation
10631(a)	2.0	2.1, 2.2, 2.3, 2.4	Service Area Information
10631(b)	5.0	5.1, 5.2, 5.3, 5.4, 5.5	Water Sources
10631(b) (1)-(4)	6.0		Water Sources - Groundwater
10631(c) (1-3)	7.0	7.1, 7.2, 7.3	Reliability of Supply Sources
10631(d)	8.0	8.1, 8.2,	Transfer & Exchange Opportunities
10631(e) (1) (2) (3)	9.0		Water Use By Customer Type
10631(f)(1) (2) (3) (4)	10.0		Demand Management Measures (DMMs)
10631 (g)	8.0, 10.1, 11.0	Table 8, Table 14	Planned Water Supply Projects & Programs, including non-implemented DMMs
10631(h)	8.0, 10.1, 11.0	Table 8, Table 14	Planned Water Supply Projects and Programs
10631(i)	12.0		Opportunities for Development of Desalinated Water
10631 (j)	10.0	10.1	Zone 7 Water Agency is not a CUWCC Member
10631 (k)		5.6	Zone 7 Water Agency is a Wholesaler

<i>Water Code Section</i>	<i>Chapter</i>	<i>Section</i>	<i>Content Description</i>
10631.5	10.2		Determination of DMM Implementation
10632(a)	13.0	13.1	Water Shortage Contingency Stages of Action
10632(b)		13.2	Three-Year Minimum Water Supply
10632(c)		13.3	Preparation for Catastrophic Water Supply Interruption
10632(d)		13.4	Prohibitions against specific water use practices during water shortages
10632 (e)		13.6	Consumption Reduction Methods
10632 (f)		13.6	Excessive use penalties or charges for excessive use
10632(g)		13.5	Revenue and Expenditure Impacts
10632 (h)	13.0	Appendix D	Water Shortage Contingency Ordinance/Resolution
10632(i)		13.6	Reduction Measuring Mechanism
10633	14.0		Recycled Water Agency Plan
10633 (a)	14.0		Description of Wastewater System
10633		14.1	Recycled Water Plan Coordination
10633(a-d)		14.2	Wastewater Disposal and Current Use
10633(e)		14.3	Projected Uses of Recycled Water
10633 (f)	14.0	14.3	Plan to Optimize Use of Recycled Water
10634	15.0		Water Quality Impacts on Availability of Supply
10635(a)	16.0		Water Service Reliability – Normal, Dry, and Multiple Dry Years
10635 (b)	16.0		Provision of Water Service Reliability Section to Cities/ Counties Within Service Area
10642	4.0		Public Participation
10643	10.0		Review of Implementation of 2000 UWMP
10644 (a)	4.0		Provision of 2005 UWMP to Local Governments

<i>Water Code Section</i>	<i>Chapter</i>	<i>Section</i>	<i>Content Description</i>
10645	4.0		Places Where UWMP is Available For Public Review
10656, 10657	17.0		UWMP Adoption & Implementation

## **2.0 GENERAL SERVICE AREA INFORMATION**

*Water Code*

*Section 10631.*

*A plan shall be adopted in accordance with this chapter and 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 5-year increments to 20 years or as far as data is available.*

### **2.1 Overview**

Zone 7 of Alameda County Flood Control and Water Conservation District (Zone 7) is one of ten active zones of the Alameda County Flood Control and Water Conservation District (District). The District was created in 1949 by the State legislature through passage of Act 205 of the California Uncodified Water Code (District Act). The District was formed to provide control of flood and storm waters and to conserve water for beneficial uses.

In addition, the District is vested with the power to store water in surface or underground reservoirs within or outside of the District for the common benefit of the District; to conserve and reclaim water for present and future use within the District; to appropriate and acquire water and water rights and to import water into the District. The District is further authorized by the District Act to prevent interference with or diminution of, or to declare rights in the natural flow of any stream or surface or subterranean supply of waters used or useful for any purpose of the district and to prevent contamination, pollution or otherwise rendering unfit for beneficial use the surface or subsurface water used or useful in the district. The District is also authorized to levy replenishment assessments upon the production of groundwater from all water-producing facilities, whether public or private, within the District.

Zone 7, also known as the Zone 7 Water Agency, covers the eastern portion of Alameda County which includes the cities of Dublin, Pleasanton and Livermore, also known as the Livermore-Amador Valley. Pursuant to Section 36 of the District Act, Zone 7 was established in 1957 to address regional and water supply issues. Zone 7 is governed by an elected seven member board of directors who, with the passage of AB 1125 in 2003, have full authority and autonomy to govern matters solely affecting Zone 7 independent of the Alameda County Board of Supervisors (who solely govern the other nine zones of

the District). The seven directors are elected at large by the residents of Zone 7. Each director serves a four-year term. The Zone 7 Board sets policy and provides direction to agency management and staff. The figure on the cover of this Plan shows the Zone 7 Water Agency service area as well as the service areas for the four major water retail supply agencies (Dublin San Ramon Services District, California Water Services Company, and the Cities of Livermore and Pleasanton).

Zone 7 imports surface water from the State Water Project (SWP) through the South Bay Aqueduct (SBA) for treatment, storage, and recharge. As one of the 29 state water contractors, Zone 7 is the water wholesaler for the Tri-Valley Area (Dublin, Pleasanton and Livermore; also known as the Livermore-Amador Valley), in addition to serving as the area's flood control agency. Zone 7 Water Agency supplies treated drinking water to four retail water supply agencies: Dublin San Ramon Services District, the City of Pleasanton, the City of Livermore, and California Water Service Company. These water retailers deliver water to homes in their individual service areas.

The four water supply retail agencies entered into an agreement titled the "Tri-Valley Water Retailers Cooperation Agreement." The Tri-Valley Water Retailers Group (TWRG) is the name of the staff committee from each water supply retail agency that administers the agreement and provides continuity between the annual meetings of the Committee of Valley Water Retailers (CoVWR) that is called for in the Agreement. The CoVWR and the TWRG serve as forums for the retailers to discuss issues of common interest. Zone 7 also supplies untreated water for local industry and agriculture. Thus, Zone 7 indirectly serves water to an area with a population of approximately 190,000 people.

Zone 7 is also the overall water quality management agency for the Alameda Creek Watershed above Niles. Zone 7's water resource management responsibilities include providing a wholesale treated drinking water supply; monitoring and protecting water quality; operating and maintaining a water treatment system; and managing flood and storm water for public safety and protection of property.

Zone 7 operates two water treatment plants, Del Valle and Patterson Pass, as well as a total of seven wells located in three well fields. Total surface water treatment design capacity is 55 million gallons per day (MGD) while the wells have a total peak capacity of 32 MGD. Surface water accounts for approximately 70% of regional needs. Zone 7 also manages the conveyance system required to insure proper distribution of the potable water supply to the retail water supply agencies.

One of the most important tasks Zone 7 performs is administering oversight of the local groundwater basin. In this capacity, Zone 7 monitors groundwater extractions and imports water to both artificially recharge the Main Groundwater Basin underlying the Livermore-Amador Valley (to supplement natural recharge) and to provide potable water through direct treatment (thus allowing local agencies to reduce pumping demands on the Main Basin). Zone 7's Groundwater Management Program prevents groundwater overdraft in this manner and the Groundwater Management Plan, which summarizes the program's components, is incorporated herein by reference.

The history of Zone 7 as a water resource management agency can be traced to the mid-1950's. At that time, the Livermore-Amador Valley was primarily rural in character, with a population of approximately 30,000. The area also faced a number of problems, including groundwater overdraft, poor drainage and flood hazards, and an uncertainty

over the status of future water supplies. It was against this backdrop that the residents of the Valley voted, in 1957, to create Zone 7.

## **2.2 Service Area**

Zone 7 Water Agency's service area encompasses 425 square miles of the Livermore-Amador Valley, Sunol Valley, and portions of the Diablo Range. The service area's boundary extends to include the entire eastern portion of Alameda County. Zone 7's service area includes about 190,000 residents of the cities of Dublin, Livermore, and Pleasanton and the surrounding unincorporated areas. This vibrant and rapidly growing region, located about 40 miles south-east of San Francisco, is home to a myriad of vital and dynamic economic enterprises. The area's largest employer, with almost 9,000 employees, is the Lawrence Livermore National Laboratory, located, along with Sandia National Labs, in the eastern end of the Livermore-Amador Valley. In the eastern reaches of the Valley can also be found oil wells and acres of energy generating windmills. High tech corporations like Oracle and AT&T are based in Pleasanton, headquartered in an area that a hundred years ago was marshy swamp land. Pleasanton is also home base for Safeway Stores, one of the largest food chains in North America with over 1,800 stores in the U.S. and Canada. Other large Tri-Valley employers include AT&T, Provident Financial, Sybase, and E-Loan. This is also an up and coming wine region, supporting a number of award winning wineries.

Zone 7's service area lies within the Alameda Creek Watershed. The Watershed encompasses almost 700 square miles and extends from Altamont Pass in the east to the San Francisco Bay in Union City on the west, and from Mount Diablo on the north to Mount Hamilton on the south (see Figure 1).

Major streams in Zone 7's service area include the Arroyo Valle, Arroyo Mocho, Arroyo Las Positas, Alamo Canal, and South San Ramon and Tassajara Creeks. Both the Arroyo Valle and Arroyo Mocho originate in the woodland forests of the Burnt Hills region in Santa Clara County, in the watershed above Lake Del Valle. The Arroyo Valle and Arroyo Mocho have the largest drainage areas within the Zone 7 service area.

The Arroyo Valle flows into Lake Del Valle above Lang Canyon. It continues its journey below the Del Valle Dam and flows westerly through a regional park on the southern border of Livermore and reaches Pleasanton. The Arroyo Valle then flows southwestly through the historic downtown region of Pleasanton and joins the Arroyo de la Laguna.

The Arroyo Mocho remains a natural waterway as it flows southwest through the oak woodlands east of Livermore. It then flows through the southern portion of Livermore, then goes through the gravel mining area west of the city where it meets the Arroyo Las Positas in Pleasanton. This stream is also a major component of Zone 7's groundwater recharge program. Zone 7 releases water into both it and the Arroyo Valle for aesthetic and environmental as well as groundwater recharge purposes.

The Arroyo Las Positas mainly flows westerly along I-580. The major tributaries of the Arroyo Las Positas include the Arroyo Seco, Altamont Creek, Cayetano Creek, Collier Canyon Creek, and Cottonwood Creek

In northeast Pleasanton, the Arroyo Las Positas joins the Arroyo Mocho. At this point, the streambed becomes a wide, trapezoidal-shaped flood control channel. The Arroyo Mocho then flows into the Arroyo de la Laguna, which is a tributary of Alameda Creek.

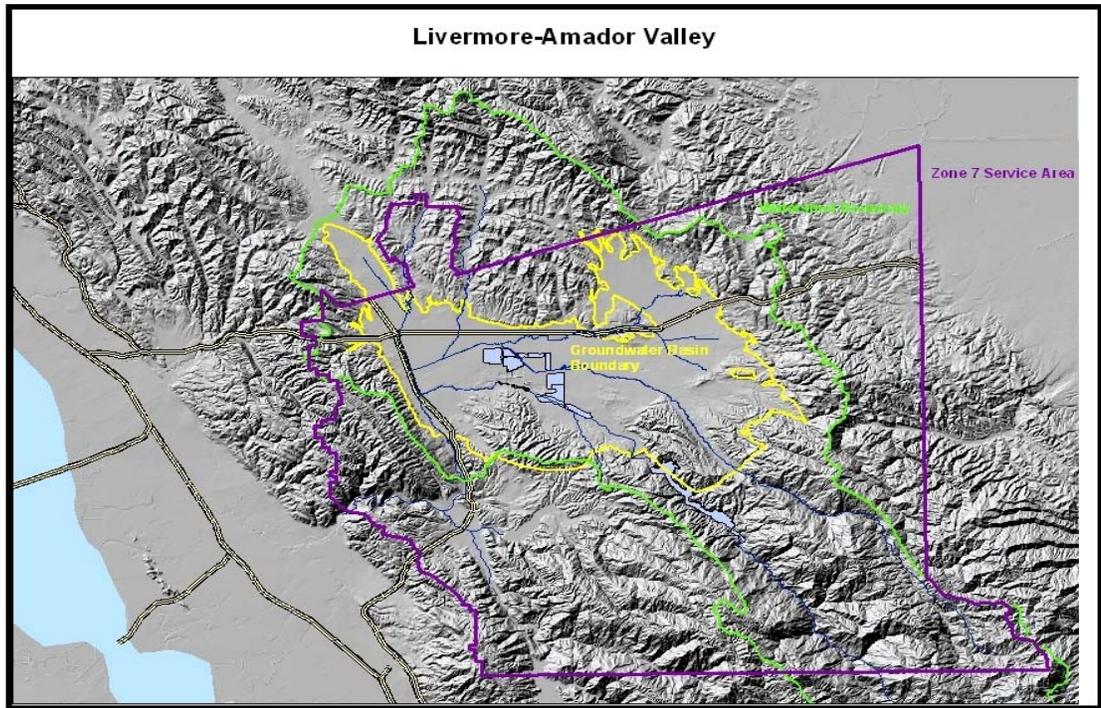


Figure 1. Zone 7 Service Area, Watershed Boundary, and Groundwater Basin

### **2.3 Population Growth**

Due to the extreme popularity of this area, population growth has risen at an accelerated pace. Since 1985, Zone 7’s service area population has almost doubled in size, growing from about 105,000 in 1985 to a present day level of approximately 196,000 (including Dougherty Valley residents) projected by year end. The current and projected population served by Zone 7 is shown in Table 1.

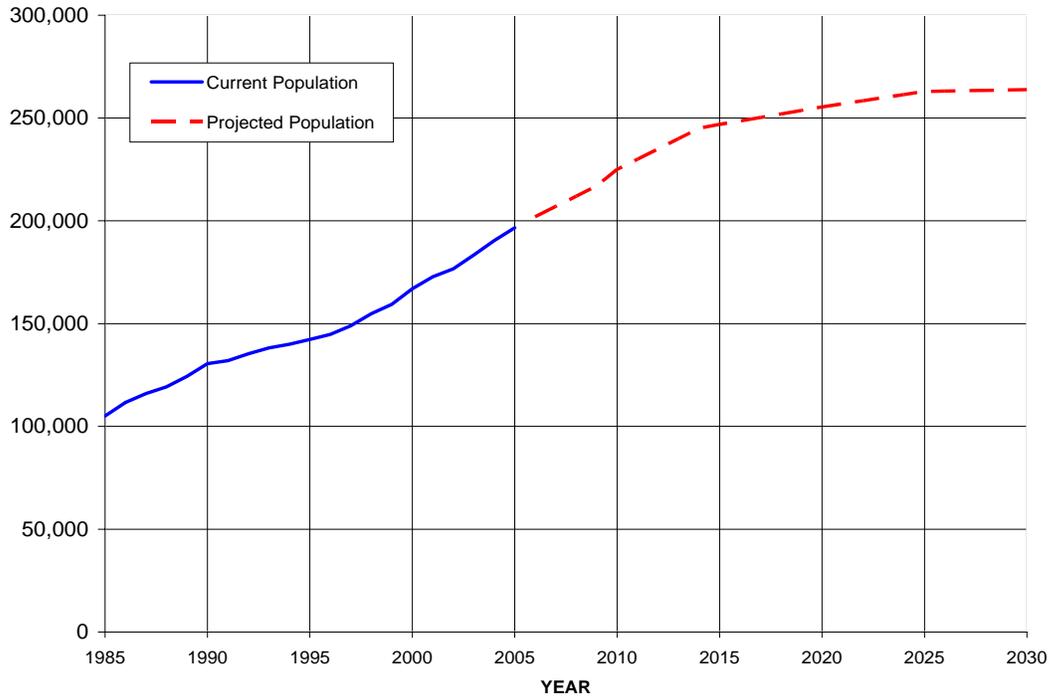
Table 1. Population.

(Source: Zone 7 Annual Review of the Sustainable Water Supply – July Update; 2005 Population estimate from CA. Dept of Finance Demographic Research Unit)

	2005	2010	2015	2020	2025	2030
Population Served by Zone 7 *	196,000	225,000	247,000	255,000	263,000	264,000

\* Year-end projections. Includes Dougherty Valley.

**ZONE 7 SERVICE AREA POPULATION**



*Figure 2. Zone 7 Service Area Population – Current and Projected.*

**2.4 Climate**

The climate is best described as Mediterranean, characterized by hot, dry summers and cool, moist winters. Annual precipitation in the region varies from 24 to 28 inches in the western portions of the Livermore-Amador Valley to approximately 14 inches in the more arid, eastern locations. A more detailed listing of relevant weather parameters can be found in Table 2 and viewed graphically as Figure 3.

**Table 2. Monthly & Annual Averages for ETo, Temperature, & Rainfall.**

Month	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Annual Avg.
<b>Total ETo (in)</b>	2.95	1.84	1.51	1.18	1.65	4.17	4.78	5.68	6.64	7.29	6.26	5.05	4.08
<b>Avg. Temp (°F)</b>	58.7	51.1	47.8	45.2	51.7	55.5	54.9	61.3	63.6	68.8	69.4	67.7	58.0
<b>Avg Rainfall (in)</b>	0.77	2.21	3.79	4.32	4.25	2.92	1.19	0.85	0.12	0.00	0.05	0.16	1.72

### Livermore-Amador Valley Climatologic Data

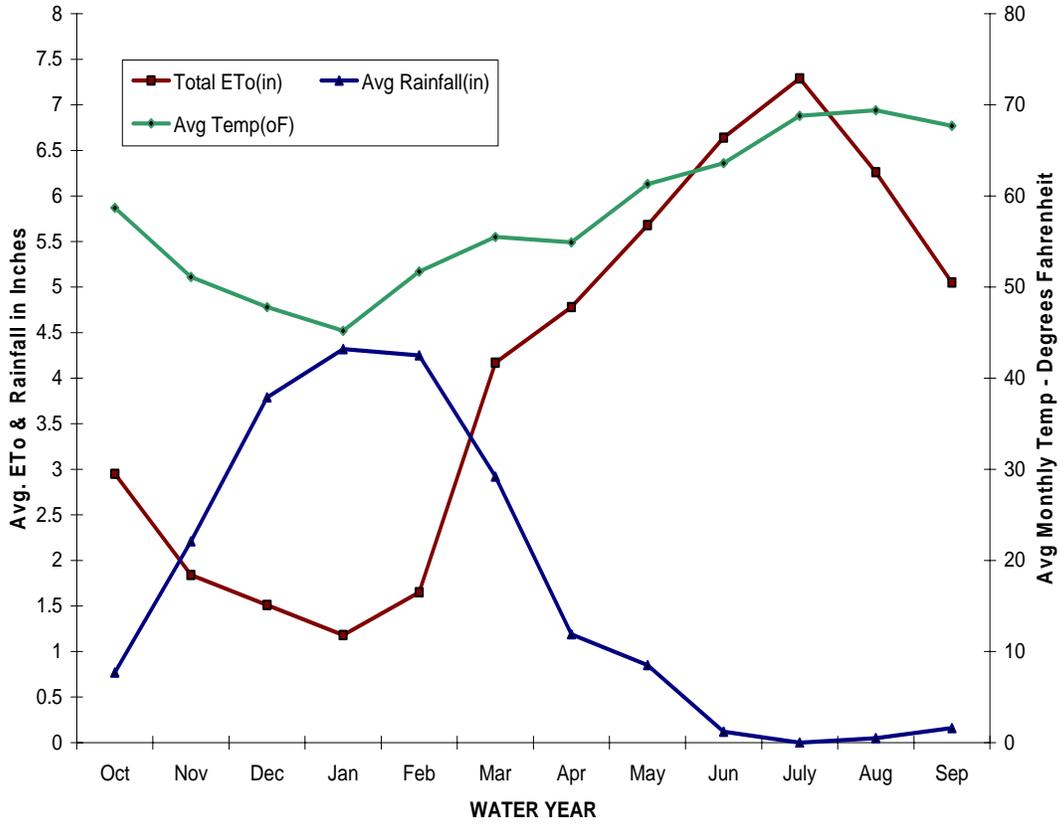


Figure 3. Livermore-Amador Valley Climatologic Averages

Average rainfall for Pleasanton is depicted in the graph in Figure 4.

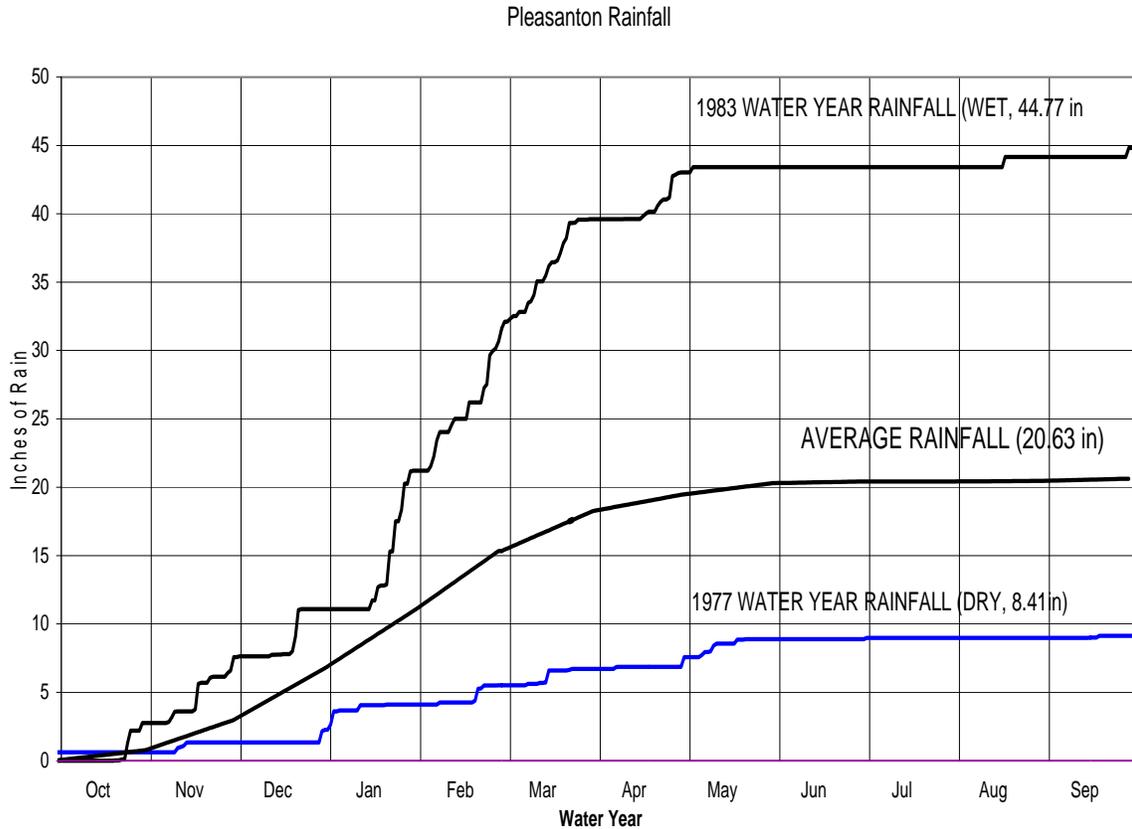


Figure 4. Pleasanton Rainfall.

### **3.0 AGENCY COORDINATION**

Water Code

*Section 10620*

*(d) (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 possible.*

Zone 7 Water Agency serves the cities of Dublin, Livermore, and Pleasanton through the four retail water suppliers: Dublin-San Ramon Services District, City of Pleasanton, City of Livermore, and California Water Service Company. Zone 7 and two of the four retail water suppliers operate municipal supply wells which pump from a common groundwater basin. In addition, Zone 7 imports State Water Project water and treats it at surface water treatment facilities, along with local runoff captured and stored in Del Valle Reservoir. Zone 7 also maintains groundwater levels by artificially recharging through controlled releases of surface water supplies. These agency relationships are set forth in retail water supply contracts.

As a first step in the preparation of the 2005 UWMP, Zone 7 held a kick-off meeting with technical staff from its water retailers. The purpose of the kick-off meeting was to establish lines of communication to ensure the efficient and timely transfer of relevant data needed to complete the UWMP. Zone 7 will continue to work closely with its retail water agencies and untreated water customers in the development and implementation of the respective water conservation and water management programs. As the wholesale water supplier to the Tri-Valley, Zone 7 has notified the cities within the service area of the opportunity to submit comments regarding the 2005 UWMP. As a special agency within the county structure, Zone 7 has similarly coordinated with other departments within the county, as well as the Alameda County Local Agency Formation Commission.

To improve the coordination of water supply planning, Zone 7 conducts an annual review of the Sustainable Water Supply, publishes the results, and discusses the management strategies. This process is conducted annually and is vetted in a number of forums including public presentations to the Zone 7 Board, presentations and discussion with the TWRG, and publishing of the report on the web.

The process of reviewing the Sustainable Supply on an annual basis makes the preparation of the water supply portion of the UWMP more of a reporting function. It also assures the water supply retail agencies and the community that the UWMP will not contain surprises. Zone 7 believes that this process makes its water management plans more responsive to community needs and more open to public review.

Table 3 lists the various organizations that were contacted. In addition, a public presentation was provided at the regular public meeting of the Zone 7 Water Agency Board held on August 17, 2005 to summarize the Draft UWMP. Table 3 also summarizes circulation of the Draft UWMP. The Draft UWMP was sent to the listed organizations with a request to provide comments.

Zone 7 Water Agency is also actively involved with the State Water Project Water Budget process and routinely communicates to its retail water supply agencies any drought related variability in the water supply availability. Throughout the year, Zone 7 holds regularly scheduled meetings with technical staff from each of its retailers.

Table 3. Agency Coordination.

ENTITY	TYPE	UWMP AUTHOR	PARTICIPATED IN DEVELOPING PLAN *	COMMENTED ON DRAFT	ATTENDED PUBLIC MEETINGS	WAS CONTACTED FOR ASSISTANCE	RECEIVED COPY OF DRAFT	SENT NOTICE OF INTENTION TO ADOPT
Zone 7 Water Agency	Water Mgt. Agency	X	X			X		
Alameda County Planning Dept.	Relevant Public Entity						X	
Alameda County Public Library - Dublin Branch							X	
California Water Services Company	Water Supplier		X			X	X	X
City of Dublin - Planning Dept.	Relevant Public Entity						X	
Dublin San Ramon Services District - DSRSD	Water Supplier/ Wastewater Mgt. Agency		X	X	X	X	X	X
Livermore Amador Valley Water Mgt. Agency (LAVWMA)	Wastewater Mgt. Agency						X	
City of Livermore - Water Resources Division	Water, Wastewater, Stormwater Utility		X	X	X	X	X	X
City of Livermore Public Library							X	
City of Pleasanton- Public Works Dept	Water Supplier		X		X	X	X	X
City of Pleasanton - Public Library							X	

\* Workshop - August 3, 2005; received review copy of July 2005 Administrative Draft

### **3.1 Maximize Resources & Minimize Need to Import Water**

*Water Code*  
*Section 10620. (2)*  
*(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 from other regions.*

This 2005 update of Zone 7 Water Agency’s UWMP describes how the agency uses its groundwater basin conjunctively for emergency drought storage (explained in more detail in the Groundwater Management Plan, incorporated herein by reference), local runoff stored in Lake Del Valle, and groundwater stored out of the area, to minimize the need for imported State Water Project water (see Section 5.0 below). Zone 7 is capable of

providing 100% of its contracted water obligations even in the event of the worst case multi-year drought. Doing so requires drawdown of the groundwater basin and pumpback from the Semitropic Water Storage District (see Section 7.2). To the extent that conservation can reduce demand during a drought, the groundwater basin and pumpback from Semitropic, can sustain the Valley for even longer periods than it could under a 100% demand scenario.

#### **4.0 PUBLIC PARTICIPATION**

*Water Code*

*Section 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. 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.*

Zone 7 Water Agency complied with this provision by allowing any interested member of the general community to have access to the draft UWMP. An overview of the UWMP was presented at the August 17, 2005 public meeting of the Zone 7 Board of Directors. This signified the opening of the public comment period. The Draft Plan was then made available for public inspection at local libraries, as well as on Zone 7's website. In addition, Zone 7 had a copy of the draft UWMP available for public review at the Zone 7 Administrative Office in Livermore. Draft copies were sent for review and comment to all Zone 7 retail water supply agencies, wastewater agencies, cities, and special interest groups before the public hearing. Public notices regarding the availability of the UWMP for public inspection were posted in the local newspapers and on the Zone 7 website. A public hearing is planned for September 21, 2005 to allow public comment about the UWMP before being adopted by the Zone 7 Board of Directors.

On September 21, 2005 the Zone 7 Water Agency Urban Water Management Plan 2005 Update will most likely be adopted by the Zone 7 Board of Directors at its regularly scheduled meeting. A copy of the Board resolution adopting the UWMP is attached as Appendix A.

## **5.0 WATER SOURCES**

### *Water Code*

#### *Section 10631.*

*A plan shall be adopted in accordance with this chapter and shall do all of the following:*

*(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same 5-year increments [to 20 years or as far as data is available.]*

Zone 7's sources of water supply available to meet demands can be grouped into five categories: 1) the Livermore-Amador Valley groundwater basin; 2) water transfers (out-of-basin storage options discussed in Chapter 8, below); 3) imported supplies; 4) locally conserved water in Lake Del Valle; and 5) recycled water. Existing and planned uses are described for each category in more detail below.

### **5.1 The Livermore-Amador Valley Groundwater Basin**

The Livermore-Amador Valley overlies a Main Groundwater Basin (Main Basin) that covers an area of over 17,000 acres and has an estimated storage capacity from 240,000 to 250,000 acre-feet. Detailed discussions of the Main Basin are available in the Groundwater Management Plan, incorporated herein by reference. DWR has not identified the Main Basin (DWR Basin No. 2-10) as either a basin in overdraft or a basin expected to be in overdraft.

The Main Basin is characterized by relatively good quality groundwater that meets all state and federal drinking water standards with only minimal treatment (chloramination to preserve quality in the distribution system). At one time, in the days before the construction of the State Water Project, groundwater was the sole water source for the Livermore-Amador Valley. This resource has gone through several periods of extended withdrawal and subsequent recovery. In the 1960's, when approximately 110,000 acre-feet of groundwater was extracted, the Main Basin reached its historic low of 130,000 acre-feet remaining in storage. The more significant recovery period was from 1962 to 1983. It was during this era that Zone 7 first conducted a program of groundwater replenishment by recharging imported surface water in its streams for storage in the Main Basin, began supplying treated surface water to augment groundwater supplies, and regulating municipal pumping by contractually establishing Independent Quotas (IQ).

Currently, Zone 7 manages the Main Basin so that under non-emergency conditions, including several multi-year droughts, groundwater elevations do not drop below historic low levels. Again, this is described in more detail in Zone 7's "Groundwater Management Plan" (incorporated herein by reference).

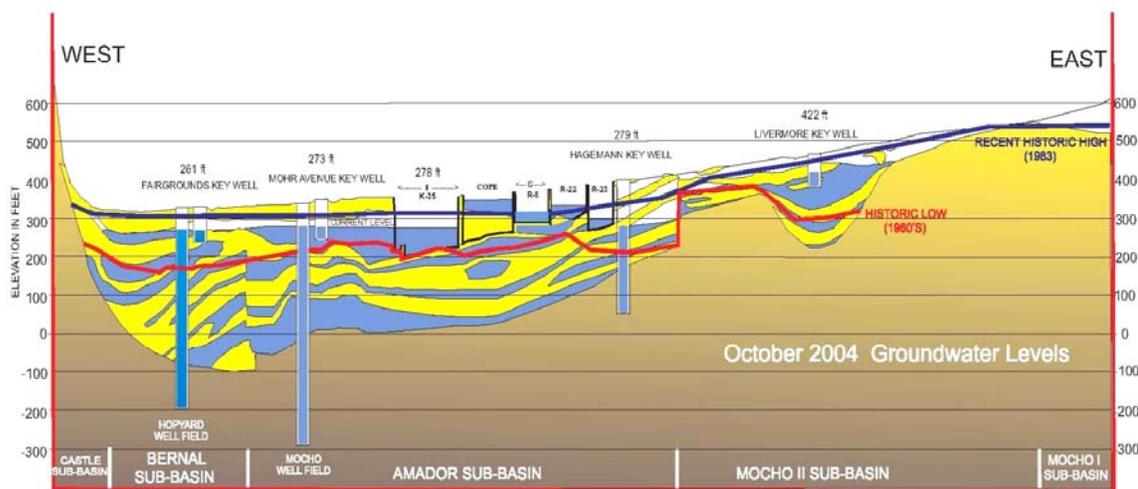
Zone 7 operates the groundwater basin to maximize conjunctive use of regional water supplies. Zone 7's present operational plan is to maintain about 130,000 acre-feet (i.e. the historic low level) of extreme emergency storage at all times, even after a prolonged drought. Zone 7's typical operational plans call for seasonal storage of 15,000 to 20,000 acre-feet of water within the groundwater basin and the maintenance of about 110,000 acre-feet for drought storage. This amount is sufficient (when used in conjunction with

other water supplies and groundwater storage in Semitropic Water Storage District) to sustain the Zone 7 service area through the worst credible drought. Under Zone 7's Basin Management Plan, some of this 110,000 acre-feet of drought storage can be pumped from the Main Basin in dry years to make up for any SWP shortages (see imported water discussion, below). In wet and normal years, this water is replaced through stream recharge using imported surface water. Zone 7's operational policy is to maintain the balance between the combination of natural and artificial recharge and withdrawal. This preserves the approximately 240,000 acre-feet of storage in the Main Basin for drought and emergency use - 110,000 acre-feet for drought storage and 130,000 acre-feet to be used only in case of extreme emergency (see Figure 5).

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Figure 5

### LIVERMORE-AMADOR VALLEY GROUNDWATER BASIN WEST-EAST CROSS-SECTION



	Bernal	Amador	Mocho II	Total
Area (Ac)	3,100	9,900	4,300	17,300
Saturated Thickness (ft)	246	159	98	168
Storage Coefficient	0.07	0.08	0.06	0.07
Groundwater Vol. (A-F)	53,000	126,000	25,000	204,000
Available Operational Storage	12,000	43,000	22,000	77,000

Figure 5. Livermore-Amador Valley Groundwater Basin Cross-Section

Zone 7 routinely monitors groundwater levels within the Main Basin. Two independent methods are used to estimate groundwater storage – 1) Hydrologic Inventory and 2) Nodal Water Level. The Hydrologic Inventory method computes storage change each quarter from basin supply and demand data. This method can also be used to forecast future water storage conditions. The Nodal Water Level method computes storage from hundreds of water level measurements. As seen in Figure 6, these two independent methods have very good correlation and give added confidence in Zone 7's ability to measure, monitor and even forecast groundwater storage changes. Figure 6 depicts Main

Basin storage levels calculated using the two methods.

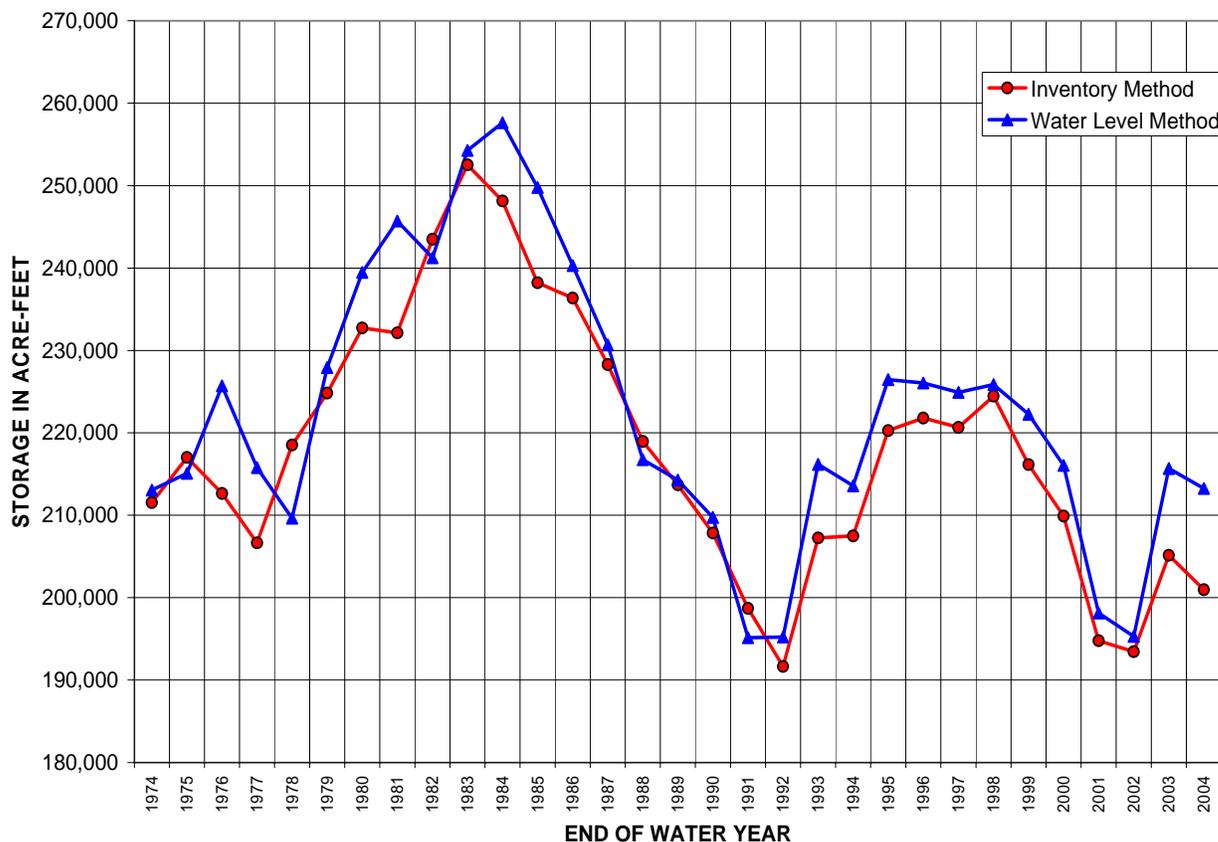


Figure 6. Main Basin Groundwater Storage

Long-term sustainable or safe yield is defined as the average amount of water that can be pumped annually from the Main Groundwater Basin and replenished by natural recharge. Safe yield is determined to be 13,400 AFA which is about 6% of the total estimated groundwater storage and is based on over a century of hydrologic records and projections of future recharge conditions.

A more detailed description of the Main Basin and Zone 7 Water Agency groundwater supplies is provided in the Groundwater Section, Chapter 6, as well as in the Groundwater Management Plan, incorporated herein by reference.

## 5.2 Imported Supplies

Imported surface water forms the majority of Zone 7's total water supply or about 75% of the treated water supplied to its retail customers. In November, 1961, Zone 7 entered into a 75 year agreement with the Department of Water Resources (DWR) and in the following year, received its first delivery from the State Water Project (SWP). SWP water originates within the Feather River watershed, is captured in Lake Oroville, and flows via the Sacramento-San Joaquin Delta and the California and South Bay Aqueducts (SBA) into Zone 7's treatment facilities. SWP water is used to meet municipal and industrial (M&I) demands, agricultural and other untreated water demands, and is also used to artificially recharge the groundwater basin. Zone 7 reached its maximum original SWP Table A quantity of 46,000 acre-feet in 1997. Since then, through water transfers,

Zone 7 has obtained additional SWP allocations, and now has a long-term contract with the SWP for delivery of up to 80,619 acre-feet of water a year. Water transfers are discussed in more detail in the Water Transfers Section, Chapter 8.

Due to hydrologic conditions, requests by other SWP contractors, SWP facility capacity, and environmental/regulatory requirements, DWR will not be able to supply Zone 7's full Table A quantity at any one time. Furthermore, as Metropolitan Water District in Southern California takes more of its allotment each year, the annual yield to other contractors will decline. The average yield of the SWP will continue to decline as total demand on the system increases from 3.8 to 4.1 million acre-feet per year. Using DWR's computer simulation model (DWRSIM) and CALSIM II, DWR's operation studies indicate an average future yield of 76% or 60,900 AFA for Zone 7 (based on the current SWP Table A quantity of 80,619 AFA).

### **5.3 Locally Conserved Water in Lake Del Valle**

Zone 7 holds water rights for flows in Arroyo Valle. Runoff from the Arroyo Valle watershed above Lake Del Valle is captured by Del Valle Dam and stored in the lake. This water is made available in Del Valle Reservoir through operating agreements between Zone 7 and DWR. Basically the reservoir is filled by both runoff from winter storms and SWP deliveries through late winter and spring. In late Fall, DWR typically lowers lake levels in anticipation of run-off from winter storm events and to provide flood capacity.

The thirty year historic yield to Zone 7 from Lake Del Valle has been about 8,000 AFA, based on records from construction of Del Valle Dam in 1969 to 1998. The future and long-term yield (2025) is calculated at 9,300 acre feet based on modeling of historic runoff data and future Zone 7 winter season demands. With increased winter demands (as growth occurs), more water can be used directly off the watershed rather than released to preserve storage for flood control needs.

Due to limited storage capacity in Lake Del Valle, Zone 7 is not able to fully capture and maximize local runoff. Plans have been formulated to reclaim existing gravel quarries in the central portion of the Livermore-Amador Valley, between Livermore and Pleasanton, and grant these facilities to Zone 7 for use as groundwater recharge and water resource management facilities. This "Chain of Lakes" would provide the additional storage to allow Zone 7 to capture and use more local runoff. Zone 7 studies have shown that annual quantities of water available from local runoff will vary according to the hydrologic year but could add an additional 3,000 acre feet of water annually on average. Two quarry pits have already been transferred to Zone 7. Completion of the Chain of Lakes is scheduled for 2030.

### **5.4 Recycled Water**

Although small in comparison to the other sources, recycled water does form an important component of regional water supply. Tertiary treated wastewater is used to irrigate the City of Livermore's Municipal Golf Course, Las Positas College and the business parks along the north side of I-580, the Dublin City Sports Grounds, and at various other sites within the Livermore-Amador Valley. Currently almost 3,000 acre-feet of recycled water, supplied by the City of Livermore and Dublin San Ramon Services District, is used for irrigation purposes within the service area. Future recycled water uses are discussed along with treatment and distribution details in the Water Recycling section, Chapter 14.

## **5.5 Total Sustainable Water Supply**

Total Sustainable Water Supply is the sum of the previously discussed sources and includes: the sustainable groundwater yield from the Main Basin, the State Water Project future average delivery, Lake Del Valle future average yield, recycled water use, 2,000 acre-feet annually of BBID water per year and, in drought years, the ability to withdraw from banked supplies in Semitropic and Cawelo. Note that since the overall banking supply is “0” (amount banked during wet years and withdrawn during dry years), these values are not included in Sustainable Yield calculations (see Chapter 7.2, below).

These sustainable water supply quantities are long-term average quantities and in dry years the supply from surface water sources will be greatly reduced. Zone 7 Water Agency stores water from our surface water sources in wet years when the SWP and LDV supplies are above average. Then in dry years, Zone 7 pumps more of the stored water out of the Main Basin or from Zone 7’s Semitropic Water Storage District or Cawelo accounts. Zone 7 is capable of providing 100% of its contracted water obligations even in the event of the worst case multi-year drought. Doing so requires drawdown of the groundwater basin and pumpback from the Semitropic Water Storage District (see Section 7.2). To the extent that conservation can reduce demand during a drought, the groundwater basin and pumpback from Semitropic, can sustain the Valley for even longer periods than it could under a 100% demand scenario.

Table 4. Zone 7 Total Annual Average Supply & Current Sustainable Supply

Source: Zone 7 Annual Review of the Sustainable Water Supply – July Update

SOURCE	Acre-Feet Annually						
	Year	CURRENT SUSTAINABLE SUPPLY	2010	2015	2020	2025	2030 <sup>2</sup>
Groundwater Supply		13,400	13,250	13,300	13,400	13,600	13,750
State Water Project <sup>1</sup>		60,900	63,700	62,900	60,900	60,900	60,900
Lake Del Valle <sup>3</sup>		9,300	8,400	8,900	9,300	9,900	12,500
Recycled Water		2,800	3,500	4,050	4,500	4,500	4,500
Byron Bethany Irrigation District (BBID) <sup>4</sup>		2,000	2,000	2,000	2,000	2,000	2,000
<b>TOTAL ACRE-FEET SUPPLY</b>		<b>88,400</b>	<b>90,850</b>	<b>91,150</b>	<b>90,100</b>	<b>90,900</b>	<b>93,650</b>

<sup>1</sup> Zone 7 submits annual delivery requests to State Water Project.

<sup>2</sup> Chain of Lakes becomes available in 2030, adding approximately 3,000 acre-feet of run-off.

<sup>3</sup> Locally conserved water from the Del Valle Watershed

<sup>4</sup> Byron Bethany Irrigation District represents a long-term water transfer (see Section 7.2)

## **5.6 Wholesale Water**

Zone 7 is the area water wholesaler. There are currently no opportunities for Zone 7 to purchase wholesale water from other water wholesalers as a potential source of supply.

## **6.0 WATER SOURCES-GROUNDWATER**

### *Water Code*

#### *Section 10631.(b)*

*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.*

*(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.*

Zone 7's Groundwater Management Plan (GMP) provides details of both the local basin and the Agency's approach to managing the regional water resources using conjunctive use principles. The GMP is attached to this document and incorporated herein by reference. A brief summary of key elements of the GMP follows.

As described in DWR Bulletin 118 update 2003, California's Groundwater, the Livermore Valley Groundwater Basin (DWR Basin 2-10) extends from the Pleasanton Ridge east to the Altamont Hills and from the Livermore Upland north to the Orinda Upland. DWR has not identified Basin 2-10 as one that is either in overdraft or expected to be in overdraft. Surface drainage features include Arroyo Valle, Arroyo Mocho, and Arroyo Las Positas as principal streams, with Alamo Creek, South San Ramon Creek and Tassajara Creek as minor streams. All streams converge on the west side of the basin to form Arroyo de la Laguna, which flows south and in Sunol Valley joins Alameda Creek which drains to the San Francisco Bay. Some geologic structures restrict the lateral movement of groundwater, but the general groundwater gradient is to the west, then south towards Arroyo de la Laguna.

The entire floor of the Livermore Valley and portions of the upland areas on all sides of the valley overlie groundwater-bearing materials. The materials are continental deposits

from alluvial fans, outwash plains, and lakes. They include valley-fill materials, the Livermore Formation, and the Tassajara Formation. Under most conditions, the valley-fill and Livermore sediments yield adequate to large quantities of groundwater to all types of wells. The quality of water produced from these groundwater-bearing materials ranges from poor to good.

The Main Basin includes portions of the Castle, Bernal, Amador, and Mocho II sub-basins of the Livermore Valley Groundwater Basin. The Main Basin covers an area of over 17,000 acres, and has an estimated storage capacity between 240,000 and 250,000 acre-feet.

At one time, in the days before the construction of the State Water Project, groundwater was the sole water source for the Livermore-Amador Valley. This resource has gone through several periods of extended withdrawal and subsequent recovery. In the 1960's, when approximately 110,000 acre-feet of groundwater was extracted, the Main Basin reached its historic low of 130,000 acre-feet. A more significant recovery period occurred from 1962 to 1983. It was during this era that Zone 7 first conducted a program of groundwater replenishment by recharging imported surface water in its streams for storage in the Main Basin. Table 5 shows Zone 7's monthly artificial recharge amounts from 1974 to 2004. Currently, Zone 7 operates the Main Basin so that under non-emergency conditions, including several multi-year droughts, groundwater elevations do not drop below historic low levels.

Table 5. Zone 7 Historic Artificial Recharge (Units in Acre-Feet)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1974	50	210	320	110	550	520	600	1,090	820	1,760	420	560	7,010
1975	510	50	200	170	570	800	1,130	1,210	940	490	0	0	6,070
1976	410	330	340	510	670	620	670	620	650	330	280	310	5,740
1977	120	50	50	50	50	50	50	450	630	1,600	0	0	3,100
1978	50	170	50	590	890	950	1,860	1,560	1,020	890	470	430	8,930
1979	740	450	710	870	1,180	1,470	1,580	1,320	1,740	1,240	560	420	12,280
1980	360	340	300	800	880	1,520	1,450	1,520	1,140	1,380	1,340	970	12,000
1981	810	610	170	800	1,130	1,320	1,730	1,730	850	470	470	790	10,880
1982	30	250	160	90	760	1,120	1,250	1,280	1,100	846	612	323	7,821
1983	190	10	0	0	0	240	260	180	110	170	180	120	1,460
1984	10	0	170	150	210	110	40	0	0	0	139	201	1,030
1985	102	169	159	188	178	70	0	0	0	0	31	210	1,107
1986	153	74	0	9	191	166	43	0	0	0	0	53	689
1987	172	168	192	209	75	0	0	0	0	0	0	0	816
1988	389	180	81	35	39	286	220	342	324	331	295	293	2,815
1989	711	404	442	443	477	495	239	247	914	285	270	277	5,204
1990	298	478	574	433	296	343	320	491	711	0	0	369	4,313
1991	1,210	56	87	0	0	0	0	0	51	0	0	0	1,404
1992	144	268	155	75	96	11	0	0	0	852	527	670	2,797
1993	165	73	80	397	951	1,373	1,351	794	1,095	1,084	624	87	8,075
1994	568	320	377	22	350	1,331	1,299	1,407	1,312	452	684	275	8,396
1995	15	42	15	0	167	593	916	605	900	161	134	99	3,647
1996	19	8	1	7	29	255	406	457	267	112	358	451	2,371
1997	1	10	152	256	521	634	765	995	1,105	1,268	735	565	7,008
1998	207	0	0	87	294	628	727	612	282	832	506	892	5,067
1999	157	60	76	166	769	732	839	646	1,289	1,230	495	0	6,459
2000	73	178	481	566	954	956	1,008	1,039	980	1,482	497	126	8,339
2001	369	46	60	216	224	52	25	795	389	3,752	457	888	7,273
2002	132	191	682	1,119	1,799	1,572	858	1,143	1,960	1,827	642	15	11,940
2003	339	973	1,293	1,182	1,194	1,259	1,566	1,497	1,284	1,149	362	764	12,862
2004	812	639	772	1,034	777	615	1,061	697	716	486	1,722	1,277	10,607

Zone 7's present groundwater management plan is to maintain about 130,000 acre-feet (i.e. the historic low level) of extreme emergency storage at all times, even after a prolonged drought. Zone 7's typical annual operational plans call for seasonal storage fluctuations of 15,000 to 20,000 acre-feet of water within the groundwater basin and the maintenance of about 110,000 acre-feet for drought storage. This amount is sufficient (when used in conjunction with other specified water supplies and groundwater in off-site storage) to sustain the Zone 7 service area through the worst credible drought. Under Zone 7's Basin Management Plan, some of this 110,000 acre-feet of drought storage can be pumped from the Main Basin in dry years to make up for any SWP shortages. In wet and normal years, this water is replaced through current instream recharge using imported surface water, with plans to augment the instream recharge with offstream recharge facilities with a future Chain of Lakes facilities. Zone 7's operational policy is to maintain the balance between the combination of natural and artificial recharge and withdrawal. This preserves the approximately 240,000 acre-feet of storage in the Main Basin for drought and emergency use - 110,000 acre-feet for drought storage and 130,000 acre-feet to be used only in case of extreme emergency.

Long-term sustainable (also called "safe") yield is defined as the average amount of water that can be pumped annually from the Main Groundwater Basin and replenished by natural recharge. More water can be and is pumped from the main basin each year as long as Zone 7 artificially recharges the basin with additional water from Zone 7's outside sources. Sustainable yield is determined to be 13,400 AFA which is about 6% of the total estimated groundwater storage.

The long-term sustainable yield is based on over a century of hydrologic records and projections of future recharge conditions. Based on this sustainable yield value, the Valley's major water retailers are permitted to pump 7,200 acre-feet annually without charge (established in the original retail contracts as "Independent Quota"). This amount, now referred to as Groundwater Pumping Quota, is established as part of Zone 7's Municipal and Industrial water supply contract with each retail water supply agency. The retail water agencies that have groundwater pumping capability, are permitted to pump more water from the Main Basin and are charged a recharge fee. This fee covers the cost of importing and recharging additional water into the Main Basin. The balance of the sustainable yield is pumped for other municipal, agricultural and gravel mining uses. Zone 7's pumpage for its treated water system does not use the natural sustainable yield from the basin; instead Zone 7 pumps only water that has been recharged as a part of its artificial recharge program.

As mentioned previously, plans are in place to reclaim existing gravel quarries in the central portion of the Livermore-Amador Valley, between Livermore and Pleasanton, and dedicate these facilities to Zone 7 for use as groundwater recharge and water resource management facilities. Ultimately, this "Chain of Lakes" could cover 2,000 acres and store approximately 100,000 acre-feet of water. Zone 7 would store excess water during wet and/or normal years and use those supplies during dry years thereby increasing annual groundwater replenishment capability. Although full implementation of this plan would not occur until about 2030, there would likely be opportunities to use individual gravel quarries or Lakes as they become available. The first of these, Lake I, located off Arroyo Mocho, was dedicated to Zone 7 in June 2003.

In addition to Lake I, Zone 7 also acquired Cope Lake, a 220 acre former mining pit that was used as a water supply source by the gravel operators. Although largely sealed from the aquifer and not a part of the Chain of Lakes, Cope Lake does offer some potential for other uses such as flood detention or recycled water seasonal storage.

Groundwater storage serves to increase the reliability and redundancy of Zone 7's treated water supply such that treated water is available to Zone 7 customers when annual State Water Project allocations are low during a drought year, or in the event of an emergency. The ability of Zone 7 to respond to a situation in which SWP deliveries were reduced will be covered in more detail in the Reliability Section. However, as a general principle, Zone 7 would utilize its groundwater pumping capability and encourage City of Pleasanton and California Water Services Company to do likewise. Zone 7's groundwater production capacity is illustrated in the following table (Table 6).

Table 6. Zone 7 Groundwater Production Wells

FACILITY	AVG.CAPACITY GPM	SUSTAINED CAPACITY FOR PLANNING		3 Month Avg sust. Capacity	Power consumption		PEAK CAPACITY	2005	
		MGD	AF/MONTH	MGD	KWH/AF	KWH/AF/FT	MGD	TDS	Hardness
								mg/l	mg/l
<b>HOPYARD WELL FIELD</b>	4,980	7.1	666	7.1			7.8		
HOPYARD 6	3,800	5.5	515	5.5	603	1.7	6.0	490	300
HOPYARD 9	1,240	1.6	152	1.6	619		1.8	440	300
<b>MOCHO 1&amp;2 WELL FIELD</b>	4,660	6.1	571	18.5			6.8		
MOCHO 1	2,370	3.1	290		587		3.4	650	450
MOCHO 2	2,290	3.0	281		587		3.3	500	390
<b>MOCHO 3&amp;4 WELL FIELD</b>	7,790	10.2	954				11.3		
MOCHO 3	4,130	5.4	505		652	1.6	6.0	520	400
MOCHO 4	3,660	4.8	449		782	1.5	5.3	520	340
STONERIDGE	4,660	6.1	571		684	2.0	6.8	370	240
<b>TOTAL GROUNDWATER</b>	22,090	<b>30</b>	<b>2,760</b>	<b>26</b>	<b>684</b>		<b>33</b>		

## 7.0 RELIABILITY OF SUPPLY

*Water Code*

*Section 10631*

*A plan shall be adopted in accordance with this chapter and shall do all of the following:*

*(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable. Provide data for each of the following: (1) An average water year, (2) A single dry water year, (3) Multiple dry water years.*

Zone 7 has adopted a Water Supply Reliability Policy – Zone 7 Board Resolution No. 04-2662 (Reliability Policy). This policy is to maintain the ability to meet 100% of Zone 7’s estimated treated water demands 100% of the time, including during a multi-year drought period. The “Reliability Policy for Municipal and Industrial Water Supplies,” adopted by the Zone 7 Board in May 2002 and revised in August 2004 has two “Goals” (see Appendix B).

Goal 1 directive is to meet 100% of its treated water customers water supply needs in accordance with Zone 7’s most current contracts for Municipal and Industrial (M&I) Water Supply, including existing and projected demands for the next twenty (20) years, even during extended drought periods. It states that “Zone 7 will endeavor to meet this goal during an average water year, a single dry water year, and multiple dry water years.”

Goal 2 is to “Provide sufficient valley-wide groundwater production capacity (including Zone 7’s and Contractors’ wells) to meet at least 75% of the estimated maximum daily M&I water demand.” While these goals provide guidance to staff in planning reliable facilities, storage and water supplies, they do not imply that Zone 7 is not committed to conservation. In previous droughts, significant reductions in demand were achieved through the combined efforts of Zone 7 and its four retail water suppliers (Dublin-San Ramon Services District, City of Livermore, City of Pleasanton and California Water Service Company); the demand reductions achieved during the most recent drought are shown graphically in Figure 6 (presented in Chapter 10).

To ensure that the 100% reliability criteria is met, Zone 7’s policy statement directs staff

to pursue multiple water supply sources, i.e. imported water, recycled water, demand reduction/water conservation measures, additional groundwater production facilities, and optimize their use with increased conjunctive use of the groundwater basin as well as additional out-of-valley (Semitropic Water Storage District) storage. Zone 7 will also develop supplementary groundwater pumping capacity in order to provide well production capacity equal to 75% of maximum day M&I demands to protect against emergency curtailments in SWP deliveries or water treatment plant outages.

Every April Zone 7 prepares a water supply assessment of the Livermore-Amador Valley sustainable water supply. The 2005 sustainable supply is 88,400 acre-feet and current estimated 2030 “Buildout Demand” is 69,370 acre-feet (see Table 9). Operational studies used in this assessment demonstrate that Zone 7 has sufficient water supply to meet this future demand for every hydrologic year on record (see Table 4). The capital facilities needed to store, treat and deliver this water have been identified and are incorporated into the agency Capital Improvement Plan (CIP). Zone 7 has sufficient sustainable supplies to provide for all treated water demands through build-out and for all currently contracted untreated water demands.

Note that in addition to the goals stated above, Zone 7 has a number of planning and operational criteria, which are associated with this Board resolution and are as follows:

1. Provide surface water treatment design capacity to meet 85 percent of the Zone 7 maximum day demand for reliability and operational flexibility. This is shown graphically in Figure 7 on the following page.
2. Operate water supplies so that the groundwater basin levels do not drop below historic lows.

### **7.1 State Water Project Availability**

The ability of the State Water Project (SWP) to deliver full water supply requests to its contractors in any given year depends on a number of factors - rainfall, size of snowpack, runoff, water in storage, and pumping capacity in the Delta. Therefore, the actual yield of the SWP varies from year to year and is usually discussed in terms of average year, wet year, and dry year deliveries.

Average year SWP yield is estimated to be about 76% of contracted allocations. Wet year conditions are defined as those years when surplus water is available from the SWP. During these wet years, surplus water supplies may be stored locally or outside the Main Basin for subsequent use in later years.

Zone 7, the first State Contractor to take water deliveries, has a long-term contract with the SWP for delivery of 80,619 acre-feet of water a year. However, the SWP with its present configuration and lower demands can only deliver about 82% of its contracted amounts and this quantity will decrease as the demands by all SWP contractors increase. For instance, as Metropolitan Water District increases its annual SWP allotment, the annual yield to other contractors will decline. DWRs’ operation studies using the DWRSIM (computer model) indicate an average future (2020) yield of 75.57% (60,900 acre-feet). “The State Water Project Delivery Reliability Report” draft released in August 2002, which uses CALSIM II model data indicate an average yield of 75-76% (74.59% for Study 2021A and 75.73% for Study 2021B). Zone 7 reviewed this report and confirmed that this estimate of 75.57% as the average future yield is still generally valid. This yield assumes that Zone 7 has the storage and conveyance capacity to take all SWP

water in every year when water is available. However, if Zone 7 lacks this conveyance or storage capacity or if CALFED restrictions change SWP operations, then Zone 7 would get a lower long-term average yield.

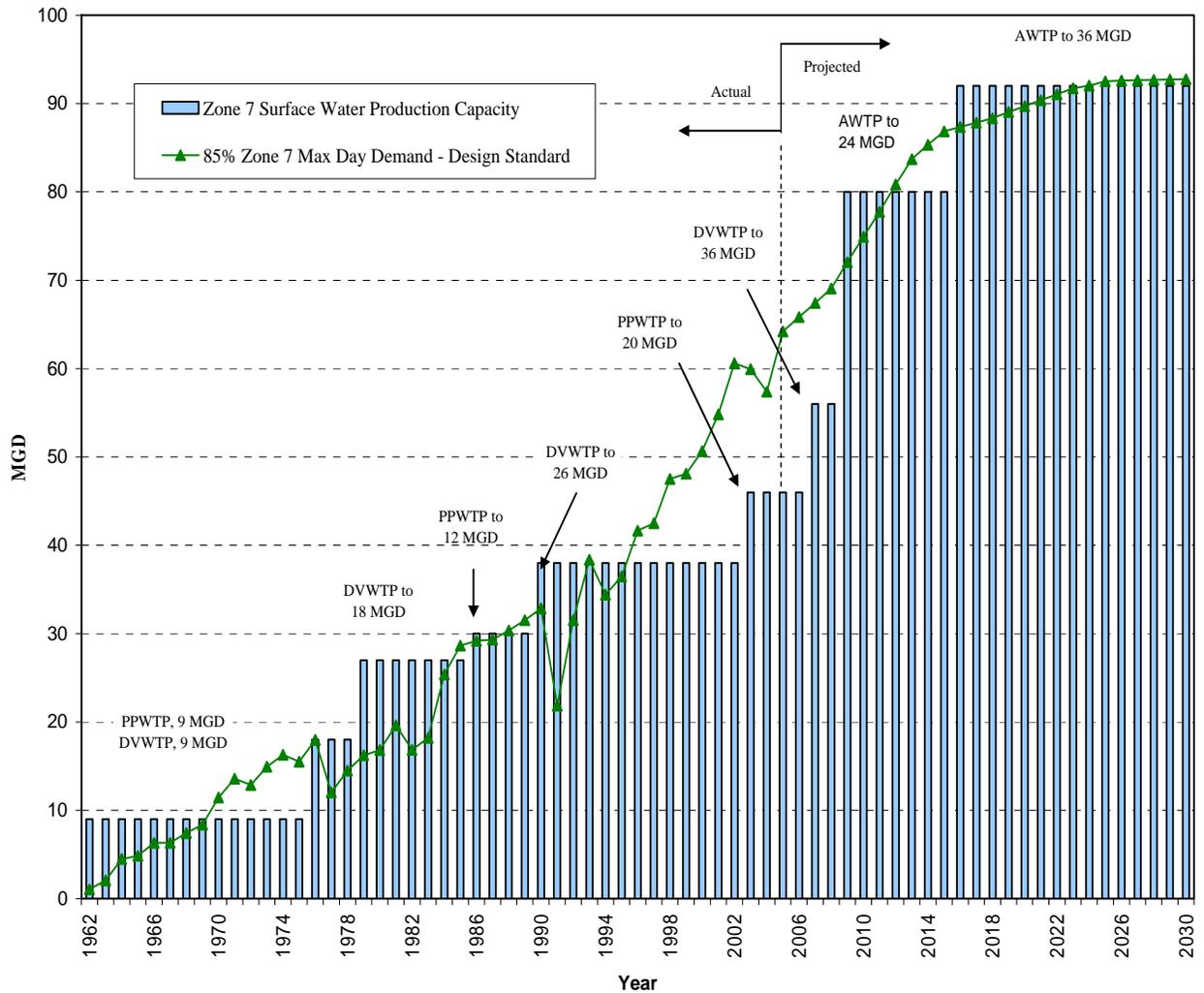


Figure 7. Zone 7 Surface Water Production Capacity vs. 85% Zone 7 Max Day Demand

## 7.2 Transfer Opportunities

Dry year conditions may result in even lower SWP deliveries than the 75-76% anticipated in average years. Consequently, to compensate for this anticipated drought season reduction in SWP deliveries, Zone 7 investigated supplemental sources of water, either from storage or dry-year water transfers. The 1987 Statement on Zone 7's Groundwater Management (incorporated by reference into the Groundwater Management Plan) recommends management of the Main Basin so that groundwater levels remain above the historic lows in any given dry year or extended drought period. To ensure that this management approach can be implemented, additional dry year water and storage transfer opportunities were investigated. The resultant decision was to pursue water transfer opportunities such as seeking additional storage capacity outside the Zone 7 service area and seeking additional SWP allocations (see Table 14).

Zone 7 has increased its SWP Table A quantity from its original maximum of 46,000

acre-feet to 80,619 acre-feet. These dry year water supplies are required to provide 100% reliability

In 1994, Zone 7 also entered into a short-term water transfer demonstration project with Byron Bethany Irrigation District (BBID) which provided a minimum supplemental water supply of 2,000 AFA. This was a five year agreement with a potential to purchase up to 5,000 AFA. In 1998, both Zone 7 and BBID decided to convert the short-term agreement into a long-term, 15 year contract, renewable every five years up to a total of 30 years.

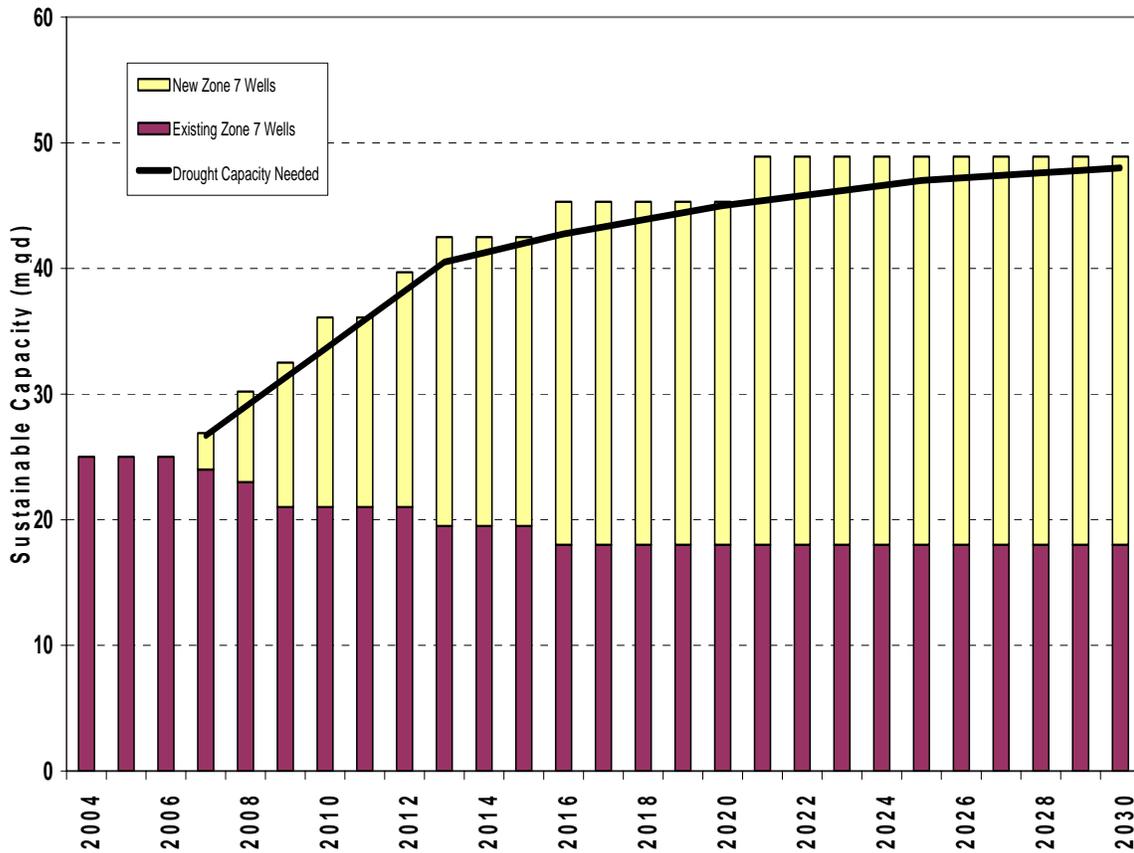
In addition, Zone 7 has purchased 22,000 acre-feet of storage capacity in the Semitropic Water Storage District (STWSD) Groundwater Banking Program. Another 43,000 acre-feet of storage capacity in the Banking Program was acquired by Zone 7 for the Dougherty Valley development. In 2004, Zone 7 entered into an agreement in principle with Cawelo Water District for an “In Lieu Banking Program”. This involves putting two acre-feet into and taking one acre-foot out exchange and bond program. Basically, this additional storage capacity acts as drought protection by allowing Zone 7 the option of storing excess imported surface water during wet or normal hydrologic years and withdrawing this water during dry years. Although this is considered a “storage project” by Zone 7, DWR considers this to be a type of water transfer.

Actual water transfer projects are discussed in more detail in Chapter 8, below.

### **7.3 Local Groundwater as a Drought “Bank”**

As mentioned earlier, Zone 7 operates the Main Groundwater Basin so that under non-emergency conditions, including multi-year drought periods, groundwater levels do not drop below historic low levels (see also the attached Groundwater Management Plan). Zone 7 currently uses local storage in the Main Basin and distant storage in Semitropic Water Storage District (and planned storage in Cawelo) to ensure that it has a totally reliable water supply in any given hydrologic water year. The Main Basin provides a hedge against a situation such as a prolonged drought period occurring simultaneously with a delay in obtaining a transferred water supply. If an extended drought were to force cutbacks in SWP deliveries, Zone 7 would utilize groundwater resources to meet the demands of its customers. Again, this planning for reliability does not imply that conservation would not also be encouraged both by Zone 7 and its retail urban water supply agencies. Figure 8 graphically displays Zone 7’s well capacity for drought protection.

**ZONE 7 WELL CAPACITY FOR DROUGHT PROTECTION**



*Figure 8. Zone 7 Well Capacity for Drought Protection*

**7.4 Out of Basin Groundwater Storage as a Drought “Bank”**

Zone 7 utilizes 65,000 AF of groundwater basin storage in Semitropic to store SWP supplies available in above average rainfall runoff years. This water can be pumped out and transferred back to Zone 7 via SWP conveyance facilities. This is made possible through coordination and management of our water supply operations.

Proper planning, along with construction and utilization of efficient facilities enables Zone 7 to maintain a water supply system with a reliability of 100%. The management of storage facilities and their associated conveyance systems, is a vital component of Zone 7's ability to deliver a sustainable water supply during dry and critically dry years.

## **8.0 WATER SUPPLIES & TRANSFERS**

### *Water Code*

#### *Section 10631.*

*A plan shall be adopted in accordance with this chapter and shall do all of the following:*

*(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same 5-year increments [to 20 years or as far as data is available.]*

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

To protect its customers in the event of a prolonged drought and to maintain its goal of 100% reliability in any circumstance, Zone 7 has entered into several long-term water transfer agreements to supplement its regular surface water supplies and to best manage the local groundwater basin (see attached Groundwater Management Plan). These long-term agreements will enable Zone 7 to avoid major service disruptions in the event of a multi-year drought and have the capacity to maintain full water deliveries to its customers.

### **8.1 Imported Supplies**

Imported water forms the bulk of Zone 7's total water supply. In November, 1961, Zone 7 entered into a 75 year agreement with the Department of Water Resources (DWR) and in the following year, received its first delivery from the State Water Project (SWP). SWP water originates within the Feather River watershed, is captured in Lake Oroville, and flows via the Sacramento-San Joaquin Delta and the California and South Bay Aqueducts (SBA) into Zone 7's treatment facilities. SWP water is used to meet municipal and industrial (M&I) demands, agricultural and other untreated water demands, and is also used to artificially recharge the groundwater basin. Zone 7 reached its maximum original SWP Table A quantity of 46,000 acre-feet in 1997.

Since 1997, Zone 7 has increased its SWP contract amount to 80,619 acre-feet through a series of permanent transfers. In December 1999, Zone 7 secured Table A SWP allocations from Lost Hills Water District of 15,000 Acre-Feet Annually (AFA) and Berrenda Mesa Water District of 7,000 AFA. This enabled Zone 7 to increase its SWP Table A Maximum Annual Allocation to 68,000 AFA. In December 2000, 10,000 acre-feet of SWP allocation from Kern County Water Agency (KCWA) was acquired, which increased Table A Maximum Annual Allocation to 78,000 AFA. In October 2003, an additional 2,219 acre-feet was obtained from the same source bringing the total from KCWA to 12,219 acre-feet. This and 400 acre-feet of water from Tulare Lake Basin Water Storage District raised Zone 7 Table A quantity amount to 80,619 acre-feet.

As mentioned in Section 7.2, in 1994, Zone 7 entered into a short-term water transfer demonstration project with Byron Bethany Irrigation District (BBID) which provided a minimum supplemental water supply of 2,000 AFA. This was a five year agreement with a potential to purchase up to 5,000 AFA. In 1998, both Zone 7 and BBID decided to convert the short-term agreement into a long-term, 15 year contract, renewable every five years up to a total of 30 years. BBID has pre-1913 water rights to water in the Delta.

## 8.2 Water Banking Outside Zone 7

In addition to the above listed sources of water and agreements, Zone 7 has purchased 22,000 acre-feet of storage capacity in the Semitropic Water Storage District (STWSD) Groundwater Banking Program. Another 43,000 acre-feet of storage capacity in the Banking Program was acquired by Zone 7 for the Dougherty Valley development. Basically, this additional storage capacity acts as drought protection by allowing Zone 7 the option of storing excess imported surface water during wet or normal hydrologic years and withdrawing this water during dry years.

Table 7. Zone 7 Water Supply Acquisition Projects

Project Name	Contract Amount (Avg Yield)	Term/Expiration
<b>Long-Term Water Supply Sources</b>		
State Water Project	46,000 afa (yield)	Until 11/20/2036
Local Arroyo Valle Water Rights	9-12,000 afa average yield	Perpetual
Byron-Bethany Irrigation District	2 - 5,000 afa	Until 12/31/2013, renewable to 12/31/2028
Berrenda Mesa SWP Contract Amount Transfer	7,000 afa; (920 afa net to Zone 7) (yield)	Until 11/20/2036
Lost Hills SWP Contract Amount Transfer	15,000 afa (yield)	Until 11/20/2036
Belridge SWP Contract Amount Transfer	10,000 afa (yield)	Until 11/20/2036
Belridge SWP Contract Amount Transfer	2,219 afa (yield)	Until 11/20/2036
Tulare Lake Basin Water Storage District - SWP Transfer	400 afa (yield)	Until 11/20/2036
<b>Drought Year Protection</b>		
Groundwater Basin Management	270,000 af total storage, 140,000 operational storage	Perpetual
Semitropic Water Storage Bank (43,000 af)	43,000 af storage and 3,870 afa, min pumpback	Until 12/31/2035
Semitropic Water Storage Bank (22,000 af)	22,000 af storage and 1,980 afa, minimum pumpback	Until 12/31/2035
Semitropic Increased Pumpback Project (Stored Water Recovery Unit, SWRU)	3,250 afa minimum pumpback	Until 12/31/2035
Cawelo Water District	10,000 afa minimum pumpback	Until 2035, renewable pending

SBA = South Bay Aqueduct  
 SWC = State Water Contract  
 SWP = State Water Project

afa= Acre-feet per year  
 af/mo = Acre-feet per month, peaking

## **9.0 WATER USE BY CUSTOMER**

### *Water Code*

#### *Section 10631*

*(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) multi-family, (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,*

*(2) Agricultural.*

Zone 7 Water Agency is a water wholesaler and supplies treated water to retail water agencies for Municipal and Industrial (M&I) use. Zone 7 also serves untreated surface water directly to several agricultural and other smaller customers. In addition, Zone 7 serves treated water directly to an extremely small number of retail customers (significantly less than 3,000). The main Zone 7 retailers are Dublin San Ramon Services District (DSRSD), which serves Dublin and the Dougherty Valley development; City of Pleasanton Municipal Water Department, serving Pleasanton; and the California Water Services Company (CWS) and City of Livermore Municipal Water Department which together provide water service to Livermore.

As a wholesaler, Zone 7 does not have access to records of individual use such as single-family versus multi-family versus commercial use, for example. However, using estimates provided by local water retailing agencies, it appears that the percentage of residential water users varies from a low of about 60% in Pleasanton and DSRSD service areas to a high of about 75% in Livermore. The remainder of the water provided to the retail water suppliers makes up commercial, industrial, and institutional-governmental uses. There are no significant projected changes during the study planning period. Again, reference is made to specifics provided by retail water suppliers in individual UWMPs.

Per capita water use for each of Zone 7's major water retailers, as well as an overall service area use, is illustrated by Figure 6. More detailed information on retailer use is presented in UWMP's specific to each retailer.

Treated water demand is comprised almost entirely of water scheduled for delivery to the cities by the four major retailers. Zone 7 also provides water service to institutional users such as the Veterans Administration Medical Center and the Dublin Housing Authority. All treated water supplied by Zone 7 to the four major retailers is considered Municipal and Industrial (M&I) use.

Agricultural/non-potable water use is a small part of Zone 7's operation. There are currently 11 turnout customers who get water deliveries directly from the South Bay Aqueduct. Individual customers branch off the turnout customer systems and currently number 71. Non-potable water use is around 4,000 AFA with a potential of growing to 8,250 by year 2030.

Table 8. Zone 7 Water Demand. Units in acre-feet.

Deliveries to Retail Water Supply Agencies	Actual		Projected					
	2000	2004	2005	2010	2015	2020	2025	2030
City of Livermore	6,169	6,785	7,470	7,620	9,400	9,900	10,200	10,200
City of Pleasanton	13,938	15,614	15,670	18,320	21,800	22,700	23,400	23,400
California Water Service Company	7,802	8,994	8,470	10,320	12,600	13,200	13,650	13,700
Dublin-San Ramon Services District *	7,368	10,978	11,760	12,820	13,100	12,900	13,250	13,320
Direct Sales to Treated Water Customers	306	775	280	290	340	410	460	500
<b>Total Treated Water Sales</b>	<b>35,583</b>	<b>43,146</b>	<b>43,650</b>	<b>49,370</b>	<b>57,240</b>	<b>59,110</b>	<b>60,960</b>	<b>61,120</b>
No. of Non-Potable Customers**	10/47	11/65	11/71	12/80	12/90	12/100	12/100	12/100
Agricultural	5,899	3,530	3,900	8,250	8,250	8,250	8,250	8,250
<b>Total Water Sales</b>	<b>41,482</b>	<b>46,676</b>	<b>47,550</b>	<b>57,620</b>	<b>65,490</b>	<b>67,360</b>	<b>69,210</b>	<b>69,370</b>
Other Uses								
Artificial Recharge	8,000	10,600	9,000	15,000	20,000	20,000	25,000	30,000
SWP to Semitropic	3,740	5,166	5,166	5,000	5,000	5,000	5,000	5,000

Source: Zone 7 Annual Review of Sustainable Supply Report and Contractor Delivery Requests 2006-10

\* Includes Deliveries to Dougherty Valley

\*\* Number of Turnout Customers/Number of Individual Customers

## **10.0 WATER DEMAND MANAGEMENT MEASURES**

### *Water Code*

#### *Section 10631.*

*(f) Provide a description of the supplier's water demand managements.*

*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 [listed in the accompanying section]:*

*(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 suppliers' service area, and the effect of such 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, which offer lower incremental costs than expanded or additional water supplies.*

*(h) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to the council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California", dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).*

Zone 7 Water Agency recognizes water conservation, or demand management, as a priority in any water resources strategy developed for the Livermore-Amador Valley region. However, Zone 7 is not a signatory to the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU) and therefore is not a member of the California Urban Water Conservation Council (CUWCC).

However, in 1991, the Zone 7 Board of Directors adopted Resolution 1506 (Appendix C), which endorses water conservation and expresses a willingness to support and implement the Best Management Practices (BMPs) outlined in the MOU. Though it is not a signatory, Zone 7 has made, and will continue to make, good faith efforts to implement all applicable BMPs listed in the CUWCC MOU. In particular, Zone 7 recognizes its obligations under BMP 10, wholesaler assistance to its retail water supply agencies. Water conservation is a major component of Zone 7's water supply management strategy, as recognized by our listing of water conservation programs in the Agency ten-year Capital Improvement Plan. Over \$170,000 annually is budgeted for programs that offer financial incentives (rebates) for the purchase and installation of low water use devices, such as ultra-low-flush toilets and high efficiency washing machines. An additional

\$135,000 is budgeted for implementation of other applicable BMPs.

The overall objective of Zone 7's water conservation program is to achieve and maintain a high level of water use efficiency throughout the Livermore-Amador Valley. Specific objectives include:

- Elimination of wasteful practices in water use;
- To attain maximum water use efficiency;
- Development of information on current and potential water efficient practices; and
- Timely implementation of water efficient use practices.

In 2002 Raines, Melton, & Carella, Inc (RMC) conducted a study and evaluation of Zone 7's water conservation program to assess its current status and to recommend areas of improvement or expansion. A copy of the study's Executive Summary can be found as Appendix F.

The RMC study identified three tiers of water conservation program implementation. The first tier being high priority programs that would ensure Zone 7 would stay in compliance with proposed CALFED regulations. The second and third tiers would have correspondingly lower priority programs.

One of the first tier programs identified by RMC is a Coordinated Regional Water Conservation Program. Zone 7 is already implementing the regional program in DMMs 6 (washer rebate), 10 (wholesaler assistance) and 14 (ULFT rebate). See the appropriate DMM section for additional detail. Zone 7 also meets with staff from its water retailers, usually to coordinate efforts on a regional public outreach project. RMC recommended an expanded role for Zone 7, perhaps meeting with water retailer staff monthly to determine financial, technical and coordination assistance required from Zone 7 for implementation of retailer water conservation efforts.

As well as an expanded role for Zone 7 under DMM 10, other water conservation programs are being examined for future implementation. To assist not only the professional landscaper, but also the individual homeowner in maximizing irrigation efficiency, Zone 7 will install a "Watering Calculator" and "Watering Index" on its website. This is a concept originally developed by City of San Diego and is now found on the websites of several water agencies. The Landscape Watering Calculator is an easy-to-use webtool that helps homeowners and landscapers estimate the right amount of water for their landscape or garden. More detail can be found in Section 10.1.9 DMM 9.

Since the mid-1980's, Zone 7's service area population has grown by over 50% (from about 125,000 in 1987 to a present day level of approximately 190,000) but overall per capita water use has only increased by approximately ten percent. Much of the increase in per capita water use can be attributed to landscaping within new development areas that has occurred during that time period. Landscaping usually requires more water during initial stages of planting and will show increased water use until the vegetation is established, at which point per capita water use should more closely reflect regional water conservation practices. Additionally, evapotranspiration (ET<sub>o</sub>) rates are higher in the Livermore-Amador Valley than in the cooler, coastal areas nearer San Francisco Bay. Per capita water use in the Zone 7 service area is depicted in Figure 6.

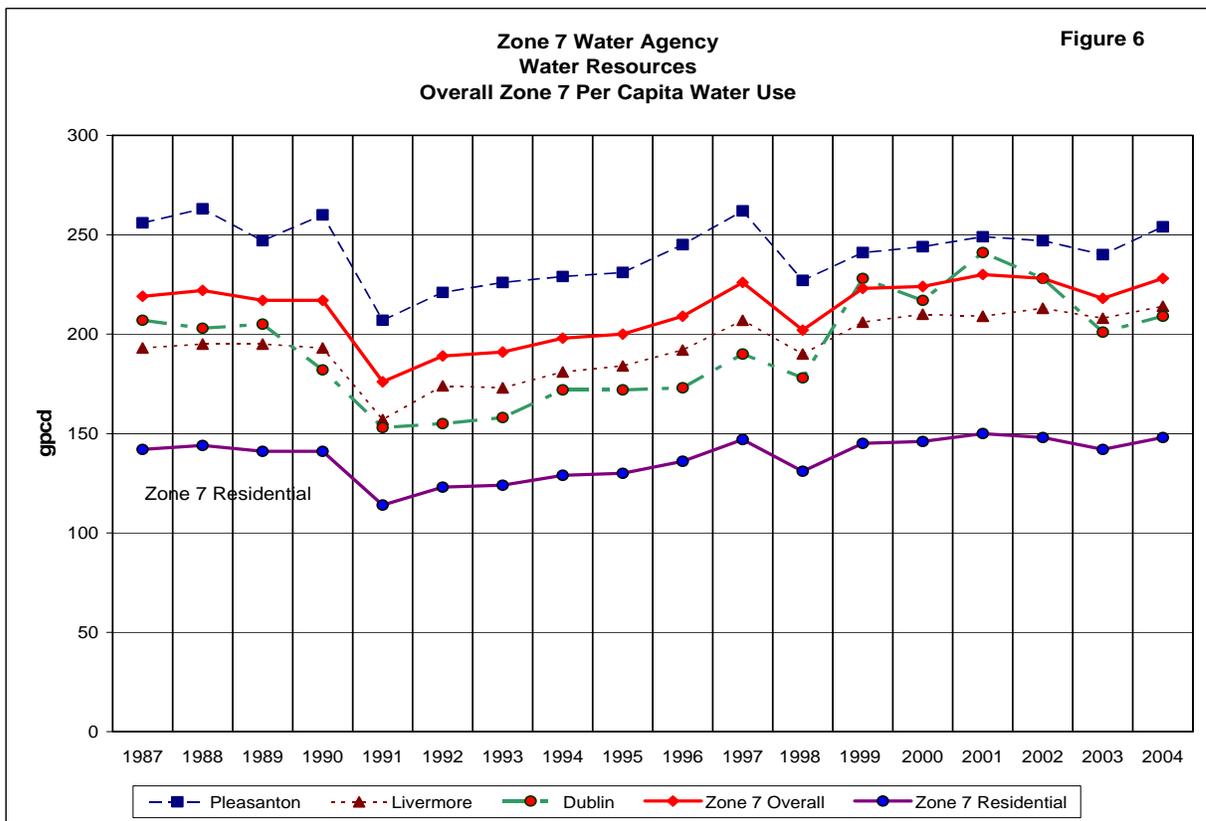


Figure 6. Zone 7 Per Capita Water Use. 1987 – 2004.  
Units in gallons per capita per day (gpcd).

Source: Population figures are official state estimates from CA Dept. of Finance. They include the 1990 and 2000 census. Water use is determined from Zone 7 Production Records.

### **10.1 Implementation of Demand Management Measurements (DMMs)**

Section 10631(f) of the Urban Water Management Planning Act identifies fourteen demand management measures (DMMs) for urban water suppliers to address. These DMMs are identical to the BMPs listed in the “Memorandum of Understanding Regarding Urban Water Conservation in California,” dated September 1991. *Of these fourteen BMPs, only BMP 10 (Wholesale Agency Assistance Programs) is directly aimed at water wholesale agencies. In the case of most of the BMPs (or DMMs), Zone 7 Water Agency relies on its retail agencies to implement them (see individual UWMPs submitted for the four retail urban water suppliers, Dublin-San Ramon Services District, City of Pleasanton, City of Livermore and California Water Service Company).*

The DMMs that are directly applicable to Zone 7 are currently being implemented by the agency. Even though the BMPs listed in the MOU, and consequently many of the DMMs, are directed towards retail water supply agencies, Zone 7 will continue to make good faith efforts to work with and support its retail water supply agencies to implement the BMPs regionally. Where implementation of a particular BMP is more appropriately carried out by the retail agencies, Zone 7 encourages timely implementation of the BMP and provides whatever support is requested. This encouragement may include, but is not limited to, financial incentives as appropriate.

### **10.1.1 DMM 1 – Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers.**

*Implementation methods shall be at least as effective as identifying the top 20% of water users in each sector, directly contacting them (e.g. by mail and/or telephone) and offering the service on a repeating cycle; providing incentives sufficient to achieve customer implementation (e.g. free showerheads, hose end sprinkler timers, etc.)*

*(Water Code Section 10631(f), 1-A)*

This DMM is not applicable to Zone 7. As a treated water wholesaler, Zone 7 does not directly serve individual single family or multi-family customers. Zone 7's retailing agencies, California Water Services Company, City of Pleasanton, and DSRSD, have offered water surveys (audits) for their customers. Currently Zone 7 has not discussed a joint venture with its retail water suppliers to develop and implement a targeting/marketing strategy for single-family or multi-family dwellings in the service area.

Implementation: As mentioned previously, this DMM is more appropriately carried out by the retail agencies (see individual UWMPs submitted for the four retail urban water suppliers - Dublin-San Ramon Services District, City of Pleasanton, City of Livermore and California Water Service Company)

### **10.1.2 DMM 2 – Residential Plumbing Retrofit.**

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

*(Water Code Section 10631(f), 1-B)*

Although this DMM is not directly applicable, Zone 7, in conjunction with its retail water supply agencies, will work to support programs promoting the distribution or direct installation of high-quality, low-flow showerheads (rated 2.5 gpm or less), toilet displacement devices (as needed), toilet flappers (as needed) and faucet aerators (rated 2.2 gpm or less), to residences requiring them. As a wholesaler, Zone 7 will not have records to determine which residences were constructed prior to 1992 – that task is left to the discretion of the retail water supply agencies.

Implementation: This DMM is more appropriately carried out by the retail agencies (see individual UWMPs submitted for the four retail urban water suppliers - Dublin-San Ramon Services District, City of Pleasanton, City of Livermore and California Water Service Company).

### **10.1.3 DMM 3 - System Water Audits, Leak Detection and Repair.**

*Implementation methods shall be as least as effective as at least 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 customer's side of the meter; and performing distribution system leak detection and repair whenever the audit reveals that it would be cost effective.*

*(Water Code Section 10631(f), 1-C)*

Zone 7 fulfils this DMM by conducting a monthly distribution system audit of water production records to determine any losses within its water system. An overall water balance is calculated monthly to identify possible meter problems and to detect leaks. Production figures from Zone 7's water treatment plants and any wells that were operational during the month are compared to total deliveries. If the losses are continuous and excessive, a system-wide leak detection is performed. Typical error is within plus/minus 2 – 3%. For the period from 2001 through 2004, annual overall losses for Zone 7's distribution system averaged about 2% of total production.

Table 9. Zone 7 Treated Water Deliveries and Production. Units in acre-feet

	2001	2002	2003	2004	2005 (Projected)
Total Delivery	37,536	38,438	38,534	43,145	38,980
Total Production	38,776	39,509	39,181	43,668	40,150
Unaccounted Water	1,241	1,071	647	523	1,170
Unaccounted Water (%)	3 %	3 %	2 %	1 %	3%

All facilities are 100 percent metered or gauged. Meters are calibrated regularly as part of Zone 7's preventive maintenance program. Flows in Zone 7's major facilities are monitored continuously via a SCADA system. Zone 7 has 35 miles of pipeline (transmission rather than distribution lines) that are patrolled and inspected regularly by water distribution system operators.

Implementation: Zone 7 will continue to quantify the amount of unaccounted-for water on a monthly basis and will respond to any significant increases as they are identified.

#### **10.1.4 DMM 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.*

*(Water Code Section 10631(f), 1-D)*

This DMM calls for a retrofit of all existing unmetered connections. All water sales by Zone 7 Water Agency are metered – there are no unmetered water connections.

DMM 4 also requires the identification of intra- and inter-agency disincentives or barriers to retrofitting mixed use commercial accounts with dedicated landscape meters and conducting a feasibility study to assess the merits of a program to provide incentives to switch mixed use accounts to dedicated landscape meters. This portion of the DMM is more appropriately carried out by the retail agencies (see individual UWMPs submitted for the four retail urban water suppliers - Dublin-San Ramon Services District, City of Pleasanton, City of Livermore and California Water Service Company).

Implementation: Zone 7 will continue to implement this DMM to the extent possible.

#### **10.1.5 DMM 5 - Large Landscape Conservation Programs and Incentives.**

*Implementation methods shall be at least as effective as identifying all irrigators of large (at least 3 acres) landscapes, contacting them directly, offering landscape audits using methodology such as that described in the Landscape Water Management Handbook prepared by the California Department of Water*

*Resources and cost effective incentives to achieve customer implementation; providing follow-up audits at least once every five years; and providing multi-lingual training and information necessary for implementation. In addition, 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' (Government Code 65591 et. seq.). (Water Code Section 10631(f), 1-E)*

This DMM is not applicable since Zone 7 does not directly serve any large landscape customers. However, just as is the case with the other non-applicable DMMs, Zone 7 will support our water retailers' efforts to implement this DMM. In the past, we have conducted landscape irrigation workshops for contractors and parks maintenance personnel. Zone 7 has also participated with one of its retail water supply agencies, California Water Service Company, in funding a landscape audit of area schools. Additionally, in April 2004, Zone 7 and DWR installed a CIMIS station in the service area. This station will assist landscape professionals in determining an appropriate irrigation schedule for the properties they manage. The data obtained from this station can also be used by any irrigation customer to develop a water budget. The approximate cost for the CIMIS station installation project was on the order of \$15,000.

Each of the cities within Zone 7's service area has adopted water efficient landscape ordinances. In addition to the cities, the Board of Supervisors of Alameda County has adopted a set of Landscape Water Conservation Guidelines. Unincorporated areas of the county are covered by the state's Efficient Water Landscaping Ordinance.

Implementation: This DMM is more appropriately carried out by the retail agencies (see individual UWMPs submitted for the four retail urban water suppliers - Dublin-San Ramon Services District, City of Pleasanton, City of Livermore and California Water Service Company)

#### **10.1.6 DMM 6 – High-Efficiency Washing Machine Rebate Programs**

*Implementation methods shall be enacted to provide incentives for replacement of older less efficient washing machines with newer, high-efficiency models. (Water Code Section 10631(f), 1-F)*

Zone 7 began offering a rebate for the purchase and installation of high-efficiency washing machines in 1999. This program has been hugely popular since its inception-with almost 7,000 rebates having been disbursed in the Tri-Valley. The 7,000 high-efficiency washing machines represent a total annual water savings of about 110 acre-feet.

The Zone 7 High-Efficiency Washing Machine Rebate Program is funded at a rate of \$106,000 per fiscal year. This rate of funding will continue through fiscal year 2006-07 (ending June 30, 2007) when funding will be reduced to \$75,000.

Currently, Zone 7 is participating in the Regional Washer Rebate Program as part of a Bay Area wide coalition of water agencies. Using matching CALFED/DWR grant funds, the Regional High-Efficiency Washer Rebate Program offers residents in the Bay Area, as well as the City of Davis, additional financial incentives for the purchase and installation of energy/water efficient washing machines. Using this grant, Zone 7 offers a

two stage rebate - \$50 for a basic water efficient washer and \$100 for the most water efficient models. The washer rebate program is administered by the Electric and Gas Industries Association.

Table 10. Zone 7 High-Efficiency Washing Machine Rebate Program

ACTUAL	FY 2000/01	FY2001/02	FY2002/03	FY 2003/04	FY 2004/05
Rebate Amount	\$75	\$150 (1)	\$150 (1)	\$75	\$50 or \$100 (1)
No. of Rebates Paid	610	880	1500	1430	1500 - projected
Actual Expenditures	\$56,800	\$104,000	\$126,500	\$121,400	\$135,000
Water Savings (2)	10 AFA	15 AFA	23 AFA	22 AFA	23 AFA

(1) Includes matching CALFED grant.

(2) Based on annual savings of 5,100 gallons/machine from the THELMA study.

Implementation: Zone 7 will continue to implement this DMM. Zone 7 is currently part of the Bay Area Regional High-Efficiency Washer Rebate Program.

### 10.1.7 DMM 7 - Public Information Programs.

*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, interest groups and public interest groups.*

*(Water Code Section 10631(f), 1-G)*

These programs educate and inform the general public about the roles water plays, either directly or indirectly, within the community. These programs include: working with social groups, political, and business leaders to increase the level of water awareness; establishing a favorable relationship with the media by responding promptly to requests for information and being forthright in any dealings with them; speakers' presentations to community organizations; and presence (through education booths, displays) at community events such as Earth Day celebrations, the Livermore Wine Country Festival, and the annual Alameda County Fair.

Zone 7 makes use of different types of media in its attempts to reach a broad section of Tri-Valley residents. For instance, it has recently developed a series of fact sheets containing information on different aspects of water management, such as conservation, treatment, and quality. Zone 7 also publishes a quarterly newsletter which is mailed to all Tri-Valley households. This newsletter attempts to address relevant topics in a proactive manner.

Zone 7 also maintains a section on its website, "Conservation Connection", through which any interested party with internet access can learn about various water conservation programs. For instance, the "Conservation Connection" has information on rebate programs, landscaping water conservation tips, and links to other useful sites such as CUWCC's "H2ouse", a virtual tour through a house featuring water saving devices throughout the home. Plans are underway to make the website even more useful to residents in the service area. Using the same framework as other water agencies, Zone 7 is looking at installing a "Watering Calculator" and "Watering Index" on its website. This

is a concept originally developed by City of San Diego. The Landscape Watering Calculator is an easy-to-use webtool that helps homeowners and landscapers estimate the right amount of water for their landscape or garden. The calculator uses ETo data from the local CIMIS station to develop a weekly estimate of the correct amount of water for a landscape or garden. Because everyone's landscape is different, the calculator will be simplified by using average numbers for weather, plants, and soils found in the Tri-Valley. The City of San Diego has made the software available at no charge to other municipalities and water agencies.

In addition, since substantial amounts of water are used in the outdoor residential sector, primarily for landscaping, Zone 7 has begun to focus public education efforts to educate residents of the Tri-Valley area on efficient irrigation practices. Last autumn, Zone 7 conducted a service area wide postcard mailing advising residents to adjust their irrigation system timers and irrigation schedules. The previous year, Zone 7 participated with two other Bay Area water agencies in a radio campaign to remind people to adjust their irrigation system timers and irrigation schedules. In October, 2003, it combined resources with Santa Clara Valley Water District and Alameda County Water District to produce a series of radio commercials to remind people to cut back on outdoor watering. Zone 7 also maintains a demonstration drought tolerant garden at its former administrative offices in Pleasanton. Additionally, Zone 7 teamed with a software firm to develop the "WaterWise Gardening" CDROM for distribution to residents within our service area. This CDROM provides information for the homeowner to use in establishing water efficient landscaping. The CDs were distributed at no charge to any homeowner in the Zone 7 service area. The updated CDROM will be mailed to interested residents of the Tri-Valley and will also be made available to the retailing agencies.

Implementation: Zone 7 will continue to implement this DMM.

#### **10.1.8 DMM 8 - School Education Programs**

*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 suppliers' service area to provide educational materials and instructional assistance.*

*(Water Code Section 10631(f), 1-H)*

Zone 7 has an extremely progressive school education program. As the regional water wholesaler, this is a program that has the potential to provide regional consistency and support to the retail water agencies. As part of its on-going school education program, Zone 7 will work to improve its coordination efforts with its retail water supply agencies to furnish water conservation and educational materials to area schools. Zone 7 also works with primary and secondary schools to provide both technical assistance and educational materials. Water education literature, facility tours, teachers' aids (i.e. groundwater model, classroom presentations) and videos are available through Zone 7 and will be loaned to service area schools at no charge. If a teacher requires technical assistance in making classroom presentations, Zone 7 will supply the appropriate staff.

Zone 7 has also investigated alternative methods designed to involve students in water education. To cite an example, Zone 7, in a cooperative effort with a local high school, developed an innovative program that utilized science students to conduct classroom presentations showcasing different aspects of the hydrologic cycle to primary school students. The premise was that the younger students would be more willing to accept information from high schoolers, whom they view as older brothers and sisters, than from

adults. This program also allows the older students to cultivate and refine their communication skills in a non-threatening environment. It is widely successful and the initial implementation of this program was reported in the local media.

During the 2004-05 school year, Zone 7 began working with environmental sciences students from Foothill High School in Pleasanton to develop a portable watershed education model. As conceptualized, this model would be about table top size and would depict water flow through the Zone 7 Water Agency watershed. Obviously, this will be a multi-year program and will be carried out by successive generations of science students but it should result in a functioning watershed model.

A recent Cal Poly study found that approximately 25% of California public schools have school gardens. These gardens are used to teach subjects ranging from environmental studies to nutrition, language arts, and math. Preliminary results from this and other studies indicate that an outdoor educational experience, such as that provided by a garden, significantly improved attendance, social interaction, and nutrition. The study also found that the greatest detriments to a successful school garden included lack of funding and supplies.

As another component of its school program, Zone 7 will work with its retail water supply agencies, educational consultants, and local educators to promote school gardens. Support can be provided in the form of supplies such as irrigation controllers or by technical assistance.

*School Information Program Promotes Water Conservation?* Zone 7 has been successfully administering its water science education programs in Dublin, Livermore and Pleasanton for the past three years. This program has a classroom presentation devoted solely to water conservation and focuses teaching water efficiency. The classroom exercises teach students simple methods they can use to reduce their water use by 5-10 gallons per day. This reduction comes from turning the water off while brushing teeth and washing hands, taking shorter showers, watering lawns for shorter times and earlier in the day, turning off the hose while washing cars, and reporting leaks and drippy faucets to their parents.

#### *Grades K-3...High School*

Zone 7 water science programs teach students to become stewards of our watershed by use of engaging demonstrations, hands-on activities and instruction targeted to meet state framework requirements. Classroom programs run 50 minutes and include appropriate grade-level printed materials from the Water Education Foundation, Zone 7 Water Agency and city water retailers. Teachers are also provided with a water resource directory for further exploration of water issues in their classroom, copies of our lesson plans and worksheets designed to measure subject matter retention and reinforce key terms and ideas.

#### *Number of presentations and students reached*

Over the past three years Zone 7 has completed over 220 classroom programs reaching approximately 6,500 students in the classroom.

#### *Zone 7's materials meet state education framework requirements*

Zone 7's programs meet state education framework requirements in the following areas: Life, Earth and Physical Sciences, Ecology and Biology, Earth and Life History, Shaping the Earth's Surface and Investigation and Experimentation.

Requirements for these areas are different at each grade level and are achieved by use of appropriate grade-level printed materials, instruction from a credentialed teacher and demonstration of key concepts.

*Methods used to evaluate this measure's effectiveness.*

Every teacher is asked to complete a program evaluation after the classroom program. The evaluation judges the program based on how well the program meets state framework requirements, effectiveness of the instructor and materials presented and how engaged the students were during the presentation. Evaluations are reviewed monthly and adjustments are made to the programs when appropriate. Zone 7 also uses its presence at city science fairs to help measure program effectiveness. Students who have received a classroom presentation are encouraged to go to the Zone 7 demonstration booth at the city science fairs to complete a retention quiz. Data from the quizzes are compiled and reviewed. We motivate students to take the quiz by handing out free water bottles and other giveaways. Teachers often award extra credit to students who participate in the retention quiz as an additional incentive.

*Estimates of existing conservation savings on water use and the effect of such savings on the ability to further reduce demand.*

According to *Conserve Water* by the Watercourse and Wild Outdoor World, each person uses about 125 gallon of water per day. Students who participate in the programs can reduce their water use by 5-10 gallons per day. This reduction comes from turning the water off while brushing teeth and washing hands, taking shorter showers, watering lawns for shorter times and earlier in the day, turning off the hose while washing cars, and reporting leaks and drippy faucets to their parents.

$$6500 \text{ Students} \times 5\text{-}10 \text{ Gallons Per Day} = 32,500 - 65,000 \text{ gallons saved per day or } 11,862,500 - 23,725,000 \text{ gallons saved per year}$$

Zone 7 began its school education programs in September 2002.

Table 11. Zone 7 School Education Program.

ACTUAL	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
K-3	9	24	103	*	*	*	*	*
4 <sup>th</sup> – 6 <sup>th</sup>	18	23	5	*	*	*	*	*
7 <sup>th</sup> – 8 <sup>th</sup>	2	10	23	*	*	*	*	*
High School	3	6	6	6	6	6	6	6
Expenditures	\$52,000	\$52,000	\$52,000	\$52,000	\$52,000	\$52,000	\$52,000	\$52,000

\*Zone 7's goal is to complete 120-150 classroom programs per year in grades K-8.

Implementation: Zone 7 will continue to implement this DMM.

**10.1.9 DMM 9 – Conservation Programs for Commercial, Industrial, and Institutional Accounts.**

*Implementation methods shall be at least as effective as identifying and contacting the top 10% of the industrial and commercial customers directly (by mail and/or telephone); offering audits and incentives sufficient to achieve customer implementation; and providing follow-up audits at least once every five years if necessary.*

*(Water Code Section 10631(f), 1-I)*

Being a treated water wholesaler, Zone 7 prefers to work with retail water supply agencies rather than maintaining individual commercial, industrial, or institutional customer accounts. However, Zone 7 does have one account that can be classified as commercial and four accounts that fit the definition of institutional. Zone 7's sales to these accounts amounts to only a small fraction of total Zone 7 treated water deliveries. Zone 7 has not offered water conservation programs aimed specifically at CII accounts due to their low volume and because Zone 7 does not have the staff to implement such programs. In order to maximize existing resources, as well as ratepayer funds, Zone 7 has elected to focus its efforts on implementing water conservation programs that benefit the greatest number of people within the service area.

Future Implementation: In 2006, Zone 7 can examine water usage records of its few CII accounts to determine baseline water use. The CII account holders can be contacted and informed of services that Zone 7 can provide (water audits, low-flow plumbing fixtures, financial incentives for ULFT replacement).

#### **10.1.10 DMM 10 - Wholesale Agency Programs**

*Implementation shall consist of at least the following actions: Wholesale Water Agency shall provide conservation-related technical support and information; financial incentives, or equivalent resources; and, when mutually agreeable and beneficial, operate all or any part of the conservation-related activities which a given retail supplier is obligated to implement under the BMP's cost-effectiveness test.*

*(Water Code Section 10631(f), 1-J)*

Zone 7 provides financial (or equivalent resources) and technical support as appropriate, beneficial, and mutually agreeable to our retail water supply agencies in support of their water conservation efforts. Zone 7 also actively participates in some of the BMPs that are more regional in nature. To cite an example, Zone 7 implements BMP 6 (High Efficiency Washing Machine Rebates program) and offers a schools program that covers the entire service area.

Zone 7 also makes an effort to have the necessary staff and agency resources available to respond to retail agencies' requests involving their implementation of BMPs. For instance, Zone 7 assists retailing water supply agencies by participating in local public information/outreach events. Zone 7 works with California Water Services Company to staff a water education booth at the Livermore Wine Country Festival, with City of Pleasanton staff to stage Coastal Clean-up Day, and DSRSD staff during Dublin Pride Week.

As the water wholesaler for the Livermore-Amador Valley, Zone 7 supports its water supply retailing agencies' water conservation programs in two ways. First, by contributing direct financial assistance for their efforts in implementing BMPs. For instance, Zone 7 contributed some funding of a landscape audit conducted by one of its retail water supply agencies. To cite other examples, Zone 7 contributes up to \$8,000 per fiscal year towards retailer advertisement for the ULFT rebate program and it has purchased school education materials from the California Water Awareness Campaign for distribution in schools throughout the entire service area. Secondly, if a certain water conservation program is more regional in scope, Zone 7 will actively participate with its retailing water supply agencies, i.e. rebate programs for ULFTs and high efficiency washing machine installation.

Implementation: Zone 7 is currently implementing and will continue to implement this DMM. Zone 7 offers support to its retail water supply agencies in their efforts to promote water conservation/water use efficiency.

**10.1.11 DMM 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, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make a good faith effort to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.*

*(Water Code Section 10631(f), 1-K)*

Zone 7 bills its retail water supply agencies on a commodity basis for metered water use. Individual retailers, for the most part, have retail pricing structures (such as tiered rate blocks) that encourage conservation.

Implementation: Zone 7 will continue to implement this DMM to the extent possible. However, to some degree, this DMM is more appropriately carried out by the retail agencies (see individual UWMPs submitted for the four retail urban water suppliers - Dublin-San Ramon Services District, City of Pleasanton, City of Livermore and California Water Service Company).

**10.1.12 DMM 12 – 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.*

*(Water Code Section 10631(f), 1-L)*

Zone 7 began implementation in January, 1992, after the adoption of Zone 7 Board Resolution 1506. Currently, one staff person has been designated Water Conservation Coordinator and is responsible for the implementation of Zone 7's water conservation program. Some program components (such as the K – 8 school education program) are performed by outside contractors.

Percent Coordinator's Position	100 %
Coordinator's Name	Andrew Florendo
Coordinator's Title	Water Resource Technician
Coordinator's Experience	Designated Coordinator in 1996; Certified Landscape Auditor in 2003

Zone 7 has no foreseeable plans to upgrade its Water Conservation Coordinator to a full-time position or to add additional in-house Water Conservation Staff. The position will continue to be funded at the current rate.

CUWCC has not quantified water savings for this BMP.

Table 12. Zone 7 Water Agency Conservation Coordinator

ACTUAL	2001	2002	2003	2004	2005
No. of Full-Time Positions	0	0	0	0	1
Full-time Equivalent	0.5	0.6	0.65	0.75	
Position supplied by other agency	0	0	0	0	0
Actual Expenditure *	\$60,000	\$61,000	\$62,000	\$63,000	\$65,000

\* Estimated Amount – Actual Expenditure is Included in the Overall Water Conservation Budget.

Implementation: Zone 7 is currently implementing and will continue to implement this DMM. Zone 7 offers support to its retail water supply agencies in their efforts to promote water conservation/water use efficiency.

**10.1.13 DMM 13 - Water Waste Prohibitions**

*Implementation methods shall be enacting and enforcing measures prohibiting gutter flooding, sales of automatic (self regenerating) water softeners, single pass cooling systems in new connections, non-recirculating systems in all new conveyer car wash and commercial laundry systems and non-cycling decorative water fountains.*

*(Water Code Section 10631(f), 1-M)*

Zone 7 has a water conservation clause in its contracts with its retailing water supply agencies which states, “Zone 7 will undertake and support water conservation programs. To that end, Zone 7 will develop, implement or participate in such programs and enter into agreements with Other Contractors, and other entities to make more efficient use of water supplies through water conservation programs so long as such agreements serve a beneficial purpose to the residents of Zone 7”.

Implementation: Not directly applicable to Zone 7 but the agency will support the DMM to the extent practical. Again, this DMM is more appropriately carried out by the retail agencies (see individual UWMPs submitted for the four retail urban water suppliers - Dublin-San Ramon Services District, City of Pleasanton, City of Livermore and California Water Service Company).

**10.1.14 DMM 14- Residential Ultra-Low Flush Toilet Replacement Program**

*An Implementation program for replacement of existing high-water-using toilets with ultra-low-flush toilets (1.6 gallons or less) in residential, commercial and industrial buildings shall be enacted. Such programs would 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 the replacement at time of resale, or requiring the replacement at the time of change of service.*

*(Water Code Section 10631(f), 1-N)*

Implementation of this program began in 1994. Since then approximately 12,000 ULFTs have been installed. This program is funded at \$50,000 per fiscal year. It is funded through the 2006-07 fiscal year and the program in its current configuration will expire after that time.

Zone 7, through its retail water supply agencies, offers participating customers up to a \$75 rebate towards the purchase price of a new ULFT. Each of the retail water supply

agencies in the Livermore-Amador Valley administers its own ULFT rebate program under the overall coordination and financial support of Zone 7.

Currently Zone 7 does not have a direct install or Community Based Organization distribution of ULFTs program. None of the cities within the Zone 7 service area have a toilet retrofit on resale ordinance.

Table 13. Zone 7 ULFT Rebate Program.

ACTUAL	FY 2004/05					TOTAL
	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	(projected)	
No. of Rebates Paid	858	623	625	504	500	12,000
Actual Expenditures *	\$63,200	\$45,200	\$49,000	\$38,000	\$40,000	\$875,300
Annual Water Savings (acre-feet) **	40	30	30	20	20	520

\*Amount spent on rebates only.

\*\* No. of ULFTs X 40 gals/day – based on three people and two ULFTs per household.

Although the current Zone 7 ULFT rebate program is successful, this program may need to be restructured to account for the fact that the only toilets available on the market are ULFTs. As a logical next step, Zone 7 is exploring the possibility of participating in a regional High Efficiency Toilet (HET) replacement program. As currently envisioned, this program would have a similar format to the successful Regional High Efficiency Clothes Washer Program.

Implementation: Zone 7 is currently implementing and will continue to implement this DMM.

## **10.2 Determination of DMM Implementation**

### Water Code

*Section 10631.5 The department shall take into consideration whether the urban water supplier is implementing or scheduled for implementation, the water demand management activities that the urban water supplier identified in its urban water management plan, pursuant to Section 10631, in evaluating applications for grants and loans made available pursuant to Section 79163. 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.*

Zone 7 has reviewed the DMM implementation plan and determined that all of the applicable DMM's listed in the 2000 UWMP have been implemented as described. New commercial and industrial water use review is not being implemented because Zone 7 does not maintain individual commercial and industrial customer accounts (see individual retailer accounts). However, Zone 7 works with its retailers to encourage water use efficiency in the design of new commercial, industrial, and institutional facilities, for

example specifying the use of recycled water for landscape irrigation. In addition, Zone 7 tracks per capita use (see Figure 6, above) to determine effectiveness of DMM's and further reductions during drought periods.

## **11.0 PLANNED WATER SUPPLY PROJECTS AND PROGRAMS**

### *Water Code*

#### *Section 10631.*

*(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 (l) 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.*

As the regional water wholesaler, Zone 7 has adopted a Water Reliability Policy (enclosed as Appendix B). The Policy guides Zone 7 into planning for future demands based on projected growth from regional planning agencies. Zone 7 plans water supply projects and their funding through a complex Capital Improvement Program. Some of these projects and programs have already been described in Chapter 8 (Table 8), above.

Zone 7's currently-planned water supply projects and programs are summarized in the following table. A graphical display of scheduling for planned Zone 7 water quality improvement projects can also be found in Appendix F.

Table 14. Zone 7 Water Agency Future Water Supply Projects

Project Name	Project Description	On Line Date	Size	Project Type
SBA Improvement & Enlargement	Enlargement of the SBA by DWR	2008	130 cfs	Conveyance
Well Master Plan Wells	Construction new water supply wells to meet 25% of Zone 7's future M&I demands	2021	7-9 new wells 25 mgd total	Production
Future Well 1	Well east of Mining Area	2007	3.5 mgd	Production
Future Well 2	New Well	2008	3.5 mgd	Production
Future Well 3	New Well	2009	3.5 mgd	Production
Future Well 4	New Well	2010	3.5 mgd	Production
DVVWTP Improvement	Dissolved Air Flotation	2007	10 mgd DAFF	Production
Altamont Water Treatment Plant	Construction of a new water treatment plant	2009	24 mgd.	Production
Altamont Treatment Plant Phase 2	Expand Treatment Plant to 42 mgd	2016	18 mgd. expansion	Production
Altamont Pipeline	Transmission P/L Altamont to Cross-Valley P/L at Isabel	2009	12 miles of 42 inch pipe	Distribution
Groundwater In-lieu Banking Program	Groundwater Banking Program with Cawelo Water District	2008	10,000 AF/year 120,000 AF	Storage
High-Efficiency Toilet (HET) Replacement Program (3)	Replace older 1.6, 3.5, 5 gal/flush toilets with 1.0 gal/flush HET	2007	10,000 HET 0.5 mgd. demand reduction	Management
Mocho Wellhead Demineralization	Reverse Osmosis demineralization facility	2008	6 mgd.	Production
Future Wellhead Demineralization	Demineralization facilities at other well sites	2012	6 mgd.	Production

**Project Type.**

**Water:** Water is the water rights or source of raw water ( not extraction from storage)

**Storage:** Storage facility for Source Water storage inside watershed or outside watershed

**Conveyance:** Conveyance of source water into the watershed

**Production:** Production of treated water from Surface Water Treatment Plants or Wells.

Including treatment.

**Distribution:** The Distribution of Treated Water to retailers

**Management:** The coordination and management of supplies and facilities to meet demands.

Table 14.1 Zone 7 Water Supply Increase from new Projects

Project Name	Normal Year AF to Zone 7	Single Dry Year AF to Zone 7 (1)	Multi Dry Years AF to Zone 7 (1)		
			Year 1	Year 2	Year 3
Altamont Water Treatment Plant	47,000	2,350	2,350	2,350	2,350
Altamont Pipeline					
Groundwater In-lieu Banking Program	0	15,000	15,000	15,000	15,000
High-Efficiency Toilet (HET) Replacement Program (3)	560	560	560	560	560
SBA Improvement & Enlargement Project	50,000	2,500	2,500	2,500	2,500
Well Master Plan Wells	(2)	(2)	(2)	(2)	(2)
Wellhead Demineralization Project	(4)	(4)	(4)	(4)	(4)

(1) Dry year estimates assume 5% SWP delivery.

(2) Seven new water supply wells. 27 MGD ultimate capacity, adding 1-2 per year.

(3) Based on 50 gal/day water savings and 10,000 HET in Zone 7 service area.

Water savings are continuous.

(4) Project enables Zone 7 to meet its water quality goals by removing salts from the groundwater basin.

It will also allow for more recycled water use in the region.

## **12.0 DEVELOPMENT OF DESALINATED WATER**

### Water Code

#### Section 10631

*(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.*

Zone 7 Water Agency's planned demineralization projects are desalination projects which not only remove salt from the groundwater basin but also allow recycled water use

to take place in the region. The water quality of the groundwater basin has been consistent, averaging from 400 to 550 mg/l TDS. Zone 7 has developed a Salt Management Plan (SMP) for the Livermore-Amador Valley Groundwater Basin, which was incorporated by reference into the attached Groundwater Management Plan (GMP). The SMP examines the sources of increased salt loading as well as the best approach to mitigate those effects. One of the plan's goals call for offsetting an annual salt loading of 2,200 tons plus a projected 50 tons per year increased loading from recycled water by implementation of wellhead demineralization projects (coupled with exporting the brine concentrate out of the groundwater basin. The planned demineralization projects will also allow Zone 7 to meet its water quality goals and provide lower hardness water to its retail customers. These projects are explained in more detail in the GMP, incorporated herein by reference.

### **13.0 WATER SHORTAGE CONTINGENCY PLAN**

*Water Code*

*Section 10632. 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:*

- *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.*

### **13.1 Stages of Action**

#### **13.1.1 Stage One: Partial Losses of Supply**

Stage One is defined as reductions in SBA deliveries that are less than 100%. Therefore, this stage includes a 50% supply shortage (since the SBA provides 70-75% of local supplies). If a scenario arises such that Zone 7 finds itself in an extended drought or any other situation in which water supply has been curtailed, Zone 7 is contractually obligated, under Section B, subsection 14 of its Municipal and Industrial Water Supply Contracts with its retailers, to “reduce deliveries to each Contractor in an amount that results in a reduction of total water used within that customer’s service area that is equal to the percent reduction for total water used within Zone 7’s service area for that year”.

Zone 7 has similar language in its “Terms and Conditions of Municipal & Industrial Water Service to the City of Pleasanton,” adopted August 16, 2000 by Resolution No. 00-2182. Specifically, Pleasanton’s Terms and Conditions state the “Zone 7 shall reduce deliveries to Each Contractor in an amount that results in a reduction of total water used within Contractor’s service area that is equal to the percent reduction for total water used within Zone 7’s service area for that year, all as determined by Zone 7.”

Zone 7 will determine total water demand in any given area and distribute the available supply accordingly. Thus, Zone 7 will reduce its deliveries so that all its M&I customers (the four retail water supply agencies) experience the water supply shortage equally, assuring that retailers that operate their own wells would not receive a greater percentage of water (including retailers’ pumping) than those that do not have access to groundwater resources.

Zone 7 has always taken the position that as a treated water wholesaler it will work closely with local retail water supply agencies to implement any urban water shortage contingency plan. The successful implementation of this Urban Water Shortage Contingency Plan depends on the ability of Zone 7 and its retail water supply agencies to operate in a cooperative environment. As part of this cooperative effort, Zone 7 relies on these water retailers to determine priorities for use of available water. Thus, specific demand reduction programs will be left to the retailers and their individual Urban Water Shortage Contingency Plans are referred to for detail in this area. The SWP Aqueduct outage in June 2001 demonstrates the effectiveness of this arrangement. Zone 7's Water Operation Planning and Analysis group in the Water Resources Section prepared daily water supply operations plans and coordinated production and delivery of SWP water during the month long outage.

As mentioned previously, Zone 7 will work to coordinate efforts among its four water retailing agencies (Dublin-San Ramon Services District, City of Livermore, City of Pleasanton and California Water Service Company) to ensure maximum efficiency of available supplies. As a result, due to the effective use of the groundwater basin, the Livermore-Amador Valley was able to essentially meet its 25% voluntary conservation goals set during the critically water short year of 1991, even though DWR was able to supply only 20% of Zone 7's requested deliveries.

Zone 7 factors into its Annual Operational Plans the possibility of a dry or critically dry year occurring with consequent reductions in SWP deliveries. Zone 7's Water Supply Reliability Policy calls for Zone 7 to provide full deliveries to all of its contractors even after two consecutive years with only 30% delivery from the SWP. This is possible because of Zone 7's long-term groundwater replenishment program. In effect, the groundwater basin is filled during normal and wet years so that the stored water can serve as a banked supply in times of drought. It is also possible because Zone 7 has purchased 65,000 AF of Out-of-Basin groundwater capacity. In effect, the Out-of-Basin storage water can be conveyed to Zone 7 via the SWP facilities to augment the very low SWP allocations. Effective planning has enabled Zone 7 to minimize deleterious effects from water shortages and still provide efficient service to the people within its service area.

If an extended drought were to occur, Zone 7 would adopt a policy in which it would not accept any new water connections. Water supply needs of its current customers will be addressed before provisions for any new water customers can be realized. A draft water shortage contingency resolution is included as part of Appendix A.

### **13.1.2 Stage Two: Catastrophic Loss of Major Supply**

In the event that, as a result of a catastrophic occurrence, Zone 7 had no SBA capacity (approximately a 70-75% reduction in regional water supply), it plans to operate its wells and make use of water stored in Lake Del Valle and conveyed to the Zone 7 Del Valle Water Treatment Plant, to still have the ability to meet 75% of its estimated maximum day M&I demands. Zone 7 would be able to make full deliveries to its retail water supply agencies for most of the year. During this period, Zone 7 can meet M&I demands using only its groundwater resources. In the peak summer months, Zone 7 would reduce deliveries so that all of its retailers received the equivalent monthly cutbacks. Under this scenario, since Zone 7 lacks the necessary conveyance systems, some untreated water customers would not receive water.

Since Zone 7 operates as a wholesale water agency, it has not adopted ordinances or

imposed mandatory provisions restricting the use of water and does not set or enforce consumption limits at the retail level. As a result, this contingency plan does not include per capita allotment, penalties, or incentives for conservation for any customer sector. The development of such mechanisms is left to the authority of the retail water supply agencies.

A draft water shortage contingency resolution is included as part of Appendix A.

### **13.2 Three-Year Minimum Water Supply**

*Water Code*

*Section 10632*

*(b) 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.*

An estimate of the minimum water supply currently available to Zone 7 is presented in the following table. It is important to note that projects (such as finalizing the agreement with Cawelo) will improve water supply availability during the five-year planning horizon of the UWMP (see Section 16.0).

Table 15. Zone 7 Minimum Water Supply Availability Next Three Years. (Units in Acre-Feet)

SUPPLY SOURCE	Year 1 *	Year 2 *	Year 3 *
State Water Project *	16,930	16,930	29,210
Carryover	10,000	0	0
Semitropic Pumpback	9,780	9,780	11,200
Arroyo del Valle Watershed	480	4,560	6,720
Zone 7 Wells	23,230	29,150	13,300
BBID	2,000	2,000	2,000
<b>TOTAL</b>	<b>62,420</b>	<b>62,420</b>	<b>62,430</b>
<b>TOTAL 2012 DEMAND</b>	<b>61,000</b>	<b>61,000</b>	<b>61,000</b>

\* Based upon three driest hydrologic years, 1990 - 1992.

### **13.3 Catastrophic Water Supply Interruption**

*Water Code*

*Section 10632*

*(c) 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.*

The Zone 7 Emergency and Safety Services Division has prepared an Emergency Operations Plan which deals with a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster. Again,

should such interruption still allow for some deliveries, a Stage Two Action will be declared (see Section 13.1). The Agency also has an Emergency Operations Committee made up of personnel representing different skills and disciplines within Zone 7. The Committee trains regularly to maintain proficiency and would respond in the event of a natural or man-made emergency.

Basically, even if there were a total interruption of deliveries from the SBA, Zone 7 would be able to meet 75% of its current water demands with existing or planned facilities during non-summer months. Zone 7 would declare a Stage Two Action and reduce deliveries each month so that all of its retailers would receive equivalent monthly cutbacks during the summer months. Zone 7 allocations would be based on the retail water supply agencies that have wells to make full use of those wells. The retail water supply agencies would also begin emergency water conservation measures. Under this scenario, untreated water customers would receive no water.

In the event of a regional power outage, Zone 7 has mobile generators in place at selected facilities to protect against the effects of a widespread power failure resulting for instance from a major earthquake. Under this specific scenario, assuming no interruptions in surface water supply, Zone 7 would be able to provide service to all treated water contractors by running both surface water treatment plants on emergency generators. If warranted by demand, Zone 7 would also operate its Mocho wells which are equipped with emergency generators. Stoneridge and Hopyard wells could not be operated under this scenario since these wells employ larger 4100 volt motors versus the 480 volt motors at the Mocho wells. If the power failure were to occur during high demand season, Zone 7 would be unable to meet hourly peak demands throughout the distribution system. During the rest of the year, meeting demand would not be an issue until such time when average demand exceeds Zone 7's emergency capacity, although alternatives are under consideration and are likely to be implemented before this would occur.

### **13.4 Prohibitions During Water Shortages**

*Water Code*

*Section 10632 (d-f)*

*(d) 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.*

*(e) 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.*

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

As mentioned previously, since Zone 7 operates as a wholesale water agency, it has not adopted ordinances or imposed mandatory provisions restricting the use of water and does not set or enforce consumption limits at the retail level, with the exception of reducing supplies to retailers and agricultural users as contractually set forth in customer contracts.

As a result, this urban water management plan does not include per capita allotment, penalties, or incentives for conservation for any customer sector. The development of such mechanisms is assigned contractually to the retail water supply agencies (Dublin-San Ramon Services District, City of Pleasanton, City of Livermore, and California Water Service Company). More detailed descriptions of these measures can be found in the respective UWMPs. However, Zone 7 fully supports such actions by the retailers.

### **13.5 Impacts of Drought Actions on Revenues & Expenditures**

*Water Code*

*Section 10632*

*(g) An analysis of the impacts of each of the actions and conditions described in subdivision (a) to (f), 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.*

Delivery reductions, as discussed in Section 13.1, above, result in revenue losses. In anticipation of such revenue losses, Zone 7 initiated a Drought Contingency Funding Program several years ago. In fact, Zone 7 maintains a number of reserve funds to ensure it can fund emergency expenses; cash flow requirements; capital improvement plans and future operating requirements while avoiding significant rate fluctuations due to changes in funding needs. It also maintains a cash reserve position that may be utilized to fund unexpected fluctuations in revenue and operating/capital expenditures.

The two funds that most specifically address this issue are the Emergency/Operating Reserves and the Rate Stabilization Fund. The Emergency/Operating Reserves are designated by the Zone 7 Board of Directors to provide for emergencies and cash flow requirements. The Rate Stabilization Fund is designated by the Board of Directors to provide funds in the case of an unforeseen event such as a drought. Zone 7 maintains a \$3 million Rate Stabilization Fund to offset losses in revenue and other unanticipated costs. This is a former drought surcharge and was incorporated into the regular water rate. The size of the fund is established to balance anticipated revenue losses from projected three-year delivery reductions. The Rate Stabilization Fund is planned to avoid impacts on expenditures.

### **13.6 Reduction Measuring Mechanisms**

The Urban Water Management Planning Act requires a mechanism for determining actual reductions in water use in response to conservation measures implemented under the Zone 7 Water Agency Water Shortage Contingency Plan.

Since Zone 7 operates as a wholesale water agency, it has not adopted ordinances or imposed mandatory provisions restricting the use of water and does not set or enforce consumption limits at the retail level. As a result, this contingency plan does not include per capita allotment, penalties, or incentives for conservation for any customer sector. The development of such mechanisms is left to the authority of the retail urban water suppliers.

However, Zone 7 has always taken the position that as a treated water wholesaler it will work closely with local retail water agencies to implement any urban water shortage

contingency plan. It could adopt a response similar to the case of the SWP Aqueduct outage in June 2001. During the month long outage, the Water Operations Planning and Analysis group in the Water Resources Section prepared daily operations plans and coordinated production and delivery of SWP water with the retailers.

Effectiveness of drought reduction measures is reflected in the graphing of per capita usage – as evidenced by the drop documented in 1991 when such measures were implemented (see Figure 6)

## **14.0 RECYCLED WATER PLAN**

### *Water Code*

*Section 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 the following:*

### **14.1 Coordination**

Zone 7 Water Agency does not currently produce or distribute recycled water. Recycled water treatment and distribution is managed by two agencies within the Zone 7 Water Agency service area; the City of Livermore and Dublin San Ramon Services District. Details regarding the two local recycled water programs are available in the UWMP's prepared by the City of Livermore and DSRSD.

Recognizing that recycled water is already a part of the region's complete and balanced water supply and storage management program, Zone 7 has incorporated its use by the water retailers into future valley-wide water supply planning. In 1992, Zone 7 in conjunction with DSRSD and the City of Livermore, conducted a valley-wide water recycling study which found that recycled water can provide a safe and cost effective source of water supply. The Zone 7 Board has committed the agency to continually supporting the search for safe, economically feasible and publicly-acceptable methods to increase local water resources by maximizing the use of recycled water and to continue to work cooperatively with DSRSD and Livermore towards that end. Furthermore, Zone 7 is a co-permittee under the Master Waste Reuse Permit issued by RWQCB in December 1993 (Order No. 93-159).

This permit required development of a Salt Management Plan, to assess cumulative salt loading impacts on the groundwater basin. The Salt Management Plan identified demineralization with export of the rejected/brine stream as a means of mitigating salt loading. The Salt Management Plan has been incorporated into the Groundwater Management Plan which has, in turn, been incorporated into the UWMP by reference. The first phase is currently under design. Loss of the quantity of reject/brine water from the basin should be less than the recycled water supply facilitated by the project. The project has the added value of improving water quality delivered to customers.

Again, two wastewater agencies exist within Zone 7's service area, namely, DSRSD and City of Livermore. Both of these agencies currently provide recycled water to some of

their customers for non-potable uses, in particular for landscape irrigation. Details of each agency's treatment and distribution are reported in their respective UWMPs.

DSRSD's Ordinance 301 requires, with few exceptions, all new developments to include separate piping for recycled water, whenever feasible. As new development occurs, the demand for recycled water will increase. When economically viable, DSRSD will convert existing areas to recycled irrigation. DSRSD has also formed several partnerships, offers financial incentive to promote the use of recycled water and has been very proactive in reaching out to the public. The DSRSD outreach program includes newsletters, videos, speaker bureaus, brochures, specific events, school education and classroom programs and meetings with focus groups.

In 2001, the City of Livermore planned on building a recycled water pipeline to irrigate large turf and landscape areas at parks and schools as a way to increase recycled water use. There were also plans to release reverse-osmosis (RO) treated recycled water into an existing groundwater recharge facility. These plans were made in coordination with Zone 7 and other planning agencies. However, these plans have been put on hold due to lack of funding.

The City of Livermore has been complying with 1991 legislation by installing purple pipe in all new landscaping irrigation systems. This effort is a pro-active approach to construct a dual service system in preparation for future expansions to recycled water conveyance facilities.

#### **14.2 Wastewater Quantity, Quality and Current Uses**

*Water Code*

*Section 10633 (a-c)*

*(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.*

Zone 7 does not collect, treat or distribute wastewater. While Zone 7 does have the authority for wastewater management, this function is carried out by two of Zone 7's retailers namely, Dublin-San Ramon Services District (DSRSD) and the City of Livermore. These two agencies collect all of the wastewater produced within the city limits of Pleasanton, Dublin and Livermore and portions of San Ramon. Wastewater transport out of the area is handled through the Livermore-Amador Valley Water Management Agency (LAVWMA). This is a joint powers agency comprised of the DSRSD along with the Cities of Livermore and Pleasanton. Since 1979, LAVWMA has owned the conveyance facilities that ship treated wastewater from the treatment plants west over the Dublin grade, and eventually to the East Bay Discharge Authority which de-chlorinates the effluent and discharges it through a deepwater pipeline into San

Francisco Bay. DSRSD is also a member of the DSRSD-EBMUD Regional Water Authority, a recycled water Joint Powers Authority.

Currently, recycled water is used for landscape irrigation at various sites throughout the Zone 7 service area. There are no firm plans for other uses in the foreseeable future, although various portions (such as groundwater recharge) are under consideration.

In Livermore, tertiary treated wastewater is used to irrigate the City's Municipal Golf Course, Las Positas College and the business parks along the north side of I-580. The City of Livermore has been irrigating its golf course with recycled water since the 1960's. In the City of Livermore, recycled water use has grown to 800 AFA.

In 1999, DSRSD began supplying tertiary-treated recycled water from its Microfiltration, Ultraviolet, and Sand Filtration-Ultraviolet facilities for landscape irrigation to its first customer, the Dublin Sports Grounds. For 2005, recycled water demand in the DSRSD service area is projected to be approximately 2,000 AFA (2005 DSRSD Urban Water Mgt Plan).

For details of wastewater collection and treatment systems, quantities treated, excess recycled water capacity not currently being distributed to non-potable customers, and type, place and quantity of use, refer to the UWMP's presented by DSRSD and the City of Livermore.

### **14.3 Potential and Projected Use, Optimization Plan with Incentives**

*Water Code*

*Section 10633 (d-g)*

*(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, 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.*

Within Zone 7's service area, there are a number of potential uses for recycled water including agricultural and landscape irrigation, fire protection, industrial use, construction, wetlands and other miscellaneous uses. Some of these are already in existence while others like agricultural irrigation have not yet been implemented because

the infrastructure has not been built to accommodate such use. Currently, there is a demand for more than 4,000 AFA in agricultural and turf/landscape irrigation. Although this demand and technology exist, the source of revenue to make it a reality does not.

As the groundwater basin management agency, Zone 7 is cognizant of the potential salt-loading impacts arising out of recycled water use. Zone 7 has taken a pro-active approach to attenuate and mitigate salt-loading within the basin (see attached Groundwater Management Plan). As discussed in Zone 7's Groundwater Management Plan, Zone 7's Salt Management Plan (May, 2004) addresses the sources of increased salt loading and the best approach to mitigate these effects. Currently, Zone 7 is engaged in the design of a demineralization facility to balance the salt loading in the groundwater basin by removing and exporting the both the existing salt in the basin and the projected future salt loading. The demineralization project will also make it possible to provide softer water to Zone 7's potable water customers in the western portion of Zone 7's service area where there is a regional concentration of groundwater production facilities.

Zone 7, recognizing that recycled water will be a part of a complete and balanced water supply and storage management program, has incorporated its use in future water supply planning. In joint efforts with DSRSD and the City of Livermore, Zone 7 plans to continually support the search for safe, economically feasible and publicly acceptable methods to increase local water resources by maximizing the use of recycled water.

### **15.0 WATER QUALITY IMPACTS ON RELIABILITY**

*Water Code*

*Section 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.*

Zone 7 does not anticipate that water quality will negatively impact its ability to provide a reliable supply of water over the next 20 years, although water quality is certainly a consideration in water supply planning. For instance, although a certain percentage of groundwater will be "lost" by the demineralization projects discussed above (i.e., through export of concentrate or reject streams from reverse osmosis facilities), this water quality/salt balance consideration allows recycled water use in the area and the associated increased salt loading on the basin. Therefore, as long as the volume of concentrate exported out of the area is less than the volume of recycled water, the overall effect is a gain in regional water supplies without any overall impact on water quality.

Surface water from the State Water Project is expected to be provided into the future per DWR's most recent SWP Table A. The long-term average SWP delivery is 77% and the minimum is 5% of each contractor's SWP allocation. Local water supply from Lake Del Valle is expected to remain steady as long as hydrology remains within normal limits. The water quality in the Livermore-Amador Valley Groundwater Basin is expected to improve when currently planned projects come on line.

Groundwater Demineralization facilities are planned for completion in 2008, 2012 and

2015, respectively, with a total ultimate treatment capacity of 16 to 18 MGD. The first of these, a reverse osmosis (RO) plant with a 7.7 MGD capacity, has received approval from both DSRSD and Zone 7 Boards. These facilities will help to maintain the groundwater basin's reliability by balancing the salt loading. The net salt removal will exceed the salt loading in the basin thus improving water quality. Without this type of intervention, parts of the Main Basin would exceed the limits of recommended mineral content thereby losing reliability.

Zone 7's approach to maintaining a sustainable and reliable water supply with good water quality has been (and will continue to be) to maximize surface water deliveries, artificially recharge the Main Basin with imported surface water, expand recharge facilities, restrict groundwater pumping, and properly manage use of recycled water. As mentioned above, a Salt Management Plan was originally planned to control salt loading from recycled water but was expanded to solve the entire salt loading problem. In the process the SMP has shaped the water operations plan into a tool to maintain, or where feasible, to improve Zone 7 delivered treated water quality. Groundwater demineralization and the export of salts from RO plants, along with surface water recharge of the groundwater basin, are the key components of the SMP. These programs are discussed in more detail in the attached Groundwater Management Plan, incorporated herein by reference.

## **16.0 WATER SERVICE RELIABILITY**

### Water Code

#### Section 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.*

Note that in addition to the goals stated above (see Chapter 7), Zone 7 has a number of planning and operational criteria, which are associated with the Board Water Supply Reliability Resolution and are as follows:

1. Provide surface water treatment design capacity to meet 85 percent of the Zone 7 maximum day demand for reliability and operational flexibility.
2. Operate water supplies so that the groundwater basin levels do not drop below historic lows.

Zone 7's normal water year supply is based on the annual Sustainable Water Supply Report and includes sources of water from State Water Project, water transfers, local and external groundwater as well as local surface water. The Current Sustainable Water Supply is 88,400 AF considering the most recent SWP average delivery from DWR's Table A. This amount is expected to remain relatively constant during the next 20 years unless average year deliveries change on SWP Table A. Zone 7's normal water year demand is expected to increase per Table 16 from 47,550 AFA in 2005 to 69,370 AFA in 2030.

Table 16. Zone 7 Total Annual Demand, 2005-2030. Units in acre-feet.

ZONE 7 DEMANDS BY YEAR	2005	2006	2007	2008	2009	2010	2015	2020	2025	2030
TREATED, AF	43,650	45,120	46,190	47,270	48,290	49,370	57,240	59,110	60,960	61,120
UNTREATED, AF	3,900	4,300	4,410	4,540	4,720	8,250	8,250	8,250	8,250	8,250
<b>TOTAL ANNUAL DEMAND</b>	<b>47,550</b>	<b>49,420</b>	<b>50,600</b>	<b>51,810</b>	<b>53,010</b>	<b>57,620</b>	<b>65,490</b>	<b>67,360</b>	<b>69,210</b>	<b>69,370</b>

The available water supply to Zone 7 for the single critical dry year is presented in Tables 17 for current conditions through about 2012. Table 18 depicts available supplies after Zone 7 obtains Out-of-Basin storage in Cawelo. This will allow Zone 7 to meet worst case single year drought demands through 2030. Zone 7's available water supply for a multiple year (six-year) drought is shown in Tables 19 for current conditions through about 2012. Table 20 shows available supplies after Zone 7 obtains Out-of-Basin storage in Cawelo. The available water supply presented in those tables are based upon Zone 7 model results over a 77-year hydrologic record. The model results verify the water supply from Zone 7 available sources, including State Water Project (Table A), Carryover, Out-of-Basin Storage Pumpback, Local Watershed (Lake Del Valle), local groundwater basin, and Out-of-Basin Supply (BBID).

Table 17. Zone 7 Minimum Water Supply for a Single Dry Year, 2005-2012

SUPPLY SOURCE	Year 1 *
State Water Project *	4,030
SWP - Carryover	20,000
Semitropic Pumpback	8,170
Arroyo del Valle Watershed	20
Zone 7 Wells	28,200
BBID	2,000
<b>TOTAL</b>	<b>62,420</b>
<b>TOTAL 2012 DEMAND</b>	<b>61,000</b>

\* Based upon the driest hydrologic year (1977).

Table 18. Zone 7 Minimum Water Supply for a Single Dry Year, 2013-2030

SUPPLY SOURCE		Year 1 *
State Water Project *		4,030
SWP - Carryover		20,000
Semitropic Pumpback		8,170
Cawelo Pumpback		10,000
Arroyo del Valle Watershed		20
Zone 7 Wells		28,200
BBID		2,000
<b>TOTAL</b>		<b>72,420</b>
<b>TOTAL 2030 DEMAND</b>		<b>69,370</b>

\* Based upon the driest hydrologic year (1977).

Table 19. Zone 7 Minimum Water Supply Availability for a Six-Year Drought between 2005-2012

SUPPLY SOURCE	Year 1 *	Year 2 *	Year 3 *	Year 4 *	Year 5 *	Year 6 *
State Water Project	66,280	8,060	69,420	16,930	16,930	29,210
SWP - Carryover	10,000	10,000	0	10,000	0	0
Semitropic Pumpback	0	8,680	8,150	9,780	9,780	11,200
Arroyo del Valle Watershed	380	290	4,290	480	4,560	6,720
Zone 7 Wells	17,000	33,400	17,000	23,230	29,150	13,300
BBID	2,000	2,000	2,000	2,000	2,000	2,000
<b>TOTAL</b>	<b>95,660</b>	<b>62,430</b>	<b>100,860</b>	<b>62,420</b>	<b>62,420</b>	<b>62,430</b>
<b>TOTAL DEMAND (2012)</b>	<b>61,000</b>	<b>61,000</b>	<b>61,000</b>	<b>61,000</b>	<b>61,000</b>	<b>61,000</b>

\* Based upon six driest hydrologic years, 1987 - 1992.

Table 20. Zone 7 Minimum Water Supply Availability for a Six-Year Drought between 2013-2030

SUPPLY SOURCE	Year 1 *	Year 2 *	Year 3 *	Year 4 *	Year 5 *	Year 6 *
State Water Project	66,280	8,060	69,420	16,930	16,930	29,210
SWP - Carryover	10,000	10,000	0	10,000	0	0
Semitropic Pumpback	0	8,680	15,480	9,780	9,780	11,200
Cawelo Pumpback	0	10,000	0	10,000	10,000	10,000
Arroyo del Valle Watershed	380	290	4,290	480	4,560	6,720
Zone 7 Wells	17,000	30,730	17,000	20,560	26,480	10,630
BBID	2,000	2,000	2,000	2,000	2,000	2,000
<b>TOTAL</b>	<b>95,660</b>	<b>69,760</b>	<b>108,190</b>	<b>69,750</b>	<b>69,750</b>	<b>69,760</b>
<b>TOTAL DEMAND (2030)</b>	<b>69,370</b>	<b>69,370</b>	<b>69,370</b>	<b>69,370</b>	<b>69,370</b>	<b>69,370</b>

\* Based upon six driest hydrologic years, 1987 - 1992.

## **17.0 UWMP ADOPTION & IMPLEMENTATION**

### Water Code

*Section 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, as amended by the Act that adds this section, in determining whether the urban water supplier is eligible for funds made available pursuant to any program administered by the department.*

*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 file with the department 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 filed with the department 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 outstanding elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has filed its plan with 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.*

*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.*

Zone 7 has taken all the required steps in adopting this UWMP, for example:

1. A copy of the adoption resolution is attached to this UWMP.
2. Zone 7 has reviewed the DMM implementation plan and determined that all of the applicable DMM's listed in the 2000 UWMP are being implemented. New commercial and industrial water use review is not being implemented because Zone 7 does not maintain individual commercial and industrial customer accounts (see individual retailer accounts). However, Zone 7 works with its retailers to encourage water use efficiency in the design of new commercial, industrial, and institutional facilities, for example specifying the use of recycled water for landscape irrigation.

Zone 7 did not include an overview of recycled water programs in the 2000 UWMP but has included one in 2005 (again, see individual retailer UWMPs for additional detail).

3. Zone 7 did not include a Groundwater Management Plan (GMP) in its 2000 UWMP but has incorporated its GMP into the 2005 UWMP by reference.
4. Zone 7 will provide its 2005 UWMP to DWR, its four major retail contractors, the City of Dublin, and Alameda County within 30 days of adoption.
5. Zone 7 recognizes that it must file copies of amendments or changes to the 2005 UWMP with DWR and contractors within its service area within 30 days of adoption.
6. Zone 7 will make the 2005 UWMP available for public review within 30 days of filing it with DWR.
7. Zone 7 continually encourages the involvement of all stakeholders in the affairs of water management. Zone 7 meets regularly with its major retail contractors and solicits input on a variety of tasks. Each month, Zone 7 holds a Board meeting in which the public is invited to participate and comment on issues related to the conduct of Zone 7's business. Zone 7 has contracts with public relations consultants to ensure that the public is both heard and well informed. In addition, Zone 7 maintains a website containing key reports for public use and to make available contacts within the agency should there be any issues. Zone 7 publishes a newsletter, "Waterways" and uses it as a communication tool for all customers within its service area. Zone 7 will hold a public hearing on its 2005 UWMP and will notify all stakeholders involved using standard modes of notification.

## **ACRONYMS AND DEFINITIONS**

ACWD- Alameda County Water District

AF/af – acre feet

AFA/afa – acre-feet per annum

BBID – Byron-Bethany Irrigation District

BMPs – Best Management Practices

CALFED – California-Federal Delta Bay Program

CCWD – Contra Costa Water District

CII – Commercial, Industrial, & Institutional

CIMIS – California Irrigation Management Information System

CoVWR – Committee of Valley Water Retailers

CUWCC – California Urban Water Conservation Council

CWS – California Water Service Company

DERWA - DSRSD-EBMUD Recycled Water Authority

DMM – Demand Management Measures

DSRSD - Dublin San Ramon Services District

DWR – Department of Water Resources

EBMUD – East Bay Municipal Utilities District

ETo - Evapotranspiration

GMP – Groundwater Management Plan

HET – High Efficiency Toilet

LAVWMA - Livermore-Amador Valley Water Management Agency

MGD – Million Gallons per Day

M&I – Municipal and Industrial

MOU – Refers to the Memorandum of Understanding Regarding Urban Water Conservation in California

RWQCB – Regional Water Quality Control Board

SBA- South Bay Aqueduct

SCVWD - Santa Clara Valley Water District

SMP – Salt Management Plan

SWP – State Water Project

TWRG – Tri-Valley Water Retailers Group –Staff group to support CoVWR

UWMP – Urban Water Management Plan

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# APPENDICES

APPENDIX A ..... Zone 7 Board Resolution  
06-2797 Approving and Adopting the Urban Water Management Plan and the  
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APPENDIX B.....Zone 7 Revised  
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# **APPENDIX A**

Zone 7 Board Resolution 06-2797 Approving and Adopting  
the Urban Water Management Plan and the Water Shortage  
Contingency Plan

ZONE 7  
ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BOARD OF DIRECTORS

RESOLUTION NO 06-2797

INTRODUCED BY DIRECTOR KALTHOFF  
SECONDED BY DIRECTOR CONCANNON

**RESOLUTION APPROVING AND ADOPTING THE URBAN WATER MANAGEMENT PLAN  
AND THE WATER SHORTAGE CONTINGENCY PLAN**

WHEREAS, Assembly Bill 797 was passed and chaptered as part of the California Water Code (Section 10610 et. Seq.); and

WHEREAS, this bill, commonly known as the Urban Water Management Planning Act, requires all urban water purveyors serving more than 3,000 customers either directly or indirectly, or more than 3,000 acre-feet of water annually, to prepare and submit a plan, or plan update, once every five years; and

WHEREAS, said plan is for the purpose of evaluating and developing water management policies to achieve conservation and efficient use of urban water supplies; and

WHEREAS, Zone 7 of Alameda County Flood Control and Water Conservation District is the overall water management agency for the Livermore-Amador Valley, including the Cities of Dublin, Livermore, and Pleasanton; and

WHEREAS, Zone 7 prepared an Urban Water Management Plan that was approved by the Board of Directors of Zone 7 of Alameda County Flood Control and Water Conservation District in December, updated in 1991 and 2000, and which was subsequently filed with the State of California Department of Water Resources; and

WHEREAS, Zone 7 has prepared and circulated for public review an updated Draft Water Shortage Contingency Plan in conjunction with its Urban Water Management Plan Year 2005 Update

WHEREAS, Zone 7 has prepared a draft Urban Water Management and Water Shortage Contingency Plan Year 2005 Update; and

WHEREAS, a public hearing regarding the Plan was properly noticed and held to receive comments on said Draft Plan; and

NOW, THEREFORE, BE IT RESOLVED that said Draft Plan update be approved as the Urban Water Management and Water Shortage Contingency Plan Year 2005 Update for Zone 7; and

BE IT FURTHER RESOLVED that Zone 7 reaffirms its commitment to maintain the long-term reliability of its water supply; and

BE IT FURTHER RESOLVED that said Plan be filed with the State of California Department of Water Resources.

ADOPTED BY THE FOLLOWING VOTE:

AYES: DIRECTORS CONCANNON, GRECI, KALTHOFF, KOHNEN, MARCHAND, QUIGLEY, STEVENS

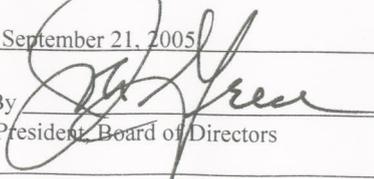
NOES: NONE

ABSENT: NONE

ABSTAIN: NONE

I certify that the foregoing is a correct copy of a resolution  
Adopted by the Board of Directors of Zone 7 of Alameda  
County Flood Control and Water Conservation District on

September 21, 2005

By   
President, Board of Directors

# **APPENDIX B**

Zone 7 Board Resolution 04-2662 Revised Reliability Policy  
for Municipal and Industrial Water Supplies

ZONE 7  
ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BOARD OF DIRECTORS

RESOLUTION NO 04-2662

INTRODUCED BY DIRECTOR MARCHAND  
SECONDED BY DIRECTOR CONCANNON

Reliability Policy for Municipal & Industrial Water Supplies

WHEREAS, the Zone 7 Board of Directors desires to maintain a highly reliable Municipal and Industrial (M&I) water supply system so that existing and future M&I water demands can be met during varying hydrologic conditions; and

WHEREAS, the Board has an obligation to communicate to its M&I customers and municipalities within its service area the ability of the Zone's water supply system to meet projected water demands.

WHEREAS, the Board on May 15, 2002 adopted Resolution No. 02-2382 setting forth its Reliability Policy for Municipal & Industrial Water Supplies; and

WHEREAS, the Zone's current water supply policy includes a provision for a valley-wide groundwater production capability to meet 75% of valley-wide M&I demand in the event of an outage of the South Bay Aqueduct; and

WHEREAS, the Board desires to revise the Reliability Policy to include all Zone 7 water supply facilities and to clarify demand levels for planning purposes;

NOW, THEREFORE, BE IT RESOLVED that the Board hereby rescinds Resolution No. 02-2382 adopting the May 15, 2002 Reliability Policy for Municipal & Industrial Water Supplies; and

BE IT FURTHER RESOLVED that the Board hereby adopts the following policy goals regarding reliability<sup>1</sup> to guide the management of the Zone's M&I water supplies as well as its Capital Improvement Program (CIP)<sup>2</sup>:

- GOAL 1. Meet 100% of its treated water customers water supply needs in accordance with Zone 7's most current Contracts for M&I Water Supply, including existing and projected demands for the next 20 years as specified in Zone 7's Urban Water Management Plan, (UWMP), which will be coordinated with Zone 7's M&I water Contractors. Zone 7 will endeavor to meet this goal during an average water year<sup>3</sup>, a single dry water year<sup>4</sup>, and multiple dry water years<sup>5</sup>, and

GOAL 2: Provide sufficient treated water production capacity and infrastructure to meet at least 75% of the maximum daily M&I contractual demands should any one of Zone 7's major supply, production or transmission facilities experience an extended unplanned outage.

BE IT FURTHER RESOLVED that to ensure that this Board policy is carried out effectively, the Zone 7 General Manager will provide a water supply status report to the Board every five years with the Zone 7 Urban Water Management Plan that specifies how these goals can be, or are being, achieved.

If the General Manager finds that the goals might not be met, then the Board will hold a public hearing within two months of the General Manager's finding to consider remedial actions that will bring the Zone into substantial compliance with the stated reliability goals. Remedial actions may include, but are not limited to, voluntary conservation or mandatory rationing to reduce water demands, acquisition of additional water supplies, and/or a moratorium on new water connections. After reviewing staff analyses and information gathered at the public hearing, the Board shall, as expeditiously as is feasible, take any additional actions that are necessary to meet the reliability goals during the following five-year period; and

BE IT FURTHER RESOLVED that the Zone 7 General Manager shall prepare an Annual Review of the Sustainable Water Supply Report which includes the following information:

- (1) An estimate of the current annual average water demand for M&I water as well as a five-year projection based on the same information used to prepare the UWMP and CIP;
- (2) A summary of available water supplies<sup>6</sup> to Zone 7 at the beginning of the calendar year;
- (3) A comparison of current water demands with the available water supplies; and
- (4) A discussion of water conservation requirements and other long-term water supply programs needed to meet Zone 7 M&I water demands for a single dry water year and multiple dry years, as specified in the Zone's UWMP.

A summary of this review will be provided to M & I customers.

#### Definitions

<sup>1</sup>**Reliability**—the ability of a water supply system to provide water during varying hydrologic conditions without the need for reductions in water use.

<sup>2</sup>**Capital Improvement Program (CIP)**—the CIP is the Zone's formal program for developing surface and ground water supplies, along with associated infrastructure, including import water conveyance facilities, surface water treatment plants, groundwater wells, and M&I water transmission system to meet projected water demands.

<sup>3</sup>**Average water year**—the statistical average quantity of water from all of the water supplies available to Zone 7 on a contractual or legal basis (e.g., surface water runoff to Del Valle reservoir), based on the historical hydrologic records available to Zone 7.

<sup>4</sup>**Single dry water year**—for the purposes of meeting the requirements of the UWMP, the Zone 7 staff will identify and justify the selection of a calendar year from the historic record that represents the lowest yield from all normally contracted or legally available supplies.

<sup>5</sup>**Multiple dry water years**—for the purposes of meeting the requirements of the UWMP, the Zone 7 staff will identify and justify the selection of three or more consecutive dry years from the historic record that represent the lowest yields from all normally contracted or legally available supplies.

<sup>6</sup>**Available water supplies** consist solely of (1) water supplies that the Zone 7 has contracted for (e.g., listed under Schedule A of the State Water Contract, dry-year water options, special contracts with other water districts, etc.) and (2) water actually stored in surface and subsurface reservoirs.

ADOPTED BY THE FOLLOWING VOTE:

AYES: DIRECTORS CONCANNON, GRECI, KOHNEN, MARCHAND, QUIGLEY

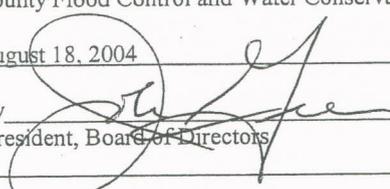
NOES: NONE

ABSENT: DIRECTORS KALTHOFF, STEVENS

ABSTAIN: NONE

I certify that the foregoing is a correct copy of a resolution  
Adopted by the Board of Directors of Zone 7 of Alameda  
County Flood Control and Water Conservation District on

August 18, 2004

By   
Vice-President, Board of Directors

APPENDIX C

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT  
BOARD OF DIRECTORS

ZONE NO. 7

RESOLUTION NO. 1506

INTRODUCED BY DIRECTOR TRACY

SECONDED BY DIRECTOR WENTE

WHEREAS, Zone 7 of Alameda County Flood Control and Water Conservation District recognizes the need to provide reliable urban water supplies and to protect the environment; and

WHEREAS, increasing demands for urban, agricultural and environmental water uses can be offset in part by the wise use of water and the elimination of waste; and

WHEREAS, Zone 7 believes in the wise and judicious use of water, and therefore such conservation and elimination of waste are important elements in Zone 7's overall management of its water resources; and

WHEREAS, the Resources Agency of the State of California has developed a "Memorandum of Understanding Regarding Urban Water Conservation in California" ("MOU"); and

WHEREAS, the urban water conservation practices included in this MOU (referred to as "Best Management Practices" or "BMPs") are intended to reduce long-term urban demands from what they would have been without implementation of these practices; and

WHEREAS, it is recognized that present urban water use throughout the State varies according to many factors such as climate, types of housing, landscaping, amounts and kinds of commercial, industrial and recreational development, and the extent to which conservation measures have already been implemented; and

WHEREAS, Zone 7 believes that locally elected representatives can best determine those BMPs most suitable for their respective area; and

WHEREAS, Zone 7 as a "wholesale" water supplier already practices those BMPs over which it has control; and

WHEREAS, the MOU does not address how the conserved water will be used for the protection of streams, wetlands and estuaries and/or urban water supply reliability, nor does it address what additional measures might be appropriate to provide for long-term reliability for agricultural and urban water suppliers or long-term protection of the environment;

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of Zone 7 of Alameda County Flood Control and Water Conservation District will continue to implement and support those conservation measures identified as BMP that are uniquely suitable for and beneficial to the Zone 7 area without signing the MOU; and

BE IT FURTHER RESOLVED that said Board of Directors does urge the Resources Agency to pursue a permanent long-term water solution that will meet the legitimate needs of the state's urban and agricultural water users while providing for the enhancement of the streams, wetlands and estuaries of the state.

BE IT FURTHER RESOLVED that a copy of this resolution be sent to the State Resources Agency.

ADOPTED BY THE FOLLOWING VOTE:

AYES: DIRECTORS CONCANNON, FIGUERS, HAGEMANN,  
MARCHAND, SHULENBERGER, TRACY, WENTE

NOES: NONE

ABSENT: NONE

ABSTAIN: NONE

I certify that the foregoing is a correct copy of a resolution adopted by the Board of Directors of Zone No. 7 of the Alameda County Flood Control and Water Conservation District on JAN 15 1992

ATTEST:

BY

Sandy H. Figueroa

# **APPENDIX D**

## **Zone 7 Emergency Operations Plan**



ZONE 7 WATER AGENCY  
Alameda County Flood Control and Water Conservation District

# Emergency Operations Plan

August 2004



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## Section 1: Emergency Operations Introduction

### 1.1 INTRODUCTION

---

The Zone 7 Water Agency of Alameda County's Flood Control & Water Conservation District (Zone 7) provides treated and untreated water on a wholesale basis to local private and municipal retail water agencies, as well as special districts and large single customers.

Zone 7 obtains its water from the State Water Project of the Department of Water Resources (DWR) and from the Zone 7 ground water basin. The ability of Zone 7 to deliver water to its customers in case of emergency will depend upon the event's effects upon the state water system, as well as how the Zone 7's water treatment plants, wellfields and distribution system are affected by the event.

During 2002 - 2003, Zone 7 completed a comprehensive hazards and vulnerability assessment. Zone 7 then updated the contingency plans section of its Emergency Operations Plan (EOP) to satisfy the requirements of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002. Zone 7 also revised the remainder of its Emergency Operations Plan in support of Zone 7 Emergency Operations Plan. The vulnerability and hazard analysis studies are available, as appropriate, from Zone 7's Emergency Operations Director (EOD).

The Emergency Planning Committee revised the Emergency Operations Plan. Representatives from departments with Emergency Operations Center (EOC) responsibilities make up the Emergency Planning Committee.

The primary objective of this Emergency Operations Plan is to provide clear and concise information to Zone 7 incident responders in an emergency event to minimize risk to personnel, Zone 7, and the community.

This Emergency Operations Plan consists of written procedures that encompass the activities necessary to prepare Zone 7 staff to respond to man-made/intentionally caused (e.g., terrorist event), natural (e.g., earthquake), and/or technological (e.g., process safety failure) emergencies and disasters, and is organized as follows:

#### **Part I**

Sections 1 – 6 of the Zone 7 Water Agency Emergency Operations Plan (EOP) serve as a guide for Zone 7 Emergency Management.

#### **Part II**

Sections 7 – 10 of the Zone 7 Water Agency Emergency Operations Plan (EOP) provide instruction about California's Standardized Emergency Management System (SEMS).

### **Part III**

Sections 11 & 12 of the Zone 7 Water Agency Emergency Operations Plan (EOP) contain action procedures and response protocol for specific emergencies, in the form of “Rip-and-Run” sheets.<sup>1</sup>

### **Appendices**

Appendices A1-A7 provide a glossary, contamination reference material, emergency sampling coordination information, crime scene protocol, selected forms (those not included in Parts I-III), and public information statement templates.

The State Office of Emergency Services (OES), Alameda County’s Office of Emergency Services, and the cities of Dublin, Livermore, and Pleasanton received copies of this revised Zone 7 Water Agency Emergency Operations Plan.

## **1.2 BOARD EMERGENCY PREPAREDNESS POLICY**

The Board of Directors of Zone 7 has adopted Resolution No. 95-1777, which sets forth the following emergency preparedness policy for Zone 7:

- Zone 7 is required to maintain and regularly exercise a comprehensive, all-hazards emergency plan to protect the safety of staff and public and to manage Zone 7’s critical functions at the time of an emergency.
- The General Manager is authorized to:
  - Establish and implement policies for the frequency of plan updates and exercises and other preparedness measures;
  - Designate staff who are authorized to implement the Emergency Operations Plan;
  - Assign staff to specific emergency response functions;
  - Declare a Zone 7 Water Agency Emergency when necessary (such declaration to be ratified by the Board within 10 days);
  - Represent the Agency in consulting with public and private agencies on matters pertaining to response to the emergency and recovery of damaged systems; and
  - Request and send mutual aid resources when indicated.

## **1.3 EMERGENCY OPERATIONS PLAN (EOP) FORMAT AND SCOPE**

The purpose of the EOP is to provide a framework, organizational structure and general direction for Zone 7 response to both local and regional emergencies. The EOP comprises three major parts: Part I – Emergency Operations, Part II – Standardized Emergency Management System (SEMS), and Part III – Emergency Contingency Plans.

---

<sup>1</sup> Throughout this document, the term “Rip-and-Run” sheets refer to the single-page contingency plans in Section 11.

### PART I - Emergency Operations

**Part I** introduces Zone 7's Emergency Operations Plan and how to use it. A section on planning discusses the Emergency Operations Plan and other aspects of emergency planning. The section on methodology reviews Zone 7's approach to emergency preparedness. **Part I** includes sections on Zone 7 response and recovery, and attachments that support Zone 7 Emergency Management.

**Part I** serves as a guide for Zone 7 Emergency Management, including preparedness (for response), mitigation, and recovery plans and programs.

- All management and supervisory staff should review Part I at least once a year.

### PART II - SEMS

**Part II** focuses on emergency response. The first section summarizes California's Standardized Emergency Management System (SEMS). The remaining sections of **Part II** supply SEMS function checklists, forms (both for the state's Response Information Management System and for Zone 7 use), and associated addenda. Information provided in Part II should be used during EOC activation.

- All Zone 7 employees should review the SEMS section once at a minimum, and again before exercises.
- Staff who will work in the EOC should become familiar with all the SEMS function checklists and the emergency response forms. Training and exercises should include the use of these sections.

### PART III – Contingency Plans

**Part III** outlines Zone 7 action procedures and response protocol for possible emergencies. The contingency plans provide incident-specific information for use by the incident responder. Each contingency addresses discovery, mobilization and initial response, sustained actions, termination and follow-up actions, and in some cases, recovery and remediation activities. At the beginning of each section, a "Rip-and-Run" sheet is provided to assist the responder in making the necessary notifications, assess the situation, and initiate appropriate response action. The Rip and Run sheet is designed to be torn away from the plan for use by the responder or incident coordinator at any location within Zone 7.

Part III also contains a section entitled "Emergency Contacts / Agency Notifications and Reporting", which details the process of making people aware of an incident (i.e., who to call, when the call must be made, and what information/data to provide on the incident), as well as post-incident written reporting requirements.

The Appendices provided include support information and "stand-alone" protocols and plans.

**Part III** serves as a procedures manual for incident response.

- All field staff should review **Part III** once, at a minimum.
- All management and supervisory staff should review Part III at least once a year.

#### Plan Assumptions

Assumptions inherent in Zone 7's response to any disaster situation include:

- Zone 7 staff will take immediate actions to address threats to life safety and property damage, in accordance with established emergency operations procedures.
- During declared disasters or emergencies, Zone 7's day-to-day organizational structure will shift as necessary to the Emergency Management Organization (EMO) described in this plan.
- Depending upon the scope and magnitude of the incident, this EOP and Zone 7 EMO may be partially or fully activated.
- During disasters, on/off-duty staff will report to pre-designated locations in accordance with this plan.
- Off-duty employees will ensure the safety and welfare of their homes and families before reporting for their emergency assignment.
- On-duty employees will be assisted in ensuring the safety and welfare of their families to the maximum extent possible.
- During disasters Zone 7's contractors will respond as required by their respective agreements, or as requested by Zone 7 staff.
- Agency-wide disaster response and restoration priorities will be established by the Zone 7 EOC.

#### Scope of Plan

This plan encompasses all Zone 7 facilities and personnel and will address a broad range of potential emergency situations. The EOP and the Emergency Management Organization (EMO) described in a subsequent section will be implemented to the extent required by the presenting situation. This multi-hazard plan addresses potential emergencies such as:

- Earthquake
- Fire
- Flood
- South Bay Aqueduct Failure
- Severe Weather
- Contamination Event
- Power Outage
- Civil Disorder
- Terrorism (act or threat)

- Hazardous Materials Spill

#### **1.4 Hazard Assessment and Vulnerability Analysis**

Prior to plan development a hazard assessment and vulnerability analysis was performed to identify mitigation, preparedness, and response issues which need to be addressed by Zone 7. Two comprehensive reports were prepared - one from an emergency planning perspective and one from an engineering perspective (Water System Reliability Assessment Engineering Report 7/94). Potential hazards that could threaten Zone 7 operations were examined and vulnerabilities were noted. Recommendations for reducing or eliminating these vulnerabilities have been incorporated into this Emergency Operations Plan.

In addition, in 2003, Zone 7 completed a comprehensive vulnerability assessment (VA) as part of compliance with the Public Health Security and Bioterrorism Preparedness and Response Act of 2002. This EOP incorporates the results of that assessment, specifically, it established responses to the types of threats and potential adversary actions addresses in the VA.

#### **1.5 Use of Standardized Emergency Management System (SEMS)**

The emergency management approach outlined in this plan at the field and Emergency Operations Center (EOC) levels is consistent with the state-mandated Standardized Emergency Management System (SEMS). This system provides a standard framework for emergency response by local (city and special district), operational area (county), regional, and state agencies throughout California.

SEMS incorporates the use of the Incident Command System (ICS), multi- and inter-agency coordination, the California Master Mutual Aid Agreement and mutual aid system, and the operational area concept. Local governments, including special districts, are required to use SEMS in order to be eligible for state funding of response-related personnel costs.

#### **1.6 Authorities/Reference Materials Pertinent to Emergency Operations Plans**

##### Authorities

The following laws and references authorize or require water utilities to create, manage, and activate emergency plans, utilizing their powers to take actions and carry out the responsibilities described in their respective plans.

- **California Emergency Services Act** (1952, amended 1970, 1986, and 1992, and referred to as the "Act"). Authorizes all political subdivisions of the state (special districts, cities, and counties) to conduct emergency operations. Such action can take place in response to an emergency that immediately overwhelms local resources. Recent additions to this Act include Government Code section 8607 which requires the use of the Standardized Emergency Management System (SEMS) by local government and special districts if they want to recover certain emergency response costs. It also includes 8607.2(a) which requires

public water agencies with more than 10,000 service connections to review and revise their emergency plans in conjunction with local government agencies.

- **California Government Code, Title I, Division 4, Chapter 8, Section 3100.** Identifies public agency employees as Disaster Service Workers.
- **California Department of Health Services, Office of Drinking Water, Public Health Notification.** The *Boil Water* and *Unsafe Drinking Water* notifications outlines public notification and water quality procedures to follow in emergencies.
- **California Emergency Plan.** The California Emergency Plan outlines the state's response to help local government respond to disasters. Under Government Code section 8586, the plan is in effect in each political subdivision of the state, and states that the governing board of each political subdivision shall take such actions as may be necessary to carry out the provisions thereof. Procedures for requesting aid and managing a statewide emergency organization are included. This guidance is consistent with the California Emergency Plan.
- **California Code of Regulations, Title 19 of Division 2, Chapter 1, Sections 2400 -2450.** The Standardized Emergency Management System (SEMS) Regulations.
- **Government Code sections 54954 – 54956.** Public meeting agendas.
- **Zone 7 Board Resolution 95-1777 (see Section 10.3). Declaration of an agency emergency**

#### Reference Materials

The following reference materials assisted the Zone 7 Water Agency with the development of this emergency plan.

- California Emergency Plan, 1990
- California Utilities Emergency Plan, 1990
- Standardized Emergency Management System (SEMS) Guidance for Special Districts, 1999
- California Utilities Emergency Association, Emergency Planning Guidance for Public and Private Water Utilities, 1999
- Zone 7 Water Agency Emergency Operations Plan, revised March 1999 (This March 2004 version supersedes the March 1999 version.)
- Alameda County Emergency Operations Plan, 2000
- Water/Wastewater Agency Response Network (WARN), 2001
- Federal Response Plan, FEMA Publication 9230.1-PL, January 2003
- Environmental Protection Agency, Large Water System Emergency Response Plan Outline, 2003

Copies of the above reference materials can be obtained and/or viewed at Zone 7's Emergency and Safety Office.

#### **1.6.a Legal Immunities**

During declared disasters, the California Emergency Services Act provides local government and its employees with immunity from liability if and when injuries result from:

- Emergency actions outside of normal geographical boundaries, such as Zone 7 staff providing mutual aid to another agency.
- Emergency actions that involve discretion, such as a decision to not send staff into areas where they may be endangered.
- Fire protection, staffing levels, and transportation of injured.
- Impending peril or action taken to abate such peril. (See Government Code Sections 8656, 814-895.9, 844-846, 850-850.8, and 865-867 for more detail.)

## Section 2: Emergency Operations Planning

### **2.1 Emergency Operations Plan (EOP) Overview**

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Zone 7 has developed this comprehensive Emergency Operations Plan to ensure its readiness and capability to respond to a wide range of potential emergencies.

#### **2.1.a Emergency Planning**

##### General Manager

The General Manager or designee will act as the Emergency Operations Center Director (hereafter referred to as **GM**) when the Emergency Operations Center is activated. The GM performs the Management Function in the Emergency Operations Center and has the authority to make policy decisions.

The General Manager will periodically approve additions and or revisions to Zone 7's Emergency Operations Plan.

##### Emergency Planning Committee

An Emergency Planning Committee has been established and is responsible for reviewing Zone 7's Emergency Operations Plan. The committee will meet after all exercises and evaluate the exercise, identify additional training required, update the EOP (if needed) and prepare an action plan for the recovery phase.

The Emergency Planning Committee is composed of representatives from the all SEMS Functions: Management, Operations, Planning and Intelligence, Logistics, and Finance/Administration.

##### Emergency Planning Coordinator

Zone 7's Emergency Operations Director (EOD) will serve as the Emergency Planning Coordinator and is responsible for day-to-day emergency management program activities. The Emergency Planning Coordinator will:

- Chair the Emergency Planning Committee
- Update emergency operations procedures, document EOP additions and revisions, and transmit copies of the change(s) for inclusion in all copies of the Emergency Operations Plan
- Provide training
  - Employees are oriented to the Zone 7 EOP upon employment and annual reviews are conducted thereafter.
  - Those assigned to emergency functions receive additional training.
- Conduct exercises for Zone 7 Emergency Management Organization members

- Emergency Operations Center (EOC) and Field Operations Center (FOC) staff will exercise the plan at least once each year.

The Emergency Planning Coordinator is responsible for ensuring that this EOP is consistent with current regulations and recommended emergency response standards and strategies. The entire EOP is reviewed by the Emergency Planning Committee at least once each year and is revised to incorporate any recommendations made during exercises or After-Action Critiques.

### **2.1.b Division/Section Planning Responsibilities**

Each Zone 7 Division and Section has been assigned lead or support responsibilities for specific emergency functions. In their role as Lead or Support for planning responsibilities, each Division/Section is responsible for:

- Staff participation in training and exercises
- Updating sections of the EOP relating to their assigned functional responsibility annually, or more frequently if significant changes have occurred
- Staffing the assigned function whenever the EOC is activated
- Familiarizing all employees with the EOP and the Division's/Section's role within the plan
- Assigning employees to emergency assignments and reporting locations in accordance with the Division's/Sections' role within the plan
- Developing and maintaining Standard Operating Procedures (SOPs) and lists of resources/inventories
- Identifying and securing maps, record drawings, schematics, reference materials and other documents required for damage assessment and emergency response

### **2.1.c Coordination with Other Agencies**

Designated Zone 7 staff participates on a wide range of emergency and disaster planning committees in its service area. As a special district, Zone 7 becomes part of the Alameda County Operational Area (OA) during declared disasters. Consequently, this plan is integrated with and supports the Alameda County Emergency Operations Plan.

During EOP development, the emergency plans of treated water customers who have emergency plans in place, including the Cities of Pleasanton and Livermore, the VA Medical Center, the California Water Service Company, and the Dublin San Ramon Services District, were reviewed to ensure coordination with this plan.

Whenever the Zone 7 EOC is activated, the Alameda County Office of Emergency Services should be notified. Customers and other local governments (cities and special districts) will be notified as warranted by the situation. Refer to Part III, Section 14, Emergency Contacts/Agency Notifications and Reporting for more details.

At the scene of emergencies, Zone 7 staff will report in with the Incident Commander and will determine what assistance or information is needed from Zone 7. On-scene Zone 7 staff shall cooperate fully with the Incident Commander and shall maintain radio contact with the appropriate FOC. Before taking any action, that may affect Zone 7 operations, on-scene personnel shall consult with the assigned FOC coordinator.

Zone 7 will also use Multi/Inter-Agency Coordination during response to ensure that:

- Decision-making is coordinated between agencies
- Priority-setting for resource allocation and response is facilitated
- Information is shared

Zone 7 participates in a statewide public utility mutual assistance organization, the Water/Wastewater Agency Response Network (WARN). WARN supports and promotes statewide emergency preparedness, disaster response, and mutual assistance matters for public and private water and wastewater utility members. When an incident first occurs, neighboring water utilities are likely to activate day-to-day mutual assistance (WARN) before State Mutual Aid is authorized. State Mutual Aid would be activated if Zone 7 has asked the Operational Area (OA) to activate its EOC. From that point forward resources are provided to and from public utilities only through the Standardized Emergency Management System, and not through direct requests between public utilities.

#### **2.1.d Employee Preparedness**

A number of measures are taken on an ongoing basis to ensure that Zone 7 employees are prepared to respond immediately and appropriately to disasters. These include:

- Providing home and family preparedness information
- Requiring each facility to maintain a minimum cache of first aid kits, flashlights and A.M. radios for its employees, in addition to any emergency function-specific supplies it may need

Employees with special needs are advised to maintain a three-day supply of prescription medications, eye or ear care supplies, or medical appliances in a secure location at the work site, in the event they are unable to return home immediately following a disaster. Those who require assistance during emergencies are encouraged to advise co-workers in their immediate work area of their need for assistance. Employees with temporary or permanent impairments of sight, hearing, or mobility may self-identify by completing a Special Needs Form (Attachment 6.1) indicating what assistance may be required in the event of an emergency.

#### **2.1.e Mitigation and Preparedness Efforts**

##### Seismic Upgrades

As part of the July 1994 Water System Reliability Assessment, a number of seismic upgrade strategies were proposed to ensure the highest level of reliability. Capital upgrades have been examined by the Board during the annual budget/rate setting process. Upgrades

that represent a favorable cost-benefit to Zone 7 are being scheduled for implementation as part of the ongoing capital improvement program.

#### Flood Control

Channel improvements for flood control of major creeks and arroyos are performed as necessary and routine maintenance is conducted to maintain design flow capacity in accordance with Zone 7's Streams Management Master Plan.

#### Emergency Supplies and Equipment

Personal safety gear and other emergency supplies and equipment are maintained throughout Zone 7 by Emergency and Safety Services. Agency first responders who are dispatched to the scene of major incidents are provided with standard emergency supplies from the water treatment plants or Parkside Drive Administration Building.

#### Emergency Power

Both water treatment plants (Del Valle WTP and Patterson Pass WTP) are on uninterrupted each entire plant, including the Laboratory at the Del Valle Plant. A portable emergency generator is available to power the Parkside Drive building, specifically their telephone systems and emergency lighting systems. Additional portable generators have been secured at a limited number of wells or pump stations.

#### Groundwater Storage

Groundwater storage is maintained at a level that will sustain the Zone 7 service area through a multi-year drought.

#### Contractor Agreements

Because Zone 7 is dependent upon contractor support for certain services and equipment, it is working to include an emergency response provision in contractor and essential supplier agreements.

### **2.1.f Communication**

#### Land Lines

The telephone system at the Owens Drive building has limited backup power capability. Treatment plant telephone systems are connected to an emergency generator which comes on-line automatically during a power failure. A significant number of Zone 7 telephone lines have been designated essential service lines by the telephone company. This service will exempt these lines from line load control at the time of a disaster, assuming that telephone service has not been interrupted. The phone system at Owens Drive has a battery backup but will require a portable generator if power is interrupted for an extended period of time.

### Cellular Telephones

A limited number of portable cellular telephones are available for communications between the EOC and FOCs in the event of a telephone system failure. Refer to Part III, Section 14 (Emergency Contacts/Agency Notifications and Reporting) for contact information.

### Pager Network

Zone 7's first responders/standby supervisors carry alfa-numeric pagers allowing them to receive typed messages from any QuickPager terminal, and phone numbers from the public 24 hours per day. Refer to Part III, Section 14 (Emergency Contacts/Agency Notifications and Reporting) for contact information.

### Radio System

Zone 7 is part of an Alameda County-maintained 800 MHz two-way radio system which provides a communications link between the EOC, FOCs, and Zone 7 vehicles, including Flood Control vehicles.

## **2.1.g Information Systems**

### Emergency Voice Mail

Zone 7 has established a voice mail system, which will permit its employees to receive information and emergency reporting instructions and their families to leave messages. Designated Zone 7 EOC staff will retrieve messages and update the recorded information/instructions on a regular basis.

### SCADA

A radio-based SCADA is monitored and controlled from the Del Valle Water Treatment Plant. This system, with numerous remote sites, monitors critical alarms at both water treatment plants, well fields, and customer turnouts, and provides a mechanism to centrally control flow rates.

## **2.1.h Essential Records Retention**

Each Division and Section is responsible for identifying, and securing off-site the following, maps, record drawings, schematics, reference materials, and other essential records (electronic and hard copy). Current field prints (with most recent updates) of the water system drawings are maintained at the Del Valle Water Treatment Plant. A backup copy of these records is maintained at the Parkside Drive Administration Building.

A copy of flood control base maps are available at the Flood Control Office. A backup copy of these maps is also available at the Parkside Drive Administration Building.

## **2.2 Employee Responsibilities**

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### **2.2.a All Staff**

#### **Disaster Service Worker**

According to state law, all public employees are declared to be disaster service workers subject to such disaster service activities as may be assigned by their superiors or by law. Consequently, it is expected that all Zone 7 employees who are on-duty at the time of a declared emergency will remain at work and those who are off-duty will return to work as soon as possible after the event.

- Zone 7 will make every effort possible to assist on-duty employees with checking on the welfare of their families.
- It is presumed that off-duty employees will address home and family needs before reporting for work.
- Under declared emergencies, all Zone 7 personnel are expected to remain on duty. If not on duty at the time of the emergency, Zone 7 personnel are expected to report to their normal work site, or if unreachable, attempt to report to any Zone 7 facility.

### **2.2.b Management and Supervisors**

#### **Pre-Incident Responsibilities**

All managers and supervisors have the following responsibilities:

- Review and be familiar with the Zone 7 Emergency Operations Plan, applicable standard operations procedures, and specific emergency assignment.
- Develop and maintain procedures, resources lists, or other information needed for emergency assignment.
- Ensure that applicable personnel rosters are kept up-to-date.
- Be familiar with alternate communications means and procedures for use during an emergency.
- Assemble plans, checklists, technical information, supplies, and equipment needed during an emergency and maintain in a readily available, but secure, location. Include special personal items such as medications and medical appliances.
- Ensure that all emergency equipment is in working order and always ready for use.
- Participate in emergency training and exercises.

#### **Incident Responsibilities**

General incident responsibilities for all emergency response staff include:

- Implement standard response procedures as dictated by the situation.
- Report to assigned duty station when notified, or upon the occurrence of an obvious disaster.

- Implement emergency assignment as dictated by the situation and in accordance with Zone 7 policies.
- Maintain a log of emergency activities.

There are specific emergency responsibilities for the Field Operations Center, and Emergency Operations Center staff as outlined elsewhere.

*Post-Incident Responsibilities*

General post-incident responsibilities for all emergency response staff include:

- Analyze the emergency response to determine what did and did not work well.
- Participate in Zone 7 After-Action Critique.
- Recommend changes to standard operations procedures and Zone 7 EOP as warranted.
- Restock emergency supplies.

## **Section 3: Emergency Operations Methodology**

Section 3 provides information on the foundations from which Zone 7 developed this emergency plan. The information here supports the logic in Sections 2, 4 and 5.

### **3.1 EMERGENCY MANAGEMENT ORGANIZATION (EMO)**

Zone 7 has established an Emergency Management Organization (EMO), which is consistent with the Standardized Emergency Management System (SEMS). The mission of the EMO, as a whole, is to protect Zone 7 employees, facilities, and the public, and to restore service to all customers as quickly as possible. In order to achieve this, each level of the EMO has a designated role and specific responsibilities assigned to it. The activities of the entire EMO must be fully integrated, and each level must have a high level of confidence that all of the other levels will perform their assigned roles.

When the Emergency Operations Plan (EOP) is activated, Zone 7's day-to-day organizational structure shifts to the EMO. Under this structure, individual Divisions and Sections are grouped into emergency functions. Authority for managing all aspects of the emergency is delegated to the Emergency Operations Director by the General Manager. Upon termination of the emergency event, normal lines of authority and reporting are restored for the transition from recovery to normal operations.

#### **3.1.a General Manager/Board of Directors**

The General Manager declares a Zone 7 Emergency when necessary; receives regular status reports from the Emergency Operations Director; and acts as a liaison between the EOC and the Board of Directors.

The Board ratifies the Emergency Declaration declared by the General Manager within 10 days, provides the General Manager with policy direction as necessary, considers legal issues associated with the emergency with assistance from County Counsel, and coordinates policy directives with the Alameda County Board of Supervisors as warranted.

#### **3.1.b Emergency Powers**

The General Manager (or his/her successor) has been given certain emergency powers during emergencies by Zone 7 Board Resolution. These emergency powers include the authority to declare an Agency Emergency when necessary, request and send mutual aid resources, and represent Zone 7 with external agencies during emergencies.

Depending on the circumstances, the General Manager (or his/her successor) may declare the existence of an Agency Emergency. The Zone 7 Board must ratify this declaration within ten days or it shall automatically terminate. Following such a declaration, the Zone 7 EOC will be partially or fully activated, as deemed necessary.

### Board of Directors' Determination of Agency Emergency

If Zone 7 experiences an emergency that is or is likely to be beyond the control of Zone 7 services, personnel, equipment, and facilities, and poses immediate and significant peril, the Board of Directors may determine that an emergency situation exists. Such a determination:

- Allows the governing board to take action on items of business not appearing on its posted agenda
- Provides limited immunity for emergency actions of public employees and governing bodies
- Activates pre-established local emergency provisions such as special purchasing and contracting
- Alerts local jurisdiction officials that orders and regulations to protect life and property (e.g., evacuation) may be necessary.

## **3.2 Levels of Emergencies**

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Zone 7 personnel routinely respond to relatively minor emergencies, such as ruptured water mains or heavy rainfall. In these cases, the senior person at the scene serves as the Incident Commander and directs and coordinates actions by Zone 7 crew(s). The Zone 7 EOC is not activated and the Incident Commander makes independent decisions based on the presenting situation.

These types of occurrences may result in a temporary loss of service to some customers, but do not usually require the deployment and coordination of a large contingent of Zone 7 staff and would not normally be declared an Agency Emergency.

There are, however, other potential emergency situations (e.g., earthquake, widespread power outage, contamination of water supply), that may necessitate a greater magnitude of Zone 7 response. Such response may include implementation of the Zone 7 Emergency Operations Plan (EOP) and activation of all or part of the Zone 7's Emergency Operations Center (EOC) staff. Local governments, including special districts, are required to use SEMS in order to be eligible for state funding of response-related personnel costs.

In addition to abnormal conditions or unusual events, Zone 7 classifies declared emergencies into three levels – a Local Emergency (I), State of Emergency (II) and Presidential Disaster (III). The levels reflect the magnitude and scope of emergency response required by the event. See Figure 3.2-1.

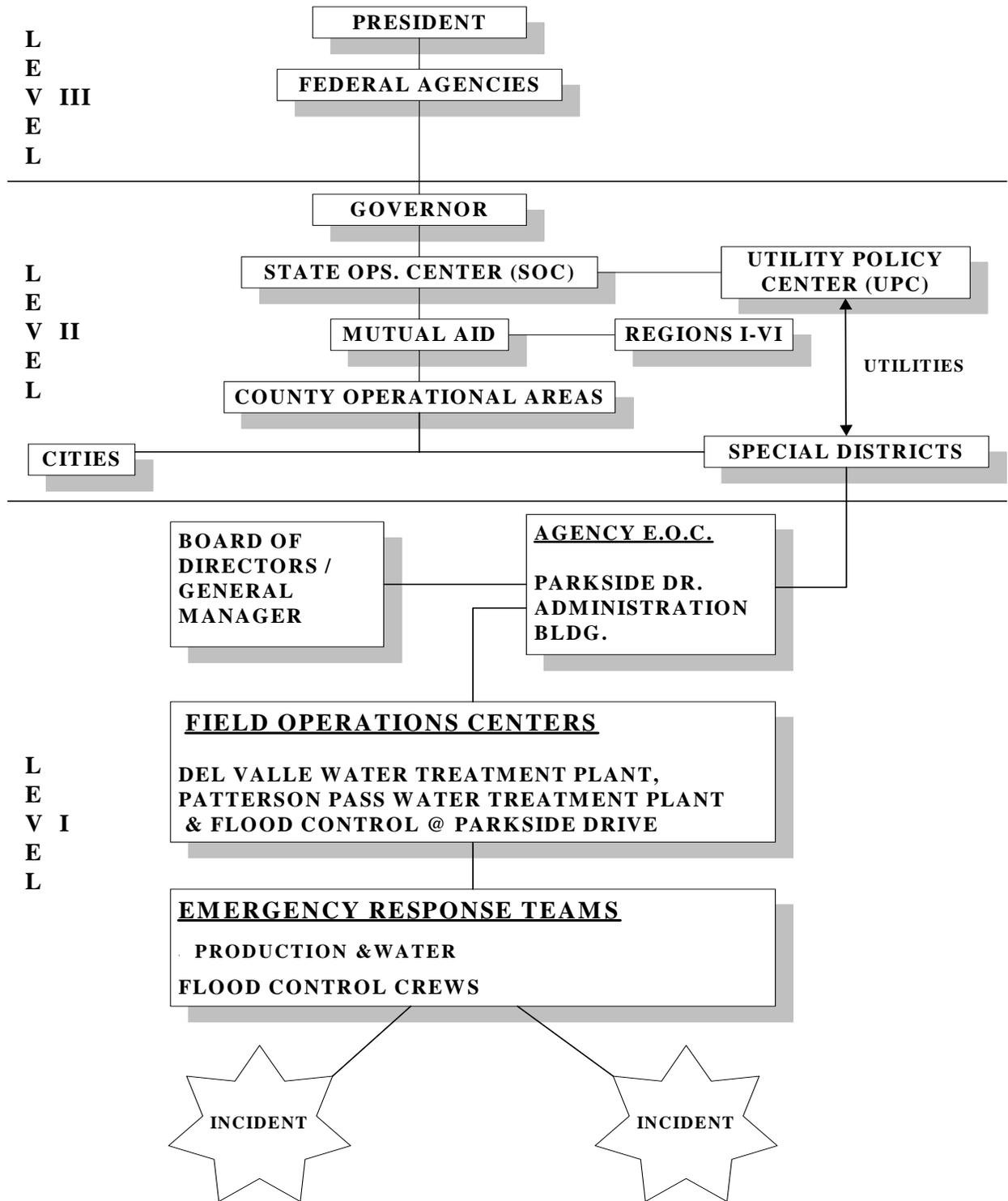


Figure 3.2-1  
 Levels of Emergencies

### Level I - Local Emergency and Opportunity for Director's Concurrence

A Level I Emergency may be declared by Zone 7, a city, other special district, or the county during a minor to moderate local incident wherein resources (city, special district, county) are adequate and available to respond. Level 1 emergencies include:

- A large water line break
- A long-term power outage
- Local flooding
- Water quality contamination
- Hazardous materials spill

A Local Emergency may be declared by the Zone 7 Water Agency General Manager or Board of Directors in order to provide for the immediate deployment of Zone 7 resources and the emergency expenditure of Zone 7 funds. Whenever Zone 7 declares a Local Emergency or activates its EOC, SEMS must be utilized and the Alameda County Office of Emergency Services (OES) in its role as the Operational Area (OA) must be notified.

A Local Emergency may also be proclaimed by Alameda County when two or more cities or special districts within the county or the county itself require assistance. Examples might be flooding or a South Bay Aqueduct break. Since an Alameda County Local Emergency Declaration would include Zone 7 as a special district, an agency determination of an emergency situation would not be required. Whenever the county declares a Local Emergency, Alameda OES, in its capacity as the Operational Area, must notify State Regional OES.

The California Disaster Assistance Act authorized the OES Director, at his/her discretion, to provide financial assistance to repair and restore damaged public facilities and infrastructure. State OES must receive a request for Director's Concurrence within 10 days of the incident. The request requires supporting information; Local Emergency Proclamation, Initial Damage Estimate (IDE) prepared in the Response Information Management System (RIMS), and a request from a City Mayor or Administrative Officer, or County Board of Supervisors.

### Level II – State of Emergency

Level 2 refers to a moderate to severe regional emergency wherein local resources are not adequate and State Mutual Aid mutual aid may be required. Level 2 emergencies include:

- Conflagration
- Moderate earthquake
- Widespread and long-term power outage
- Mudslide

Zone 7, Operational Area, and the Regional or State EOCs would also be activated on either a full or limited basis, depending on the situation. A Local Emergency Proclamation could be followed by a Governor's State of Emergency Proclamation. A Governor's

Proclamation authorizes the OES Director to provide financial relief for emergency actions and restoration of public facilities and infrastructure.

Level III – Presidential Disaster Declaration

Level 3 refers to a major disaster wherein resources in or near the impacted area are overwhelmed and extensive state and/or federal resources are required. Level 3 emergencies include:

- Major earthquake
- Major flooding

Zone 7, Operational Area, and State Regional EOCs would be fully activated. Similarly, the State Utilities Emergency Plan and the SOC would be activated fully. A State of Emergency Declaration by the Governor could be followed by a Presidential Disaster Declaration. Such a declaration supports response and recovery activities of the federal, state, and local government and disaster relief organizations. The declaration authorizes implementation of some or all federal recovery programs including public assistance, individual assistance, and hazard mitigation.

**3.3 Utility Aid and Assistance Agreements**

Zone 7 cooperates with the state, Alameda County, local cities and other water agencies and utilities to plan for the effective mobilization and utilization of available resources during disasters. Zone 7 is signatory to a number of mutual assistance agreements with other water agencies. Under the terms of these agreements, Zone 7 may both send and receive assistance in the form of heavy equipment, supplies, and personnel. The Emergency Operations Director has responsibility for approving mutual aid requests to or from Zone 7.

Zone 7 is a member of Water/Wastewater Agency Response Network (WARN). WARN provides a method for getting help from other utilities when normal resources are overwhelmed and additional personnel or resources are needed to respond to the needs of the community affected by an emergency. Protocol for requesting water utility mutual aid and assistance are detailed in the State OES publication “California Utilities Emergency Association, Emergency Planning Guidance for Public and Private Water Utilities, 1999.”

WARN is not a signer of the State’s Master Mutual Aid Agreement. The Master Mutual Aid Agreement supersedes these assistance agreements if Zone 7 requests that a local jurisdiction and/or the Operational Area EOC activate. The Independent District’s resource acquisition process under mutual assistance is discussed below. Mutual Aid is discussed in Section 4.

Three examples of resource requests and allocation are provided below:

Example 1

- Water Emergency – Zone 7’s EOC not activated (*Figure 3.3-1*)
- Information exchange between Zone 7 EOD and FOCs
- Field Operation Center Coordinators have necessary resources on hand

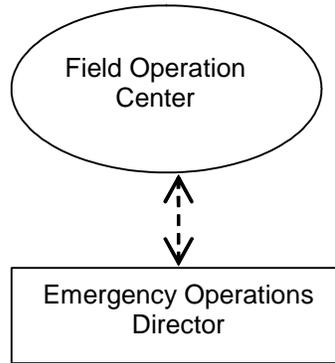


Figure 3.3-1

Example 2 (Figure 3.3-2)

- As in example 1 above, Zone 7’s EOC is **NOT** activated and information is exchanged between Zone 7 EOD and FOCs) ←-----→
- Unlike example 1 above, Field Operation Center Coordinators do **NOT** have necessary resources on hand, so FOC or EOD ask neighboring utility(s) for assistance ●-----→
- Resources from other utilities are sent to incident ==>

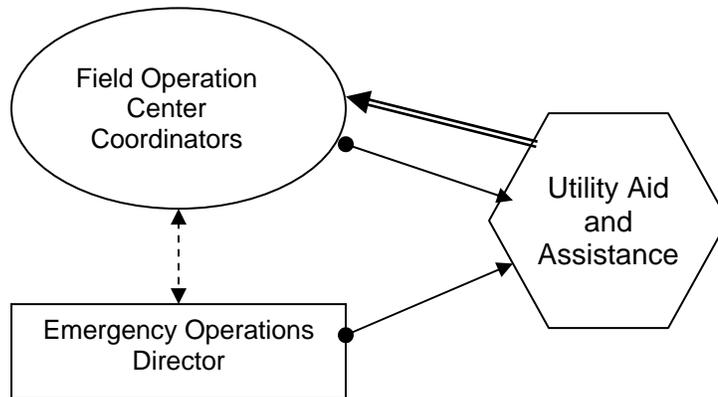


Figure 3.3-2

Example 3 (Figure 3.3-3)

- Unlike examples 1 and 2 above, a catastrophic emergency requires that Zone 7 activate its Emergency Operations Center
- Zone 7 requests that Alameda County opens its EOC
- The State then activates its Regional Emergency Operation Center/State Operations Center, at some level (*Figure 3.3-3*)
- Similar to example 2 above, the Field Operation Center Coordinators do NOT have necessary resources on hand, thus:
  - FOC sends situation assessment information to Zone 7 Planning and Intelligence Section
  - FOC informs Zone 7 Operations Section of its resource needs who tasks Zone 7 Logistics Section with its Utility Aid requisition
  - Zone 7 Operations Section requests fire services and law enforcement resources from Op Area EOC Operations Section, specifying where to deliver the resources
  - Op Area Operations Section acquires fire services and law enforcement resources through Mutual Aid for deployment to Zone 7 FOCs
  - Zone 7 can also request resources from cities where it operates in the same manner if Zone 7 thinks the city may have resources they need

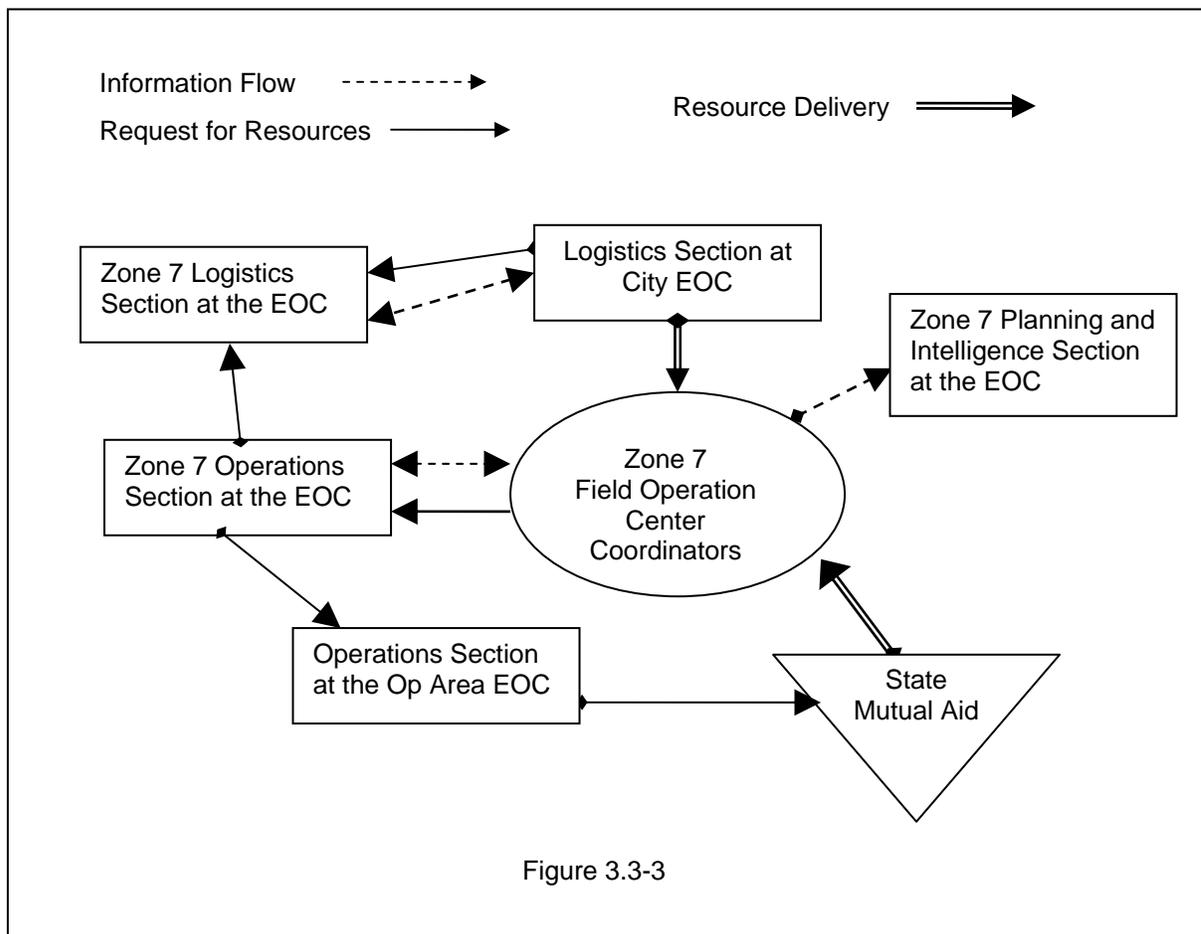


Figure 3.3-3

### **3.4 Emergency Response Priorities and Objectives**

The emergency response priorities listed here can be used to facilitate Action Planning at the EOC. The allocation of Zone 7 resources and coordination of response will generally address any or all of the priorities listed below in descending priority.

1. Containing any hazards, which threaten life or property.
2. Assessing impact of event on water operations and flood control.
3. Securing water transmission system.
4. Ensuring adequate water supply and quality.
5. Securing water treatment facilities.
6. Securing flood control channels.

#### Within 24 Hours

Prioritized objectives for the first 24 hours of a Zone 7 emergency are listed below. The objectives may change, based upon the situation.

1. Implement this EOP and activate the Zone 7's Emergency Management Organization as required by the situation.
2. Complete a preliminary damage assessment; identify alternatives for providing temporary services if necessary, pending full restoration; and locate and arrange for emergency equipment and personnel resources.
3. Determine the status of the water and flood control systems and isolate damaged components as necessary to prevent loss or contamination.
4. Issue water quality and/or flood advisories as required.
5. Establish restoration priorities and initiate emergency repairs.
6. Make external notifications to local governments, regulatory agencies, essential suppliers, customers, and others as indicated.
7. Request mutual aid resources as warranted by the situation.
8. Advise all employees of the situation, work schedules, compensation provisions and similar matters.
9. Review the status of Zone 7's personnel and equipment resources and be prepared to respond to requests for mutual aid.
10. Provide customer and employee information announcements as indicated.
11. Review the "Recovery" section of the 1999 California Utilities Emergency Association publication "Emergency Planning Guidance for Public and Private Water Utilities" and begin disaster-related expenditures documentation.

#### Within 72 Hours

Prioritized objectives for the first few days of a Zone 7 emergency are listed below. The objectives may change, based upon the situation.

1. Redefine restoration priorities.
2. Reassess need to make, modify, or rescind water quality and/or flood advisories.
3. Review Zone 7 finances and make adjustments if necessary to meet priority response and recovery needs.

4. In conjunction with other local agencies, initiate request for state and federal disaster assistance as warranted.
5. Continue damage assessment, emergency repairs, customer and employee information announcements, and liaison with external agencies.

#### Within Two Weeks to One Month

This is the period where recovery begins although response may continue. Prioritized objectives for this period of Zone 7 emergency are listed below. The objectives may change, based upon the situation.

1. Complete detailed evaluations of all affected Zone 7 facilities and determine priorities for permanent repair, reconstruction, or replacement at existing or new locations.
2. Restore all telecommunications, data processing, and similar services to full operation.
3. Complete assessment of losses and costs for repair and replacement; determine approximate reimbursements from insurance and other sources of financial assistance; and determine how residual costs will be financed.
4. Define needs for additional staff and initiate recruitment process if necessary.
5. Execute agreements with vendors to meet service and supply needs.
6. Reevaluate need for maintaining EMO; return to normal organizational structure, roles, and responsibilities when feasible.
7. Submit emergency response assessment and recommendations to state legislature via Alameda County, in accordance with SB 1841, within six months of the event.

#### Long-Term Recovery

Zone 7 may be working the following four long-term objectives for months/years.

- Re-establish supplies in groundwater basin as necessary.
- Initiate permanent reconstruction of Zone 7 facilities and systems.
- Restore Zone 7 operations and services to full pre-event levels.
- Continue to maintain liaison as needed with external agencies.

### **3.5 Internal and External Notification of Agency Emergency**

This procedure is used for internal notification of Zone 7 personnel of wide-scale events requiring their assistance for emergency response. This procedure is also used for notification of external agencies of a wide-scale event wherein the Zone 7 EOC must be partially or fully activated. Each Contingency Plan in Part III has specific notifications required for that type of incident. In many cases, where external notifications are required, this procedure and the specific Contingency Plan Notification Procedure must both be implemented. Refer to Part III, Section 14 (Emergency Contacts/Agency Notifications and Reporting) for detailed contact information and specific environmental notifications and reporting requirements.

Notice of an emergency may be obvious (e.g., 5.0 or higher earthquake), in which case alerting will be automatic. In other cases, notice may come internally from alarms or field personnel. External sources of alerting include cities, Alameda County, customers, public, other utilities, National Weather Service, and seismology stations.

Regardless of the initial source of warning, the incident will be immediately reported to the Emergency Operations Director (or his/her designate) during normal business hours, or to a Water Facilities Stand By Personnel or on-call Flood Control Engineer during off-hours.

Depending on the circumstances, Stand-By Supervisors or the on-call Flood Control Engineer will confer with the Emergency Operations Director who may order complete or partial activation of the EOC.

Depending on the time of day, the availability of personnel, the status of communication systems, and the presenting circumstances, the Emergency Operations Director or an on-duty Water Treatment Post Position Operator will make the required internal and external notifications.

Refer to Part III, Section 12 (Emergency Contacts/Agency Notifications) which includes emergency contact information.

#### Notification Documentation

The person(s) making the contacts shall document all notifications. The Emergency Operations Director will be provided with a copy of all notification documentation as soon as practical after notifications have been completed. Documentation shall include the following:

- Date and time of attempted and actual notifications
- Names of persons contacted
- Estimated Time of Arrival (ETA) to assigned locations

#### Notification Information

Zone 7 staff contacted will be provided with the following information:

- Nature of the incident
- Level of activation of EOC (full or partial)
- Location of the EOC
- Special instructions, if any

### **3.6 Plan Review and Modification Process**

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The EOD is responsible for the development of revisions to this plan.

### **3.6.a Review Criteria**

This Emergency Operations Plan must be reviewed and/or revised in accordance with the requirements set forth below:

- As part of an annual review and evaluation by the Zone 7's Emergency Operations Director (EOD).
- After each incident that requires activation of this plan.
- After each exercise testing the effectiveness of this plan.

In addition, this Emergency Operations Plan must be reviewed and amended as needed if changes in any of the following occur:

- Zone 7 personnel and other information provided on the supplemental information sheets (i.e., names, addresses, telephone numbers, or any other information provided on supplemental information sheets).
- Roles or responsibilities of any Emergency Operations Plan-identified position or department, and roles and responsibilities of any Emergency Operations Plan-identified outside agency or organization.
- Emergency equipment inventory information.
- Facility construction, operation, maintenance, or other circumstances that alter the hazards or methods of response to an incident.
- Chemicals, waste streams, or any hazardous materials used or stored on Zone 7 facility premises.
- Applicable regulations or laws.

### **3.6.b Plan Revision/Addition Documentation**

The Emergency Operations Director will review Zone 7's EOP on a recurring basis and as indicated in the section above. The EOD or delegate will provide copies of any/all pages changed in the Emergency Operations Plan for each copy of the Emergency Operations Plan.

Each copy of the EOP will have a copy of Attachment 6.3, *Recipients Record of Emergency Operations Plan Update* attached, on which to acknowledge receipt of the changed page(s) and document that the applicable page(s) have been replaced.

## Section 4: Emergency Operations Response

### 4.1 Ensuring Readiness

---

Zone 7's Emergency Operations Director is responsible for day-to-day Emergency Operations activities, including ensuring the ability of Zone 7 to activate its Emergency Operations Center. Zone 7 does not have a dedicated EOC, so activation requires physical set-up. EOC set-up instructions will be readily available.

Zone 7 ensures its EOC readiness through:

1. Establishment of storage units for function-specific supplies and resources
2. Routine replacement of the stored EOC supplies as needed
3. Storage of area maps and Zone 7 site, facility, and inundation maps and availability of Zone 7 maps electronically
4. Availability of current telephone and FAX numbers for both internal and external notification and a system for contacting
5. Storage of employee care supplies: water, food, and blankets
6. EOC personnel training and exercising:
  - SEMS function training
  - RIMS training
  - EOC activation (set-up and facility security)
  - Communications
8. EOC personnel will be issued a copy of this Zone 7 Emergency Operations Plan and their specified function checklists.

### 4.2 Emergency Operations Center (EOC)

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The primary EOC location is the Board Room of the Parkside Drive Administration Building. In the event that the primary location cannot be occupied, the alternate EOC location is at the Patterson Pass Water Treatment Plant.

The EOC serves as a central point for coordinating Zone 7 response by

- Gathering, analyzing, and disseminating information;
- Prioritizing response decisions; and
- Coordinating of Zone 7-wide emergency response activities.

Zone 7's EOC supports and directs the activities of the FOCs and Agency first responders and coordinates with Alameda County and other agencies.

The GM will determine whether an emergency requires a full or partial EOC activation, then the EOD will begin employee recall. If 24-hour operations are required, EOC duties will be rotated between primary and alternate staff members on a 12-hour shift basis.

### Communications

EOC communications methods include:

1. Zone 7 telephones,
2. Cellular phones,
3. Pagers,
4. FAX lines,
5. Two-way and 800 MHz radio with the FOC,
6. Couriers, and
7. Amateur and Citizen Band Radio Operators

The list above indicates the preferred order for communicating status and damage reports to the EOC to the extent allowed by the situation. When communication options are limited, the EOD may designate staff to transmit and receive messages on behalf of the Section chiefs to and from other EOC staff and external agencies.

Status boards and displays will provide incident and response information for EOC staff as will EOC briefings. Other communications within the EOC may be verbal or in writing.

In addition to the contact information provided in Part III, Section 14 of this Plan, Zone 7 employees should be given an updated phone directory listing important emergency contact information.

### Activation

The overall impact, rather than the type of incident, will dictate the level of response to an incident or disaster affecting a water utility. Zone 7 will decide whether or not to activate the EOC based on the scope of the incident or disaster, its associated hazards, and area(s) affected at the time the event occurs.

### Continuity

Each function within the Emergency Management Organization (EMO) has one primary and one alternate person assigned to that function (Attachment A-4). Staff will be assigned to 12-hour shifts for the duration of the emergency, with on-duty responsibility being rotated between primary and alternate personnel. The emergency authorities and responsibilities assigned to each position or function within the EMO are vested in all designated primary and alternate staff, including the designated successor to the General Manager.

### Sustained Operations

Zone 7 will use mutual assistance or Mutual Aid (if applicable) to cover the emergency response activities of any response personnel who are unable or unwilling to respond to work because of their personal situations.

The Zone 7 Logistics Section of the IOC will work with the Alameda County EOC and/or American Red Cross for continued provision of food and water, and procurement of additional personal facilities as needed.

### Deactivation

Only the incident Commander or EOC management will authorize the release of equipment or personnel. The following guidelines are in place for deactivation.

- No personnel should be released prior to obtaining a minimum of eight (8) hours rest, unless specifically approved by the Incident Commander, to ensure personal safety of the personnel (resources within two hours of the incident command post may be released with Incident Commander approval).
- Response crew supervisors will be thoroughly briefed prior to leaving the incident.
- The Logistics Section will arrange for all required transportation of released personnel and equipment.
- The EOC will be deactivated when EOC functions are no longer required.
- The EOD will ensure that open actions not yet completed will be taken care of after deactivation.
- The EOD will notify adjacent facilities and other EOCs, as necessary, of planned time for deactivation

#### **4.2.a Alternate EOC**

In the event that Zone 7 cannot use the Parkside Drive Administration Building for an EOC, the EOC will be established at the Patterson Pass Water Treatment Plant. This location has good access and egress, and has redundant communication systems.

### **4.3 Field Operations Centers (FOC)**

The Del Valle and Patterson Pass Water Treatment Plants and the Parkside Drive Flood Control office can serve as Field Operations Centers (FOCs) and will implement pre-established emergency functions as needed during an emergency. The senior person at the site will serve as the FOC Coordinator until relieved by staff designated as FOC Coordinators. The FOC Coordinators will maintain contact with the Emergency Operations Director unless/until the Zone 7 EOC is activated, after which the FOC Coordinators will maintain contact with the Operations Section in the EOC.

Responsibilities of FOCs include:

- Serving as a primary reporting location for assigned Zone 7 response staff during disasters.
- Implementing internal and external notifications in accordance with established procedures.
- Deploying available resources as necessary/available to deal with situations that threaten life safety.
- Directly deploying and coordinating Agency first responders to deal with situations that threaten life safety and/or property damage.
- Conducting system damage assessment and reporting damages to the Emergency Operations Director, or, if EOC is activated, to EOC Operations Section.
- Providing the Zone 7 EOC with damage and status reports.
- Advising on questions of necessary response such as boil water order, flood warnings, and isolation of the system.
- Maintaining a list of available resources.
- Tracking all assigned resources.

Based on a system-wide assessment, emergency requests from city and/or county governments, and the availability of resources, the Zone 7 EOC staff will establish agency-wide response priorities to be implemented by the FOCs.

- FOCs will deploy Zone 7 and contractor resources to secure damages and to make emergency repairs with support from, and in accordance with priorities established by, the Zone 7 EOC.

#### Use of ICS

Any implementation of this plan should include use of the Incident Command System (ICS). By state law, the law enforcement agency in whose jurisdiction the event occurs is the Incident Commander unless this role has been formally assigned to another agency by the local governing body.

## **4.4 Agency First Responders**

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The FOC Coordinators' staff will be Agency first responders. First responders will be provided with personal safety gear, flashlights, Damage Assessment Forms, and a two-way radio for communicating with the FOC and will report status to, and request assistance from, the designated FOC Coordinator. First responders are pre-assigned reporting locations, and will report to these locations upon notification of an emergency or the occurrence of an obvious disaster (e.g., large earthquake). Response includes:

- Performing evacuations.
- Performing site assessments and securing as necessary.
- Assessing and reporting damages.
- Making emergency repairs as required or as directed by the FOC Coordinator.

- Providing regular status reports to the assigned FOC Coordinator.

#### **4.5 Zone 7 Water Agency Liaison**

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At times it is advantageous for a Zone 7 representative to work from another jurisdiction's EOC. If a Zone 7 emergency heavily affects a particular city, the city may ask that Zone 7 send a representative to their EOC. The Operational Area may also ask for a Zone 7 representative to come to the Op Area EOC if an emergency affects multiple jurisdictions. The Zone 7 person sent becomes the Zone 7 Agency Liaison. Assigning a Zone 7 Agency Liaison provides a more direct communication channel between EOCs,

Whether or not the jurisdiction requests a Zone 7 Agency Liaison, the Emergency Operations Center Director may send a Zone 7 representative to a city or Op Area to act in that capacity.

#### **4.6 California Mutual Aid Agreement**

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"Mutual Aid" is the provision of personnel, equipment, and supplies by the State of California, its various departments and agencies, and the various political subdivisions, municipal corporations, and other public agencies of the State of California during times of local peril or emergency. During these formal emergencies, public resources are provided to and from public utilities only through the Standardized Emergency Management System (SEMS), and not through direct requests between public utilities.

The distinction between Mutual Aid and mutual assistance is that Mutual Aid is provided between and among government entities, including government water utilities, under authority of the California Master Mutual Aid Agreement while mutual assistance is provided under other agreements. During a catastrophic disaster or emergency conditions, public resources are provided to and from public utilities only through SEMS, and not through direct requests between public utilities, as illustrated in Figure 4.5-1.

Public utilities assist each other under the provisions of the Master Mutual Aid Agreement. Governmental authorities are in charge of coordinating all public resources during declared emergencies. When a jurisdictional EOC receives multiple requests for the same aid, provisions, or of resource the EOC will prioritize the requests so that resources go to the most critical locations.

#### **4.7 Standardized Emergency Management System (SEMS)**

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Response activities must be performed rapidly and effectively during any emergency. This applies to activities being conducted at the scene of an incident, as well as at the incident command post (Zone 7's EOC) that is coordinating and supporting field operations. To accomplish this, the Standardized Emergency Management System (SEMS) was established by the Government Code Section 8550 et seq. SEMS is intended to standardize response to emergencies involving multiple jurisdictions and/or multiple agencies. SEMS is designed to be flexible and adaptable to the needs of all emergency responders in California.

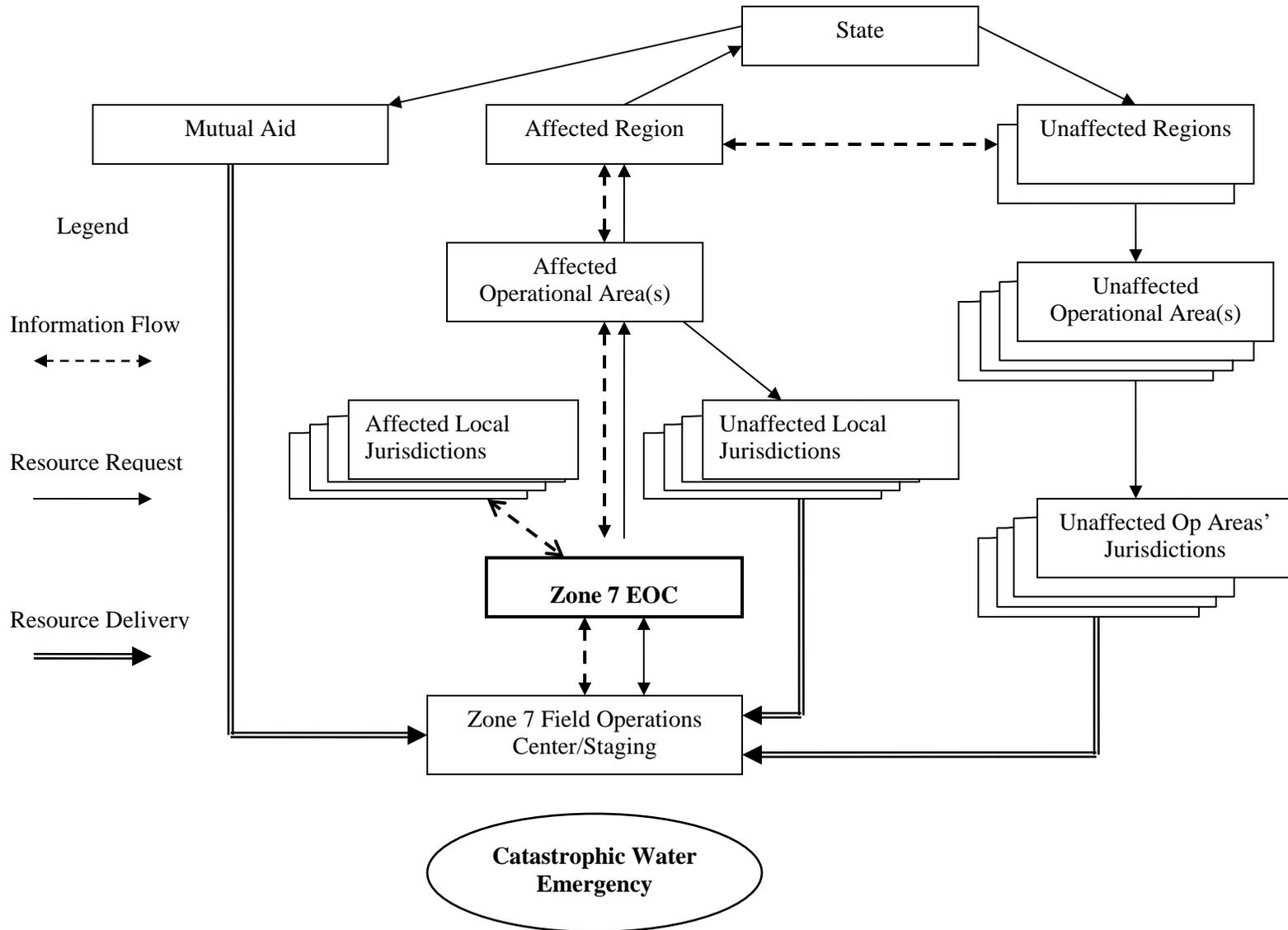


Figure 4.5-1

## **4.8 Response Information Management System (RIMS)**

The Response Information Management System (RIMS) is a set of applications<sup>2</sup> designed by the Governor's Office of Emergency Services to assist in the management of disasters in California. The goal of the RIMS project is to connect, via computers, the five levels of government outlined in SEMS. Zone 7 will report problems, needs, Incident/Status Reports and related information using SEMS reports in RIMS.

## **4.9 After-Action Critique and Report**

Following a Level II or III Emergency (See Section 3.2), the EOD will work with staff to critique and report on the response. This step is important to review "lessons learned" during the emergency and to develop improvements to emergency procedures as appropriate.

### **4.9.a Critique**

The Emergency Operations Director will conduct a formal critique with the EOC and FOC staffs immediately following Levels II and III Emergencies. The purpose of this critique will be to review Zone 7's response to the event and to identify deficiencies in current plans, procedures, and the EMO.

The EOC Director, all section chiefs, Field Operation Center Coordinators, and other response staff as deemed appropriate will attend the critique session.

### **4.9.b Report**

Following the after-action critique, and with assistance from those involved in the emergency response, the Emergency Operations Director will develop an After-Action Report (AAR) and Recommendations, in accordance with SB 1841. An AAR is a report covering emergency response actions, application of SEMS, modifications to plans and procedures, training needs, and recovery activities.

This report, which must be filed with the State Office of Emergency Services (OES) on a standard report form within 90 days of the close of the emergency incident, will be forwarded to Alameda County OES and the General Manager for further action as required.

At a minimum, the report shall include:

- Review of response action taken.
- Application of SEMS.
- Any suggested modifications to SEMS.
- Any necessary modifications to plans and procedures.
- Any identified additional training needs.

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<sup>2</sup> Currently in *Lotus Notes* format

- Recovery activities to date.

The AAR serves the following functions:

- Provides a source for documentation of response activities.
- Identifies problems/successes during emergency operations.
- Analyzes the effectiveness of emergency plan implementation.
- Describes and defines a plan of action for implementing improvements.
- Provides a mechanism for documenting needed system improvements, and
- Serves as a work plan, if necessary, for implementing the improvements.

## **4.10 Training and Exercising**

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This section applies to the specific training requirements for implementation of this Emergency Operations Plan. Training shall be based on the duties and function to be performed by an employee during the course of their normal duties and during an emergency. All employees must have a clear understanding of the nature of potential emergencies and the steps to be taken in response to an incident as described in this Emergency Operations Plan.

### **4.10.a Incident Command System (ICS)**

#### ICS Training

- Zone 7 staff who may have first responder responsibilities receive an overview of Field ICS.
- Zone 7 personnel who may have Field Operations Center responsibilities receive basic Field ICS training.
- Zone 7 who may supervise Agency emergency responders at the scene receive additional ICS training.
  - In their role as support for ICS, FOC coordinators and Agency first responders, members will have field operations training prior to Zone 7 exercises.

#### ICS Exercising

- FOC Coordinators and first responders will have table-top exercises as part of their field operations training.
- FOC Coordinators and first responders will participate in agency-wide table-top exercises.
- FOC Coordinators and first responders will activate during agency exercises.

#### **4.10.b Standardized Emergency Management System (SEMS)**

The EOD is responsible for providing EOC SEMS training for staff and management. The EOD will monitor the program to ensure employees are receiving the necessary training and that the training is being documented.

##### SEMS Training

Since any Zone 7 employee may become involved in a multi-agency emergency response, all staff will receive introduction to SEMS training.

- All new hires will receive training as part of their new employee briefing.
- All existing staff will review the SEMS guidelines annually.

Support, supervisory, management and executive personnel who may be part of an Emergency Operations Center activation receive appropriate SEMS training (EOC Orientation and SEMS EOC course).

- Drills and exercises provide for annual review.
- RIMS training will occur annually.

Executives, administrators, and policy makers receive SEMS executive training.

- Elected personnel will receive training at the start of their term.
- Drills and exercises provide for annual review.

Employees receive additional training as warranted.

- Specialized instruction will be arranged as needed.
- Drills and exercises provide for annual review.

##### SEMS Exercising

- EOC staff will participate in a table-top exercise prior to Zone 7 exercises.
- Zone 7 will have an EOC activation exercise annually.
- Should an emergency require opening of the EOC this activation satisfies the requirement for an annual EOC exercise.
- Zone 7 will participate in the annual Operational Area exercise.
- EOC staff will use RIMS during response exercises.

#### **4.10.c Emergency Operations**

The EOD is responsible for the provision of Emergency Operations training. The Safety Officer will recommend the agency training needed and appropriate employee participants for training. The EOD will monitor the program to ensure employees are receiving the necessary training and that the training is being documented.

Training and exercises will cover – at a minimum:

- Division/Section internal communications and reporting,

- External communications and notifications,
- Security and access control during emergencies,
- Facility evacuation and lockdown and personnel accountability,
- Personnel safety,
- Crime scene protection, and
- Treatment and transport of injured personnel (including in cases of chemical/biological exposure)

#### **4.10.d Trainers**

Trainers shall demonstrate competent instructional skills and knowledge of the applicable subject matter. "In-house" trainers must have extensive field experience, and must also attend the same introductory and refresher courses they are expected to teach. On-the-job training for the instructors is provided on an ongoing basis, while at least eight (8) hours of formal training is given annually on safety-related subjects through outside seminars and classes.

Outside contractors can also be retained for training. If outside trainers are used, they must be familiar with this Emergency Operations Plan and Zone 7 operations, policy, and procedures. Such trainers shall demonstrate that they have satisfactorily completed a training program for teaching the subjects they are expected to teach, and/or they shall have the academic credentials and instructional experience necessary for teaching the subjects.

All staff providing training must maintain a record of the training materials required for their class. Outside trainers must provide a list of their own training materials to the Zone 7 Safety Officer.

#### **4.10.e Determination of Competency**

Each employee receiving training shall be given a written or verbal examination at the end of the classroom training session. The individual must achieve a passing grade in this examination before operating under this Emergency Operations Plan. In the event that the employee does not achieve a passing grade he may be given another examination. The training instructor will determine the amount of retraining necessary, if any, and then administer another test.

At the completion of on-the-job training, the training instructor and/or the employee's supervisory personnel will insure that the candidate knows and understands equipment in the process and the actions to be taken in an emergency. In the event that the employee does not achieve a passing grade after a reexamination, there will be a review of the trainee's qualifications and capabilities, including past work history, to determine if additional training should be provided and a third examination administered. The eligibility for this option will be considered on a case-by-case basis.

#### **4.10.f Training Documentation**

An attendance record for each training session is maintained for determining who

received training. The sign-in sheet will list the name of the training course, name and position of attendee, name of instructor, date(s) of instruction, duration of training session, and an instructional performance outline, or as a minimum, an list of training objectives and an agenda.

In addition, a record shall be maintained of each written examination taken, and of the on-the-job training evaluations.

All training records are to be maintained at least for a period of five years, and longer for regulatory compliance.

A summary shall be prepared annually that identifies the training conducted during the previous year, recipients of that training (names, job titles, and dates trained), and the outcome of the training, i.e., whether the trainee passed or failed. The summary shall include the outline prepared for the training sessions conducted such that a record of the training contacts is maintained.

#### **4.10.g Exercises/Drills**

Periodic incident response exercises and drills will be conducted by the EOD to prepare trained on-site responders and other employees for actual response activities.

There will be a minimum of two exercises per year: one "table top" and one "functional" or "full scale" drill. The results of these drills (e.g., response time, communication) will be subsequently evaluated by the EOD and used to improve future response activities and plan elements.

## **Section 5: Emergency Operations Recovery**

This section discusses actions Zone 7 can take to recover from disasters and mitigate hazards that present a threat during future disasters. It also summarizes the state and federal programs available to assist agencies in these activities. The success of a recovery program is largely determined by the planning and preparedness that occurs prior to, and the response conducted during, the disaster.

The recovery process begins during the response phase. It is important to begin damage inspections and reporting, and recordkeeping, as soon as the EOP is activated.

### **5.1 Organization**

---

Zone 7 will use its Emergency Planning Committee to oversee Recovery Operations, so the Recovery Operations organization consists of representatives from the EOC functions; Management, Operations, Planning and Intelligence, Logistics, and Finance/Administration. The Finance Department will chair the committee during Recovery Operations.

### **5.2 Action Priorities**

---

The items below are the steps Zone 7 should take to implement initial recovery activities.

1. Designate a disaster recovery coordinator and notify all appropriate regulatory agencies.
2. Complete detailed evaluations of all affected water utility facilities and determine priorities for permanent repair, reconstruction, or replacement at existing or new locations.
3. Review all documentation from the emergency response.
4. Begin repair activities/design and make bids for contractor services.
5. Make necessary repairs to the system and untag repaired facilities and equipment.
6. Restore all telecommunications, data processing, and similar services to full operation.
7. Complete assessment of losses and costs for repair and replacement, determine approximate reimbursements from insurance and other sources of financial assistance, and determine how residual costs will be financed by the water utility.
8. Define needs for additional staff, initiate recruitment process, and adopt temporary emergency employment policies as necessary.
9. Execute agreements with vendors to meet service and supply needs.

10. Reevaluate need for maintaining the emergency management organization; consider returning to the normal organizational structure, roles, and responsibilities when feasible.
11. Collect cost accounting information gathered during the emergency and prepare request for Emergency Disaster Funds (follow FEMA and State OES requirements).
12. Debrief staff to enhance response and recovery efforts in the future by identifying “lessons learned”, developing action plans and follow-up mechanisms, and providing employee assistance programs if needed.
13. Prepare After-Action Reports as required. Complete reports within six months of the event. Identify recommendations for legislation.

### **5.3 Assistance Programs**

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Under the Public Assistance Program, public and private non-profit water utilities may be eligible for public assistance to reimburse the work and associated costs of responding to and recovering from a disaster if the costs:

- Are a direct result of the declared event and not a pre-disaster condition or result of some other event;
- Are located within the area designated by FEMA as eligible for assistance;
- Are the legal responsibility of the eligible applicant; and
- Are not eligible for assistance under another federal program (this applies to permanent restoration work only).

Zone 7 personnel should anticipate:

- Attending any State OES or FEMA briefings on disaster assistance, and
- Coordinating disaster assistance applications with Alameda County.

#### **5.3.a Damage Assessment Documentation**

Damage assessment begins at the Field Operations Center level with damage assessment reports from Agency first responders. Field Operations Center Coordinators will forward this information to the Zone 7 EOC. Operations section will submit to the EOD a summary report on damages and cost estimates along with documentation on the close of the EOC.

## **Section 6: Part I Attachments**

The form indicated below is included on the following page.

- Employee Special Needs Form

# **APPENDIX E**

Executive Summary, Zone 7 Water Conservation Program  
Evaluation by RMC

Zone 7 Water Agency



FEBRUARY 2003

# Zone 7 Water Conservation Program Evaluation

# Zone 7 Water Conservation Program Evaluation

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**LIST OF ACRONYMS**

Act	Urban Water Management Planning Act
ACWD	Alameda County Water District
AF	Acre-feet
AFY	Acre-feet per year
ASR	Aquifer Storage & Recovery
BAWAC	Bay Area Water Agencies Coalition
BBID	Byron Bethany Irrigation District
BMP	Best Management Practices
CCWD	Contra Costa Water District
CII	Commercial, Industrial and Institutional
CIMIS	California Irrigation Management Information System
CUWCC	California Urban Water Conservation Council
CWS	California Water Services
DSRSD	Dublin San Ramon Services District
DWR	Department of Water Resources
EGIA	Electric & Gas Industries Association
gpd	gallons per day
GW	Groundwater
M&I	Municipal and Industrial
MAE	Maximum Annual Entitlement
mgd	million gallons per day
MOU	Memorandum of Understanding
Report	Water Conservation Program Evaluation Report
RMC	Raines, Melton and Carella, Inc.
ROD	Record of Decision (CALFED 2000)
SBA	South Bay Aqueduct
State Board	State Water Resources Control Board
STWSD	Semitropic Water Storage District
SWP	State Water Project
ULFT	Ultra-low-flush toilets
WCC	Water conservation coordinator
WUC	Water Use Efficiency
Zone 7	Alameda County Flood Control and Water Conservation District – Zone 7 Water Agency

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# Executive Summary

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## EXECUTIVE SUMMARY

*Zone 7's Water Conservation Program demonstrates the importance of efficient water use as part of an overall water resource management strategy.*

Zone 7 recognizes water conservation as a priority in any water resources strategy developed for the Livermore-Amador Valley Region. The overall objective of Zone 7's water conservation program is to achieve and maintain a high level of water use efficiency throughout the Livermore-Amador Valley. Zone 7 conducted a study focusing on the current water conservation program and potential improvements to the program that could be implemented to help balance increases in demand.

The purpose of the study was to:

- ❖ Summarize Zone 7's water management operations and existing and projected water supply and demand under differing hydrologic conditions;
- ❖ Describe Zone 7's existing water conservation program and evaluate the program with respect to regulatory compliance, water savings and cost-effectiveness;
- ❖ Identify and evaluate new measures that Zone 7 could implement to augment the current water conservation program; and
- ❖ Present recommendations for augmenting Zone 7's water conservation efforts.

*Zone 7 currently satisfies 100% of their water delivery requirements, even during the worst credible drought conditions.*

Zone 7 is a water wholesaler that supplies treated water to retail water agencies for municipal and industrial (M&I) use and untreated water for irrigation to vintners, golf courses and other small users in the Livermore-Amador Valley. For current demands, Zone 7 is able to meet full deliveries even in the worst credible drought, including the worst single-year drought and any multi-year drought of record. The water deliveries are met through a combination of local and imported supplies. With improvements to existing water supply facilities, Zone 7 will be able to continue this level of reliability for the next decade.

*Meeting increased future demands will require improvements to existing facilities and increased water use efficiencies.*

Modeling studies show that, starting in about 2014, Zone 7 will need to provide dry year supplies or implement other alternatives to meet multi-year drought demands without pumping the Main Basin below historic low levels (127,000 acre-feet). Water demands at estimated "build out" are expected to increase by nearly 40% given the Cities' General Plan build out projections.

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*The overall objective of Zone 7's water conservation program is to achieve and maintain a high level of water use efficiency throughout the Livermore-Amador Valley by eliminating wasteful practices in water use, developing information on current and potential water efficient practices and implementing efficient water use practices in a timely manner.*

Zone 7's existing conservation program can be divided into four levels:

**Level 1: Water Resources Management Program.** This program serves as the foundation of Zone 7's conservation program by outlining and implementing innovative operational strategies and planning activities required to optimize water supply and minimize water losses. This program is continually implemented and refined by Zone 7 and includes the following elements:

- Arroyo Valle Water Rights Program;
- Groundwater Management Program;
- Groundwater Banking Program;
- Artificial Recharge Program;
- Annual Water Operations Plan;
- Capital Improvement Program;
- Distribution System Leak Detection Program;
- Tracking of Per Capita Water Use;
- Water Use Evaluation Policy; and
- Bay Area Water Agencies Coalition (BAWAC) participation.

**Level 2: Water-Wise Program.** This program consists of voluntary water conservation measures implemented by Zone 7 to ensure that water use remains at acceptable levels. This program is continually implemented and refined by the Zone 7 Water Conservation Coordinator (WCC) and includes the following elements:

- Rebate Programs: Ultra Low Flow Toilet (ULFT) Rebate Program, High Efficiency Washing Machine Rebate Program.
- Wise Water Use Programs: Interior and Exterior Water Audit Program; Commodity-Based Rate and Metering Program.
- Landscape Conservation Programs: Landscape Audit and Education Program; Water Efficient Landscape Ordinances; Demonstration Gardens; California Irrigation Management Information System (CIMIS) Weather Station.
- Education and Public Information Programs: School Education Programs; Water-Wise Media Campaign; Conservation Connection Website; California Water Awareness Campaign Participation; Water Awareness Event Calendar.

**Level 3: Water-Aware Program.** This program promotes water use efficiency through continued implementation of the Level 2 programs with intensified public outreach and awareness. This program would be implemented by Zone 7 under the following scenarios:

- 
- Main Basin storage volume is anticipated to fall below 160,000 acre-feet.
  - The 3-year average State Water Project delivery (i.e. current year and two preceding years) is less than 50% of the maximum annual entitlement (Table A).
  - The Water Resources Manager determines that the sustainable supply cannot meet demands

**Level 4: Water Emergency Response Program.** This program involves the timely implementation of mandatory water use restrictions to reduce demand on available supplies in the event of an emergency outage or extended drought worse than the worst credible historic drought scenario. Level 4 programs include the Urban Water Shortage Contingency Plan, Water Supply Contracts (Delivery Reduction Sections), and the Emergency Operations Plan. This program would be implemented by Zone 7 under the following scenarios:

- Main Basin storage volume falls below 135,000 acre-feet;
- The 3-year average State Water Project delivery (i.e., the current year and two preceding years) is below 40% of the maximum annual entitlement (78,000 AFY); or
- A major outage on the South Bay Aqueduct (SBA).

*Zone 7's Water Conservation Program satisfies current regulatory requirements but may need to be enhanced to meet proposed state mandated urban water conservation requirements.*

Zone 7 is currently subject to the water conservation requirements set forth by the Department of Water Resource's Urban Water Management Planning Act. Zone 7 has satisfied these requirements through the development of its Urban Water Management Plan 2000.

Future water conservation requirements are being driven by CALFED's proposed urban water conservation certification process. Under this process, water suppliers will be required to certify compliance with the terms of the California Urban Water Conservation Council (CUWCC) Memorandum of Understanding (MOU) by implementing (or getting exemptions for) the 14 best management practices (BMPs) identified in the MOU.

Water suppliers found to be in compliance with the MOU will be eligible to apply for Water Use Efficiency (WUE) financial assistance, including WUE grants and loan programs. Conversely, water suppliers that fail to comply with the MOU will not be eligible for WUE financial assistance. Other incentives and disincentives associated with the certification process have been deferred for discussions by higher policy-level bodies.

Most of the CUWCC BMPs are more applicable to water retailers. However, BMP 10 "Wholesale Agency Assistance Programs" specifically addresses the role of the water wholesaler in promotion of water conservation efforts. This BMP requires the water wholesaler to provide financial and/or technical support to its retailing water agencies for implementation of cost-effective BMPs, and to document the estimated water savings and other quantifiable data associated with each.

Zone 7 currently allocates a portion of its annual water conservation budget to provide financial and technical support for the conservation efforts of its retailing water agencies. However, this budget is not itemized per BMP and thus, in order to ensure compliance with the CUWCC MOU, it is recommended that Zone 7 (1) establish a water conservation budget that is itemized per BMP; and (2) track retailing agencies' water savings estimates and/or other quantifiable data for each of the BMPs that receive financial support.

*Water savings associated with the two quantifiable BMPs have resulted in a total water savings of almost 2,000 acre-feet, or 2% savings over base case.*

Since the majority of BMPs with quantifiable estimates of water savings are implemented at the water retailer level, water savings estimates could only be calculated for the two BMPs that Zone 7 directly administers: BMP 6 – “High-Efficiency Washing Machine Rebate Program”, and BMP 14 – “ULFT Rebate Program”. It is estimated that the implementation of BMP 6 and BMP 14 have resulted in a total water savings of almost 2,000 AF to date. Based on the amount of rebates issued to date, it is estimated that BMP 6 will continue to save 33 AF per year, and that BMP 14 will continue to save 429 AF per year.

*The Zone 7's Washing Machine Rebate and ULFT Rebate Programs were demonstrated to be cost-effective.*

The cost effectiveness of a BMP can be evaluated by comparing the present values of the benefits and costs relating to implementation of the conservation measure. The BMP will be considered cost-effective if the benefits exceed the costs (i.e., the benefit to cost ratio is greater than 1). Since water savings estimates were only available for BMP 6 “High Efficiency Washing Machine Rebate Program” and BMP 14 “ULFT Rebate Program”, an evaluation of cost-effectiveness was only performed for these two BMPs. **Table ES-1** summarizes the results of this evaluation.

**Table ES-1 Cost Effectiveness Evaluation**

	<b>BMP 6 – High Efficiency Washing Machine Rebate Program</b>	<b>BMP 14 – ULFT Rebate Program</b>
Value of Benefits (\$/AF) <sup>a</sup> :	\$1,250/AF	\$1,250/AF
Program Cost to Date (\$) <sup>b</sup> :	\$259,873 <sup>c</sup>	\$801,509
Annualized Cost of Program (\$/yr):	\$35,310/yr <sup>d</sup>	\$82,530/yr <sup>e</sup>
Annual Water Savings (AFY) <sup>f</sup> :	33 AFY	426 AFY
Program Cost per AF (\$/AF):	\$1,070/AF	\$190/AF
Benefit to Cost Ratio <sup>g</sup> :	1.2	6.6
Cost-Effective?	Yes	Yes

- “Value of Benefits” is defined as the avoided cost of purchasing water, which was determined to be \$1,250 AFY (see Appendix C).
- Program cost to date is through June 30, 2002 (See Appendix E).
- Cost of BMP 6 includes a credit in the amount of \$18,675 from CALFED grant funding.
- Annualized cost assumes 6% interest over a 10 year period (the assumed life of the washing machine).
- Annualized cost assumes 6% interest over a 15 year period (the assumed life of the ULFT).
- See Appendix C for annual water savings calculations.
- Benefit to Cost Ratio = Value of Benefits ÷ Program Cost

As shown in **Table ES-1**, Zone 7's ULFT rebate program is cost-effective with the benefit to cost ratio of 6.6. With a benefit-to-cost ratio of 1.2, Zone 7's Washing Machine Rebate Program is also considered to be cost-effective.

*Several alternative conservation measures were considered as potential water conservation programs.*

The following was considered as a potential measure to augment operational planning and coordination activities performed as part of Zone 7's Level 1, "Water Resources Management Program".

**Coordinated Regional Water Conservation Program.** This alternative would involve meeting with Zone 7's retailers on a monthly basis to ensure that water conservation efforts are coordinated and performing audits to ensure that applicable BMPs are being implemented. At these meetings, Zone 7's water conservation coordinator would gather the following information:

- (1) An updated summary of the water conservation efforts of each retailer;
- (2) Financial, technical, and coordination assistance required from Zone 7 for implementation of BMPs by retailers; and
- (3) The retailers' estimate of water savings and other quantifiable data for each of the BMPs that receive financial and/or technical assistance from Zone 7 (See Appendix D for sample BMP tracking forms).

The following were considered as potential measures to augment the activities conducted under Zone 7's Level 2, "Water-Wise Program":

**Project WET.** For this alternative, Zone 7 would become a facilitator of Project WET (Water Education for Teachers), a Water Education Foundation program sponsored by the Bureau of Reclamation that promotes awareness and stewardship of water resources through the development and dissemination of classroom-ready teaching aids. Zone 7's retailer, DSRSD, currently participates in this program and has offered Project WET workshops to local teachers. The workshops were reportedly well-received and deemed informative by the attendees. *The number of workshops conducted and number of teachers attending would be tracked in order to document compliance with BMP 8 "School Education Programs".*

**CIMIS Educational Program.** This alternative would expand Zone 7's educational outreach program to include a project in which high school students use the data generated from the CIMIS station to conduct an audit of the landscaping practices at their school and to develop a water budget for efficient irrigation. (The CIMIS data would be made available through Zone 7's website). The high school students could then make a presentation to younger elementary school students on how to use the CIMIS station data. This has been an effective approach with some of Zone 7's other educational programs. *The number of audits conducted and the number of students reached by the CIMIS Educational Program would be tracked in order to document compliance with BMP 8 "School Education Programs".*

**Water Conservation Kiosk & Educational Program.** Zone 7 currently has five kiosks located within its service area that relay information about the Arroyo Mocho watershed and Livermore Valley Groundwater Basin to the public. This alternative would expand the educational material displayed in this kiosk to include water conservation information. (It is recommended that existing kiosks be used to minimize maintenance efforts required due to vandalism). Zone 7 would work with local schools to organize a fieldtrips to these kiosks so that the children can be exposed to these informational resources. *The number of fieldtrips conducted and the number of students reached by the Water Conservation Kiosk & Educational Program would be tracked to document compliance with BMP 8 “School Education Programs”.*

**Waterwise Gardening CD Program.** For this alternative, Zone 7 would participate in a joint venture with Contra Costa Water District (CCWD) and Alameda County Water District (ACWD) to develop a CDROM that the public can use to design and maintain a water efficient garden. *The number of CDROMs distributed to the public would be tracked in order to document compliance with BMP 7 “Public Information Programs”.*

**Movie Theatre Advertisement Program.** Zone 7 is contractually obligated to advertise the ULFT rebate program on behalf of its retailing water agencies. This alternative would satisfy this requirement by advertising water conservation programs on the screens at local movie theaters. Other Bay Area water agencies are currently implementing similar advertising programs.

**Water Awareness Fun Run.** For this alternative, Zone 7 would sponsor another “Fun Run” in partnership with its retailing agencies during the month of May (i.e., “Water-awareness month”). The original run held in May 1997 was supported by Zone 7’s retailing agencies (CWS, DSRSD, Pleasanton, Livermore), and involved participation from the Girl Scouts and local police. The “Fun Run” would provide another public outreach opportunity for making the public aware of water conservation thorough displays, literature and paraphernalia (e.g. tee-shirts, pins, etc). *The number of people attending this event and the type of water conservation outreach materials available would be tracked in order to document compliance with BMP 7 “Public Information Programs”.*

**Landscape Audits and Incentives Program.** Since the climate of the Livermore-Amador Valley is warmer and dryer than many other areas in the San Francisco Bay region, outdoor water use is likely to be a significant component of the water use within Zone 7’s service area. This alternative would involve landscape audits or rebates for installation of drought tolerant gardening in order to achieve outdoor water savings. *The number of audits and/or rebates would be tracked in order to demonstrate compliance with BMP 5 “Large Landscape Conservation Programs and Incentives”*

**Two Tier ULFT Rebate Program.** Although Zone 7’s existing ULFT rebate program is highly successful, this program may need to be restructured to account for the fact that the only toilets available on the market for purchase are ULFTs. This measure would involve either discontinuing or offering a reduced rebate (\$25) for the purchase and installation of a regular ULFT, and using the funds for an additional rebate to encourage customers to purchase and install toilets which incorporate newer technology, i.e. dual flush or waterless

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designs. *The number of rebates issued under this program would be tracked in order to demonstrate compliance with BMP 14 “Residential ULFT Replacement Program”.*

No additional water conservation measures were considered for Zone 7’s Level 3, “Water-Aware Program.” The following were considered as potential measures to augment the drought response activities conducted under Zone 7’s Level 4, “Water-Response Program.”

**Drought Response Pricing.** This alternative would allow Zone 7 to implement an emergency increase in water rates (in addition to its \$1 million “rate stabilization fund”) in order to (1) encourage conservation; (2) offset increased power costs; (3) offset decreased sales revenue; and (4) provide funding for essential staff to operate and maintain its facilities.

**Connection Moratorium.** This alternative involves the adoption of a policy that would prohibit any new connections in periods of prolonged drought worse than the worst credible historic drought scenario in order to ensure that the water supply needs of its existing customers are met during periods of prolonged drought.

These alternatives offer one or more of the following benefits:

- ❖ Demonstrates compliance with BMPs;
- ❖ Demonstrates to regulatory agencies, Bay Area Water Agencies, and the public that Zone 7 is committed to water conservation;
- ❖ Promotes efficient use of treated water and/or encourage use of recycled water;
- ❖ Helps ensure the water supply needs of existing customers are met during periods of long drought.
- ❖ Allows Zone 7 to document the success of its Water Conservation Program in terms of (1) number of people reached through public outreach activities; (2) number of teachers/students reached through educational activities; (3) number of water conservation materials distributed; etc.

*Priorities were assigned to the potential alternatives based on their effectiveness, ease of implementation, and ability to meet proposed BMP requirements.*

The potential alternatives were classified into the following categories:

High Priority (First Tier): This category includes programs with significant benefits such as demonstrating compliance with CALFED’s proposed water conservation regulations. Alternatives identified as being “high priority” include:

- Coordinated Regional Water Conservation Program;
- Two-Tier ULFT Rebate Program.

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Medium Priority (Second Tier): This category includes programs that are relatively easy to implement and have been shown to be an effective tool for water conservation by other agencies. Alternatives identified as being “medium priority” include:

- Project WET;
- CIMIS Educational Program;
- Landscape Audit and Incentives Program.

Low Priority (Third Tier): This category includes programs that may be more difficult to implement and are not as effective as others in encouraging efficient use of water. Alternatives identified as being “low priority” include:

- Water Conservation Kiosk & Education Program;
- Waterwise Gardening CD Program;
- Movie Theatre Advertisement Program;
- Water Awareness Fun Run.

Unranked: This category includes programs that require additional investigation into the logistics of implementation before they can be prioritized. Alternatives in the “unranked” category include:

- Drought Response Pricing;
- Connection Moratorium.

### *Recommended Water Conservation Program.*

The following recommendations are based on the evaluation of Zone 7’s existing water conservation program.

**Conservation Program Recommendations.** Three tiers of implementation have been identified for the potential alternatives for Zone 7’s water conservation program. The “First Tier” is comprised of the alternatives identified as a high priority. The “Second Tier” is comprised of the alternatives identified as a medium priority, and the “Third Tier” is comprised of alternatives identified as a low priority.

It is strongly recommended that Zone 7 implement the “First Tier” alternatives in order to ensure compliance with CALFED’s proposed regulations and to continue the success of its existing programs while adapting to changes in technologies. It is recommended that Zone 7 consider implementing these “Second Tier” alternatives in order to enhance the existing water conservation program and demonstrate a commitment to implementing BMPs whenever feasible. Implementation of the “Third Tier” programs should not be pursued unless funding or partnering opportunities exist.

Further evaluation of the logistics (e.g., staffing, cost, legal issues, etc) relating to implementation of the “unranked” programs is required. These policies should be adopted if they are deemed reasonable and feasible.

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**Staffing Recommendations.** The additional staffing required to implement any new programs will depend on how many “tiers” Zone 7 elects to implement. A breakdown of staffing requirements is presented in **Table ES-2**.

As shown in this table, the Water Conservation Coordinator should expect to dedicate at least 67% of his time if Zone 7 implements the “First Tier” alternatives. This amount would increase to 80% if the “Second Tier” programs are also implemented, and 91% if the “Third Tier” programs are implemented. Additional support from other Zone 7 staff may also be required depending upon which tiers are implemented. At least 160 hours per year of additional staff support has been identified for implementation of the “Second Tier” CIMIS Educational Program, and 80 hours of additional staff time has been identified for the “Third Tier” Water Conservation Kiosk & Educational Program.

The level of effort required to implement Zone 7’s water conservation program will ultimately depend upon the certification process developed by CALFED. It is expected that the requirements for BMP 10 “Wholesale Agency Assistance Programs” will become more stringent. This could have a significant impact on how Zone 7 currently administers its water conservation program.

**Budget Recommendations.** The additional budget required to implement the alternative programs will depend upon how many “tiers” Zone 7 elects to implement. A breakdown of the budget requirements is presented in **ES-2**. As should in this table, Zone 7 should expect to spend at least \$284,000 per year (an additional \$34,000) if the “First Tier” alternatives are implemented. This annual cost would increase to \$330,000 per year (or an additional \$80,000 per year) if the “Second Tier” programs are implemented. If the “Third Tier” programs are implemented, Zone 7 should expect to spend at least \$370,000 per year (an additional \$120,000 per year) on its water conservation program. Some of these costs can be offset by grant funding through the CALFED Water Use Efficiency program. Zone 7 should consider applying for grant funding from this program next year for all eligible projects (e.g., Washing Machine Rebate Program; Two-Tier ULFT Rebate Program, etc).

It should be noted that the budget estimates presented herein will be affected by anticipated changes to the language of BMP 10. These changes will likely require Zone 7 to provide financial and/or technical assistance to *all* of its retailing water agencies for implementation of conservation measures. These changes will also establish the minimum level of support required.

Regardless of any future changes to the language of BMP 10, Zone 7 should start itemizing the water conservation budget by BMPs so the amount of financial assistance provided can be easily documented. An additional budget item should be included for water conservation activities that go above and beyond the regulatory requirements (e.g., BAWAC participation, etc).

Table ES-2 Breakdown of Budget and Staffing Requirements

Water Conservation Program	Annual Cost (\$/yr)	Staffing Requirements		
		WCC		Other Staff (hrs)
		hrs	% commitment	
<b>Existing Program</b>	<b>\$250,400</b>	860	45%	-
<b>First Tier Alternatives</b>				
Coordinated Regional WC Program	\$33,600	420		-
Two-Tier ULFT Rebate Program	\$0	0		-
<i>First Tier Subtotal:</i>	<i>\$33,600</i>	<i>420</i>	<i>22%</i>	<i>-</i>
<b>Cumulative Subtotal:</b>	<b>\$284,000</b>	<b>1280</b>	<b>67%</b>	<b>-</b>
<b>Second Tier Alternatives</b>				
Project WET	\$10,000	40		-
CIMIS Education Program	\$26,600	160		160
Landscape Audit & Incentives	\$10,000	40		-
<i>Second Tier Subtotal:</i>	<i>\$46,600</i>	<i>240</i>	<i>13%</i>	<i>160</i>
<b>Cumulative Subtotal:</b>	<b>\$330,600</b>	<b>1520</b>	<b>80%</b>	<b>160</b>
<b>Third Tier Alternatives</b>				
Kiosk & Education Program	\$16,000	120		80
Waterwise Gardening CD Program	\$9,200	40		-
Movie Theatre Advertisement	\$6,000	10		-
Water-Awareness Fun Run	\$8,000	40		-
<i>Third Tier Subtotal:</i>	<i>\$39,200</i>	<i>210</i>	<i>11%</i>	<i>80</i>
<b>Total</b>	<b>\$369,800</b>	<b>1730</b>	<b>91%</b>	<b>240</b>

**Recommendations for Documenting Compliance with Proposed Regulations.** Zone 7 will have to document compliance with the CUWCC MOU as part of the proposed CALFED urban water conservation certification process. **Table ES-3** presents a summary of the recommended actions for documenting BMP compliance as the requirements are currently written. However, as stated previously, these requirements are subject to change as CALFED finalizes its certification process.

**Table ES-3 Recommendations for Documenting MOU Compliance**

CUWCC BMP	Recommended Actions
1. Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers	<ul style="list-style-type: none"> <li>• If deemed cost effective, provide financial support to retailing agencies for implementation of this BMP.</li> <li>• If deemed cost effective, track the following information (Refer to Appendix D for Sample BMP tracking forms):               <ul style="list-style-type: none"> <li>- Retailers' water savings estimates attributed to this BMP</li> <li>- number of surveys offered/completed by each retail agency</li> <li>- BMP program expenditures</li> </ul> </li> </ul>
2. Residential Plumbing Retrofit	<ul style="list-style-type: none"> <li>• If deemed cost effective, provide financial support to retailing agencies for implementation of this BMP.</li> <li>• If deemed cost effective, track the following information (Refer to Appendix D for Sample BMP tracking forms):               <ul style="list-style-type: none"> <li>- Retailers' water savings estimates attributed to this BMP</li> <li>- number of low flow devices distributed by each retail agency</li> <li>- BMP program expenditures</li> </ul> </li> </ul>
3. System Water Audits, Leak Detection and Repair	<ul style="list-style-type: none"> <li>• Maintain audit records and supporting documentation.</li> <li>• Track the following information (Refer to Appendix D for Sample BMP tracking forms):               <ul style="list-style-type: none"> <li>- Metered sales and total supply</li> <li>- Total miles of distribution system line, total miles surveyed</li> <li>- BMP program expenditures</li> </ul> </li> </ul>
4. Metering with Commodity Rates for All new Connections and Retrofit of Existing Connections	<ul style="list-style-type: none"> <li>• Confirm all new connections are metered and charged using commodity rates.</li> <li>• Track the following information (Refer to Appendix D for Sample BMP tracking forms):               <ul style="list-style-type: none"> <li>- Number of CII accounts with mixed-use meters</li> <li>- Number of mixed-use meters retrofitted</li> <li>- BMP program expenditures</li> </ul> </li> </ul>
5. Large Landscape Conservation Programs and Incentives	<ul style="list-style-type: none"> <li>• If deemed cost effective, provide financial support to retailing agencies for implementation of this BMP.</li> <li>• If deemed cost effective, track the following information (Refer to Appendix D for Sample BMP tracking forms):               <ul style="list-style-type: none"> <li>- Retailers' water savings estimates attributed to this BMP</li> <li>- Number of dedicated irrigation meter accounts, and number of accounts with water use budgets</li> </ul> </li> </ul>

CUWCC BMP	Recommended Actions
	<ul style="list-style-type: none"> <li>- Number of surveys offered/completed.</li> <li>- Number/value of financial incentives</li> <li>- BMP program expenditures</li> </ul>
<p>6. High-efficiency Washing Machine Rebate Programs</p>	<ul style="list-style-type: none"> <li>• Track the following information (Refer to Appendix D for Sample BMP tracking forms):               <ul style="list-style-type: none"> <li>- Water savings estimates attributed to this BMP.</li> <li>- Number/value of rebates awarded</li> <li>- BMP program expenditures</li> </ul> </li> </ul>
<p>7. Public Information Programs</p>	<ul style="list-style-type: none"> <li>• Track the following information (Refer to Appendix D for Sample BMP tracking forms):               <ul style="list-style-type: none"> <li>- Number/type of activities included in the public information program (e.g., advertisements, special events, newsletters, demonstration gardens, etc).</li> <li>- BMP program expenditures</li> </ul> </li> </ul>
<p>8. School Education Programs</p>	<ul style="list-style-type: none"> <li>• Track the following information (Refer to Appendix D for Sample BMP tracking forms):               <ul style="list-style-type: none"> <li>- Number of class presentations and teachers workshops.</li> <li>- Number of students reached.</li> <li>- BMP program expenditures</li> </ul> </li> </ul>
<p>9. Conservation Programs for Commercial, Industrial, and Institutional (CII) Accounts</p>	<ul style="list-style-type: none"> <li>• If deemed cost effective, provide financial support to retailing agencies for implementation of this BMP.</li> <li>• If deemed cost effective, track the following information (Refer to Appendix D for Sample BMP tracking forms):               <ul style="list-style-type: none"> <li>- Retailers' water savings estimates attributed to this BMP</li> <li>- Number of surveys offered/completed for CII accounts.</li> <li>- Number of site /phone follow-ups from previous year.</li> <li>- Number/value/type of financial incentives provided.</li> <li>- BMP program expenditures</li> </ul> </li> </ul>
<p>10. Wholesale Agency Assistance Programs</p>	<ul style="list-style-type: none"> <li>• Track the following information (Refer to Appendix D for Sample BMP tracking forms):               <ul style="list-style-type: none"> <li>- Amount of financial support provided to retailers (per BMP)</li> <li>- Type of technical support (e.g. water conservation program workshops) conducted/funded.</li> <li>- Number of staff assigned to each BMP</li> <li>- Regional programs managed (per BMP).</li> <li>- BMP program expenditures</li> </ul> </li> </ul>
<p>11. Conservation Pricing</p>	<ul style="list-style-type: none"> <li>• Track the following information (Refer to Appendix D for Sample BMP tracking forms):               <ul style="list-style-type: none"> <li>- Type of water rate structure in place (e.g., increasing block, uniform)</li> <li>- Total revenue from volumetric rates, total revenue from non-volumetric rates</li> <li>- BMP program expenditures.</li> </ul> </li> </ul>

CUWCC BMP	Recommended Actions
12. Conservation Coordinator	<ul style="list-style-type: none"> <li>• Track the following information (Refer to Appendix D for Sample BMP tracking forms):               <ul style="list-style-type: none"> <li>- Name, title, experience of water conservation coordinator.</li> <li>- Date position was created.</li> <li>- Percent time spent on conservation coordinator duties (i.e., 100% if full-time position)</li> <li>- Number of conservation staff, including coordinator.</li> <li>- BMP program expenditures.</li> </ul> </li> </ul>
13. Water Waste Prohibition	<ul style="list-style-type: none"> <li>• Track the following information (Refer to Appendix D for Sample BMP tracking forms):               <ul style="list-style-type: none"> <li>- Confirm that water waste prohibition ordinances are in effect for the service area.</li> <li>- Identify types of water uses prohibited in the service area</li> <li>- BMP program expenditures.</li> </ul> </li> </ul>
14. Residential ULFT Replacement Programs	<ul style="list-style-type: none"> <li>• Track the following information (Refer to Appendix D for Sample BMP tracking forms):               <ul style="list-style-type: none"> <li>- Water savings attributed to this BMP.</li> <li>- Number/value of rebates offered to single-family, multi-family accounts.</li> <li>- BMP program expenditures.</li> <li>- Identify types of water uses prohibited in the service area</li> </ul> </li> </ul>

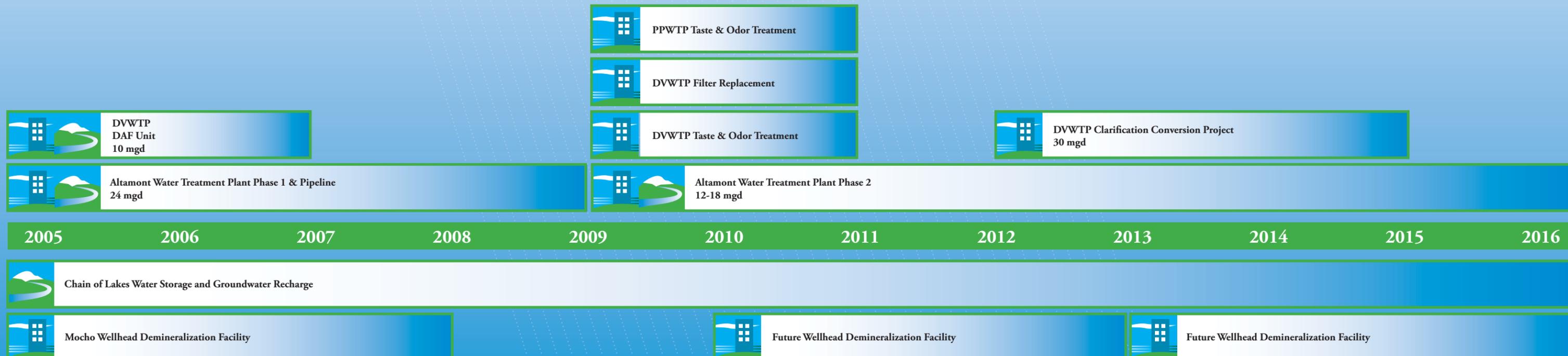
# **APPENDIX F**

## **Zone 7 Water Quality Capital Improvement Projects**

# ACHIEVING OUR VISION: WATER QUALITY CAPITAL IMPROVEMENT PROJECTS • 2005 ~ 2015

Each year, Zone 7 plans projects needed over the next 10 years to help meet water quality goals. Water quality projects are prioritized to ensure the health and safety of the drinking water supply. These projects are described and updated in the Capital Improvement Plan (CIP). The CIP is a financial planning document that prioritizes, schedules, and budgets a variety of Zone 7 water resource projects. The CIP also identifies how projects will be paid for: with connection fees, water rates, property taxes, or by borrowing money.

Zone 7 updates the CIP each year with input from water retailers in the Livermore-Amador Valley. Although the CIP covers projects for the next ten years, it is the best of what we know about source water quality and water treatment technologies today. Zone 7 revises the CIP annually to reflect innovations in water treatment technologies and what works best on our local water supplies. Because water quality varies by source, projects that bring new supplies into Zone 7's system can have overall water quality benefits. The timeline below illustrates water quality related projects included in the 2005 10-year CIP. The schedule reflects the acceleration of several projects since the CIP's adoption.



**LEGEND**

Project Duration

Project to Provide Additional Source Water

Project to Provide Improved Treatment Processes

DVWTP - Del Valle Water Treatment Plant  
PPWTP - Patterson Pass Water Treatment Plant

### PROJECT COSTS

- Altamont Water Treatment Plant and Pipeline - \$131.4 million (funded by connection fees)
- Chain of Lakes - \$30 million (funded by connection fees)
- Wellhead Demineralization - \$60.5 million (funded by connection fees and water rates)
- Taste & Odor Treatments - \$6 million (funded by connection fees and water rates)
- DVWTP Dissolved Air Flotation, Filter Replacement, and Clarification Conversion Projects - \$15.3 million (funded by connection fees and water rates)

# **APPENDIX G**

2005 Urban Water Management Plan "Review for  
Completeness" Form

**2005 Urban Water Management Plan "Review for Completeness" Form**  
**ZONE 7 (Alameda County Flood Control and Water Conservation District)**

**Coordination with Appropriate Agencies**

(Water Code § 10620 (d)(1)(2))

Yes

Participated in area, regional, watershed or basin wide plan \_\_\_\_\_ Reference & F  
 Name of plan \_\_\_\_\_ Lead Agency \_\_\_\_\_

Describe the coordination of the plan preparation and anticipated benefits. \_\_\_\_\_ Section 3.0 Reference & F

**Table 1**  
**Coordination with Appropriate Agencies**

Check at least one box on each row	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent notice of intention to adopt
Other water suppliers				x		
Water management agencies		x	x	x	x	x
Relevant public agencies				x	x	x
Other						
Other						

**Describe resource maximization / import minimization plan**

(Water Code §10620 (f))

Describe how water management tools / options maximize resources & minimize need to import water \_\_\_\_\_ p 16 Reference & F

**Plan Updated in Years Ending in Five and Zero**

(Water Code § 10621(a))

Date updated and adopted plan received \_\_\_\_\_ 2005 (enter date) \_\_\_\_\_ Reference & F

**City and County Notification and Participation**

(Water Code § 10621(b))

Notify any city or county within service area of UWMP of plan review & revision \_\_\_\_\_ p 14 Reference & F

Consult and obtain comments from cities and counties within service area \_\_\_\_\_ p 14 Reference & F

**Service Area Information**

Water Code § 10631 (a))

Include current and projected population \_\_\_\_\_ p 12 Reference & F

Population projections were based on data from state, regional or local agency \_\_\_\_\_ p12 Reference & F

**Table 2**  
**Population - Current and Projected**

	2005	2010	2015	2020	2025	2030 - op
<b>Service Area Population</b>	196,000	225,000	247,000	255,000	263,000	264,

Describe climate characteristics that affect water management \_\_\_\_\_ p 13 Reference & F

Describe other demographic factors affecting water management \_\_\_\_\_ p 8-11 Reference & F

Table 3 Climate						
	January	February	March	April	May	June
Standard Average ETo	1.18	1.65	4.17	4.78	5.68	6.64
Average Rainfall	4.18	4.1	2.83	1.15	0.82	0.12
Average Temperature	45.2	51.7	55.5	54.9	61.3	63.6

Table 3 (continued) Climate						
	July	August	September	October	November	December
Average ETo	7.29	6.26	5.05	2.95	1.84	1.51
Average Rainfall	0	0.05	0.15	0.75	2.14	3.67
Average Temperature	68.8	69.4	67.7	58.7	51.1	47.8

**Water Sources**

(Water Code § 10631 (b))

<input checked="" type="checkbox"/>	Identify existing and planned water supply sources	Ch 5	Reference & F
<input checked="" type="checkbox"/>	Provide current water supply quantities	Ch 5	Reference & F
<input checked="" type="checkbox"/>	Provide planned water supply quantities	Ch 5	Reference & F

Table 4 Current and Planned Water Supplies - AFY					
Water Supply Sources	2005	2010	2015	2020	2025
Water purchased from:					
U.S. Bureau of Reclamation					
Department of Water Resources	66,100	63,700	62,900	60,900	60,
Arcade Water District					
Calleguas Municipal Water District					
Castaic Lake Water Agency					
Central Basin Municipal Water District					
Chino Basin Municipal Water District					
Coastal Municipal Water District					
Contra Costa Water District					
Eastern Municipal Water District					
Foothill Municipal Water District					
Humboldt Bay Municipal Water District					
Inland Empire Utilities Agency					
Joint Regional Water Supply System					
Kern County Water Agency					
Metropolitan Water District of Southern Cal					
Municipal Water District of Orange County					

North of The River Municipal Water District					
Placer County Water Agency					
Sacramento County Water Management Dist					
San Diego County Water Authority					
San Francisco City of					
San Juan Water District					
San Luis Obispo County					
Santa Clara Valley Water District					
Solano County Water Agency					
Sonoma County Water Agency					
Stockton East Water District					
Tehachapi-Cummings County Water District					
Three Valleys Municipal Utility District					
Upper San Gabriel Valley Municipal Water					
Water Facilities Authority					
West Basin Municipal Water District					
Western Municipal Water Dist of Riverside					
Zone 7					
Byron Bethany ID	2,000	2,000	2,000	2,000	2,
Other Wholesaler 2 (enter agency name)					
Other Wholesaler 3 (enter agency name)					
Supplier produced groundwater	13,150	13,250	13,300	13,400	13,
Supplier surface diversions	7,900	8,400	8,900	9,300	9,
Transfers in or out					
Exchanges In or out					
Recycled Water (projected use)	2,800	3,500	4,050	4,500	4,
Desalination					
Other					
Other					
<b>Total</b>	<b>91,950</b>	<b>90,850</b>	<b>91,150</b>	<b>90,100</b>	<b>90,</b>

**If Groundwater identified as existing or planned source**

**(Water Code §10631 (b)(1-4))**

<input checked="" type="checkbox"/>	Has management plan	_____	Reference & F
<input checked="" type="checkbox"/>	Attached management plan (b)(1)	_____	Reference & F
<input checked="" type="checkbox"/>	Description of basin(s) (b)(2)	_____	Reference & F
<input type="checkbox"/>	Basin is adjudicated	_____	Reference & F
<input type="checkbox"/>	If adjudicated, attached order or decree (b)(2)	_____	Reference & F
<input type="checkbox"/>	Quantified amount of legal pumping right (b)(2)	_____	Reference & F

**Table 5  
Groundwater Pumping Rights - AF Year**

Basin Name	Pumping Right - AFY
Livermore-Amador Valley	
<b>Total</b>	0

<input type="checkbox"/>	DWR identified, or projected to be, in overdraft (b)(2)	Section 5.0	Reference & F
<input checked="" type="checkbox"/>	Plan to eliminate overdraft (b)(2)		Reference & F
<input checked="" type="checkbox"/>	Analysis of location, amount & sufficiency, last five years (b)(3)		Reference & F
<input checked="" type="checkbox"/>	Analysis of location & amount projected, 20 years (b)(4)		Reference & F

Table 6 Amount of Groundwater pumped - AFY					
Basin Name (s)	2000	2001	2002	2003	2004
	7155	9,707	10,952	8,844	11,600
<b>% of Total Water Supply</b>	19.00%	25.00%	28.00%	23.00%	27.00%

Table 7 Amount of Groundwater projected to be pumped - AFY					
Basin Name(s)	2010	2015	2020	2025	2030 - opt
	13,250	13,300	13,400	13,600	13,750
<b>% of Total Water Supply</b>					

#### Reliability of Supply

(Water Code §10631 (c) (1-3))

<input checked="" type="checkbox"/>	Describes the reliability of the water supply and vulnerability to seasonal or climatic shortage	Section 7.0	Reference & F
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Table 8 Supply Reliability - AF Year					
Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years			
		Year 1	Year 2	Year 3	Year 4
91,950	65,225	65,225	65,225	64,240	
<b>% of Normal</b>					

Table 9 Basis of Water Year Data	
Water Year Type	Base Year(s)
Average Water Year	2005
Single-Dry Water Year	1990

p 56	Reference & F
p 56	Reference & F

Multiple-Dry Water Years 1990-1992

p 56 Reference & F

**Water Sources Not Available on a Consistent Basis (Water Code §10631 (c))**

- Describe the reliability of the water supply due to seasonal or climatic shortages ch 7 Reference & F
- Describe the vulnerability of the water supply to seasonal or climatic shortages ch 7 Reference & F
- No unreliable sources Reference & F

Table 10 Factors resulting in inconsistency of supply				
Name of supply	Legal	Environ-mental	Water Quality	Climatic
SWP				x

- Describe plans to supplement or replace inconsistent sources with alternative sources or DMMs ch 7 Reference & F
- No inconsistent sources Reference & F

**Transfer or Exchange Opportunities (Water Code §10631 (d))**

- Describe short term and long term exchange or transfer opportunities Reference & F
- No transfer opportunities Reference & F

Table11 Transfer and Exchange Opportunities - AF Year					
Transfer Agency	Transfer or Exchange	Short term	Proposed Quantities	Long term	Proposed Quantities
BBID	Transfer			x	2,000
<b>Total</b>			0		2,000

**Water Use Provisions (Water Code §10631 (e)(1)(2))**

- Quantify past water use by sector Reference & F
- Quantify current water use by sector Reference & F
- Project future water use by sector Reference & F

TABLE 12 - Past, Current and Projected Water Deliver

	2000				2010	
	metered		unmetered		metered	
Water Use Sectors	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY
Single family						
Multi-family						
Commercial						
Industrial						
Institutional/gov						
Landscape						
Agriculture						
other						
<b>Total</b>	0	0	0	0	0	

TABLE12 (continued) - Past, Present, & Future

	2015				2020	
	metered		unmetered		metered	
Water Use Sectors	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY
Single family						
Multi-family						
Commercial						
Industrial						
Institutional/gov						
Landscape						
Agriculture						
other						
<b>Total</b>	0	0	0	0	0	

Identify and quantify sales to other agencies  
 No sales to other agencies

Table 8 - pg.35 Reference & F  
 Reference & I

Table 13 Sales to Other Agencies - AF Year					
Water Distributed	2000	2005	2010	2015	2020
City of Livermore	6,490	7,470	7,620	9,400	9,400
City of Pleasanton	14,670	15,670	18,320	21,800	22,000
California Water Service Company	7,270	8,470	10,320	12,600	13,000
Dublin-San Ramon Services District *	8,250	11,760	12,820	13,100	12,000
<b>Total</b>	36,680	43,370	49,080	56,900	58,400

Identify and quantify additional water uses

Table 5, pg 24 Reference & F

Any recycled water included in table 12 should not be included in table 14.

Table 14 Additional Water Uses and Losses - AF Year	

Water Use	2000	2005	2010	2015	2020
Saline barriers					
Groundwater recharge	8339	9000	15000	20000	20000
Conjunctive use					
raw water					
recycled					
other (define)					
Unaccounted-for system losses					
<b>Total</b>	<b>8,339</b>	<b>9,000</b>	<b>15,000</b>	<b>20,000</b>	<b>20,000</b>

Table 15 Total Water Use - AF Year					
Water Use	2000	2005	2010	2015	2020
<b>Total of Tables 12, 13, 14</b>	<b>45,019</b>	<b>52,370</b>	<b>64,080</b>	<b>76,900</b>	<b>78,700</b>

**2005 Urban Water Management Plan "Review of DMMs for Completeness" Form (Water Code §10631 (f))**

(Water Code §10631 (f) & (g), the 2005 Urban Water Management Plan "Review of DMMs for Completeness" Form is found on Sheet 2)

**Planned Water Supply Projects and Programs, including non-implemented DMMs (Water Code §10631 (g))**

<input type="checkbox"/>	No future water supply projects or programs and no non-implemented / not scheduled DMMs	<u>Sec 10.2 Pg.49</u>	Reference & F
<input type="checkbox"/>	Cost-Benefit includes economic and non-economic factors (environmental, social, health, customer impact, and technological factors)	<u>Sec 10.2 Pg.49</u>	Reference & F
<input type="checkbox"/>	Cost-Benefit analysis includes total benefits and total costs	<u>Sec 10.2 Pg.49</u>	Reference & F
<input type="checkbox"/>	Identifies funding available for Projects with higher per-unit-cost than DMMs	<u>Sec 10.2 Pg.49</u>	Reference & F
<input type="checkbox"/>	Identifies Suppliers' legal authority to implement DMMs, efforts to implement the measures and efforts to identify cost share partners	<u>Sec 10.2 Pg.49</u>	Reference & F

Table 16 Evaluation of unit cost of water resulting from non-implemented / non-scheduled DMMs and planned water supply project and programs	
Non-implemented & Not Scheduled DMM / Planned Water Supply Projects (Name)	Per-AF Cost (\$)

**Planned Water Supply Projects and Programs (Water Code §10631 (h))**

<input type="checkbox"/>	No future water supply projects or programs		
<input checked="" type="checkbox"/>	Detailed description of expected future supply projects & programs	<u>Table 14, pg 51</u>	Reference & F
<input type="checkbox"/>	Timeline for each proposed project	<u>Table 14, pg 51</u>	Reference & F

- Quantification of each projects normal yield (AFY) \_\_\_\_\_ Reference & F
- Quantification of each projects single dry-year yield (AFY) \_\_\_\_\_ Reference & F
- Quantification of each projects multiple dry-year yield (AFY) \_\_\_\_\_ Reference & F

Table 17 Future Water Supply Projects						
Project Name	Projected Start Date	Projected Completion Date	Normal-year AF to agency	Single-dry year yield AF	Multiple-Dry-Year 1 AF	Multiple-Dry-Year 2 AF
SBA Imprvmt/Enlargemt Proj			50000	2,500	2,500	2,
					2,500	

**Opportunities for development of desalinated water (Water Code §10631 (i))**

- Describes opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-

Table 18 Opportunities for desalinated water	
Sources of Water	Check if yes
Ocean Water	
Brackish ocean water	
Brackish groundwater	x
other	
other	

**District is a CUWCC signatory (Water Code § 10631 (j))**

Urban suppliers that are California Urban Water Conservation Council members may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g). The supplier's CUWCC Best Management Practices Report should be attached to the UWMP.

- Agency is a CUWCC member **NOT A SIGNATORY** \_\_\_\_\_ Reference & F
- 2003-04 annual updates are attached to plan \_\_\_\_\_ Reference & F
- Both annual updates are considered completed by CUWCC website \_\_\_\_\_ Reference & F

**If Supplier receives or projects receiving water from a wholesale supplier (Water Code §10631 (k))**

- Yes  Agency receives, or projects receiving, wholesale water \_\_\_\_\_ Reference & F
- Agency provided written demand projections to wholesaler, 20 years \_\_\_\_\_ Reference & F

Table 19 Agency demand projections provided to wholesale suppliers - AFY	
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Wholesaler	2010	2015	2020	2025	2030 - opt

Wholesaler provided written water availability projections, by source, to agency, 20 years \_\_\_\_\_ Reference & F  
(if agency served by more than one wholesaler, duplicate this table and provide the source availability for each wholesaler)

Table 20 Wholesaler identified & quantified the existing and planned sources of water- AFY					
Wholesaler sources	2010	2015	2020	2025	2030 - opt
(source 1)					
(source 2)					
(source 3)					

Reliability of wholesale supply provided in writing by wholesale agency \_\_\_\_\_ Reference & F  
(if agency served by more than one wholesaler, duplicate this table and provide the source availability for each wholesaler)

Table 21 Wholesale Supply Reliability - % of normal AFY					
Wholesaler sources	Multiple Dry Water Years				
	Single Dry	Year 1	Year 2	Year 3	Year 4
(source 1)					
(source 2)					
(source 3)					

Table 22 Factors resulting in inconsistency of wholesaler's supply				
Name of supply	Legal	Environment	Water Quality	Climatic
(source 1)				
(source 2)				

**Water Shortage Contingency Plan Section**

**Stages of Action**

(Water Code § 10632)

(Water Code § 10632 (a))

- Provide stages of action \_\_\_\_\_ Sec 13.1 pg 52 Reference & F
- Provide the water supply conditions for each stage \_\_\_\_\_ Sec 13.1 pg 52 Reference & F
- Includes plan for 50 percent supply shortage \_\_\_\_\_ Sec 13.1 pg 52 Reference & F

Table 23 Water Supply Shortage Stages and Conditions RATIONING STAGES		
Stage No.	Water Supply Conditions	% Shortage
Stage One	Partial loss of major supply	<70%
Stage Two	Catastrophic loss of supply	75%


**Three-Year Minimum Water Supply**

**(Water Code §10632 (b))**

- Identifies driest 3-year period Reference & F
- Minimum water supply available by source for the next three years Sec 13.2, pg 54 Reference & F

Table 24 Three-Year Estimated Minimum Water Supply - AF Year				
source**	Normal	Year 1	Year 2	Year 3
State Water Project *	60,900	16,930	16,930	29,210
Carryover		10,000	0	0
Semitropic Pumpback		9,780	9,780	11,200
Arroyo del Valle Watershed	9,300	480	4,560	6,720
Zone 7 Wells	13,400	23,230	29,150	13,300
BBID	2,000	2,000	2,000	2,000
<b>Total</b>	<b>85,600</b>	<b>62,420</b>	<b>62,420</b>	<b>62,430</b>

\*Note: If reporting after 2005, please use column headers (Year 1, 2, & 3) for years

**Preparation for catastrophic water supply interruption**

**(Water Code §10632 (c))**

- Provided catastrophic supply interruption plan Section 13.1 Reference & F

Table 25 Preparation Actions for a Catastrophe	
Possible Catastrophe	Check if Discussed
Regional power outage	x
Earthquake	
SWP delivery reductions due to aqueduct problems	x
<b>Other (name action)</b>	

**Prohibitions**

**(Water Code § 10632 (d))**

- List the mandatory prohibitions against specific water use practices during water shortages Reference & F
- NOT WITHIN AGENCY'S LEGAL AUTHORITY** Reference & F

Table 26 Mandatory Prohibitions

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Using potable water for street washing	
Other (name prohibition)	

**Consumption Reduction Methods** (Water Code § 10632 (e))

List the consumption reduction methods the water supplier will use to reduce water use in the most restrictive stages with up to a 50% reduction. \_\_\_\_\_ Reference & F

**NOT WITHIN AGENCY'S LEGAL AUTHORITY**

Table 27 Consumption Reduction Methods		
Consumption Reduction Methods	Stage When Method Takes Effect	Projected Reduction (%)
name method		

**Penalties** (Water Code § 10632 (f))

List excessive use penalties or charges for excessive use \_\_\_\_\_ Reference & F

**NOT WITHIN AGENCY'S LEGAL AUTHORITY**

Table 28 Penalties and Charges	
Penalties or Charges	Stage When Penalty Takes Effect
Penalty for excess use	
Charge for excess use	
Other (name penalties or charges)	
Other (name penalties or charges)	



Actual deliveries to retailers.	
<b>Name mechanism</b>	
<b>Name mechanism</b>	

**Recycling Plan Agency Coordination**

**Water Code § 10633**

- Describe the coordination of the recycling plan preparation information to the extent available. Section 14.0 Reference & F

Table 32 Participating agencies	
	participated
Water agencies	x
Wastewater agencies	
Groundwater agencies	
Planning Agencies	x

**Wastewater System Description**

**(Water Code § 10633 (a))**

- Describe the wastewater collection and treatment systems in the supplier's service area Section 14.0 Reference & F
  - Quantify the volume of wastewater collected and treated \_\_\_\_\_ Reference & F
- AGENCY IS NOT AUTHORIZED FOR WW TRTMT**

Table 33 Wastewater Collection and Treatment - AF Year					
Type of Wastewater	2000	2005	2010	2015	2020
Wastewater collected & treated in service area					
Volume that meets recycled water standard					

**Wastewater Disposal and Recycled Water Uses**

**(Water Code § 10633 (a - d))**

- Describes methods of wastewater disposal Section 14.0 Reference & F
- Describe the current type, place and use of recycled water Section 14.0 Reference & F
- None
- Describe and quantify potential uses of recycled water Section 14.0 Reference & F

Table 34 Disposal of wastewater (non-recycled) AF Year					
Method of disposal	Treatment Level	2005	2010	2015	2020
Discharge					
Name of method					
Name of method					
<b>Total</b>		0	0	0	

Table 35 Recycled Water Uses - Actual and Potential (AFY)					
User type	Treatment Level	2005	2010	2015	2020
Agriculture					
Landscape					
Wildlife Habitat					
Wetlands					
Industrial					
Groundwater Recharge					
Other (user type)					
Other (user type)					
Total		0	0	0	

Determination of technical and economic feasibility of serving the potential uses \_\_\_\_\_ Reference & F

**Projected Uses of Recycled Water (Water Code § 10633 (e))**

Projected use of recycled water, 20 years \_\_\_\_\_ Reference & F

Table 36 Projected Future Use of Recycled Water in Service Area - AF Year					
	2010	2015	2020	2025	2030 - op
Projected use of Recycled Water	3,500	4,050	4,500	4,500	4,

Compare UWMP 2000 projections with UWMP 2005 actual (§ 10633 (e)) \_\_\_\_\_ Reference & F  
 None

Table 37 Recycled Water Uses - 2000 Projection compared with 2005 actual - AFY		
User type	2000 Projection for 2005	2005 actual use
Agriculture		
Landscape		
Wildlife Habitat		
Wetlands		
Industrial		
Groundwater Recharge		
Other (user type)		
Other (user type)		
Total	0	0

**Plan to Optimize Use of Recycled Water (Water Code § 10633 (f))**

Describe actions that might be taken to encourage recycled water uses

Reference & F

Describe projected results of these actions in terms of acre-feet of recycled water used per year

Reference & F

Table 38 Methods to Encourage Recycled Water Use				
Actions	AF of use projected to result from this action			
	2010	2015	2020	2025
<b>Financial incentives</b>				
name of action				
name of action				
name of action				
name of action				
name of action				
name of action				
<b>Total</b>	0	0	0	

Provide a recycled water use optimization plan which includes actions to facilitate the use of recycled water (dual distribution systems, promote recirculating uses)

Reference & F

**Water quality impacts on availability of supply**

(Water Code §10634)

Discuss water quality impacts (by source) upon water management strategies and supply reliability

Reference & F

No water quality impacts projected

p 54

Table 39 Current & projected water supply changes due to water quality - percentage						
water source	2005	2010	2015	2020	2025	2030 - op

**Supply and Demand Comparison to 20 Years**

(Water Code § 10635 (a))

Compare the projected normal water supply to projected normal water use over the next 20 years, in 5-year increments.

Reference & F

Table 40 Projected Normal Water Supply - AF Year					
(from table 4)	2010	2015	2020	2025	2030 - opt
<b>Supply</b>	90,850	91,150	90,100	90,900	93,650
% of year 2005					

Table 41 Projected Normal Water Demand - AF Year					
(from table 15)	2010	2015	2020	2025	2030 - opt
<b>Demand</b>	64,080	76,900	78,700	80,500	80,620
% of year 2005					

Table 42 Projected Supply and Demand Comparison - AF Year					
	2010	2015	2020	2025	2030 - opt
<b>Supply totals</b>	90850	91150	90100	90900	93650
<b>Demand totals</b>	64080	76900	78700	80500	80620
<b>Difference</b>	26,770	14,250	11,400	10,400	13,030
Difference as % of Supply	29.5%	15.6%	12.7%	11.4%	13.9%
Difference as % of Demand	41.8%	18.5%	14.5%	12.9%	16.2%

**Supply and Demand Comparison: Single-dry Year Scenario**

**(Water Code § 10635 (a))**

Compare the projected single-dry year water supply to projected single-dry year water use over the next 20 years, Table 17/18, pg 63 Reference & F in 5-year increments.

Table 43 Projected single dry year Water Supply - AF Year					
	2010	2015	2020	2025	2030 - opt
<b>Supply</b>	62,420	72,420	72,420	72,420	72,420
% of projected normal					

Table 44 Projected single dry year Water Demand - AF Year					
	2010	2015	2020	2025	2030 - opt
<b>Demand</b>	51,810	51,810	51,810	51,810	51,810
% of projected normal					

Table 45 Projected single dry year Supply and Demand Comparison - AF Year					
	2010	2015	2020	2025	2030 - opt
<b>Supply totals</b>	62,420	72,420	72,420	72,420	72,420
<b>Demand totals</b>	51,810	51,810	51,810	51,810	51,810
<b>Difference</b>	10,610	20,610	20,610	20,610	20,610
Difference as % of Supply	17.0%	28.5%	28.5%	28.5%	28.5%

Difference as % of Demand	20.5%	39.8%	39.8%	39.8%	39.8%
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**Supply and Demand Comparison: Multiple-dry Year Scenario**

**(Water Code § 10635 (a))**

Project a multiple-dry year period (as identified in Table 9) occurring between 2006-2010 and compare projected supply and demand during those years Table 19, pg 63 Reference & F

Table 46 Projected supply during multiple dry year period ending in 2010 - AF Year					
	2006	2007	2008	2009	2010
Supply	95,660	69,760	108,190	69,750	69,750
% of projected normal					

Table 47 Projected demand multiple dry year period ending in 2010 - AFY					
	2006	2007	2008	2009	2010
Demand	69,370	69,370	69,370	69,370	69,370
% of projected normal					

Table 48 Projected Supply and Demand Comparison during multiple dry year period ending in 2010- AF Year					
	2006	2007	2008	2009	2010
Supply totals	95,660	69,760	108,190	69,750	69,750
Demand totals	69,370	69,370	69,370	69,370	69,370
Difference	26,290	390	38,820	380	380
Difference as % of Supply	27.5%	0.6%	35.9%	0.5%	0.5%
Difference as % of Demand	37.9%	0.6%	56.0%	0.5%	0.5%

Project a multiple-dry year period (as identified in Table 9) occurring between 2011-2015 and compare projected supply and demand during those years Table 20, pg 63 Reference & F

Table 49 Projected supply during multiple dry year period ending in 2015 - AF Year					
	2011	2012	2013	2014	2015
Supply	95,660	69,760	108,190	69,750	69,750
% of projected normal					

Table 50 Projected demand multiple dry year period ending in 2015 - AFY					
	2011	2012	2013	2014	2015
Demand	69,370	69,370	69,370	69,370	69,370

% of projected normal					
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<b>Table 51</b>					
<b>Projected Supply and Demand Comparison during multiple dry year period ending in 2015- AF Year</b>					
	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>Supply totals</b>	95,660	69,760	108,190	69,750	69,750
<b>Demand totals</b>	69,370	69,370	69,370	69,370	69,370
<b>Difference</b>	26,290	390	38,820	380	380
<b>Difference as % of Supply</b>	27.5%	0.6%	35.9%	0.5%	0.5%
<b>Difference as % of Demand</b>	37.9%	0.6%	56.0%	0.5%	0.5%

Project a multiple-dry year period (as identified in Table 9) occurring between 2016-2020 and compare projected supply and demand during those years Table 20, pg 63 Reference & f

<b>Table 52</b>					
<b>Projected supply during multiple dry year period ending in 2020 - AF Year</b>					
	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>Supply</b>	95,660	69,760	108,190	69,750	69,750
% of projected normal					

<b>Table 53</b>					
<b>Projected demand multiple dry year period ending in 2020 - AFY</b>					
	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>Demand</b>	69,370	69,370	69,370	69,370	69,370
% of projected normal					

<b>Table 54</b>					
<b>Projected Supply and Demand Comparison during multiple dry year period ending in 2020- AF Year</b>					
	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>Supply totals</b>	95,660	69,760	108,190	69,750	69,750
<b>Demand totals</b>	69,370	69,370	69,370	69,370	69,370
<b>Difference</b>	26,290	390	38,820	380	380
<b>Difference as % of Supply</b>	27.5%	0.6%	35.9%	0.5%	0.5%
<b>Difference as % of Demand</b>	37.9%	0.6%	56.0%	0.5%	0.5%

Project a multiple-dry year period (as identified in Table 9) occurring between 2021-2025 and compare projected supply and demand during those years Table 20, pg 63 Reference & f

<b>Table 55</b>					
<b>Projected supply during multiple dry year period ending in 2025 - AF Year</b>					
	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
<b>Supply</b>	95,660	69,760	108,190	69,750	69,750



## 2005 Urban Water Management Plan "Review of DMMs for Completeness" Form

### DMM 1 -Water Survey Programs for Single-Family and Multi-Family Residential Customers (10631 f(1)(A))

**Implementation**

**(Section 10631 (f))**

Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2)) \_\_\_\_\_ NA \_\_\_\_\_ Reference & Page Number  
 Year program started \_\_\_\_\_ or Year program scheduled to start \_\_\_\_\_

Describes steps necessary to implement measure \_\_\_\_\_ NA \_\_\_\_\_ Reference & Page Number

Table A1					
Actual	2001	2002	2003	2004	2005
# of single family surveys	NA	NA	NA	NA	NA
# of multifamily surveys	NA	NA	NA	NA	NA
actual expenditures - \$	NA	NA	NA	NA	NA
actual water savings - AFY	NA	NA	NA	NA	NA

Table A2					
Planned	2006	2007	2008	2009	2010
# of single family surveys	NA	NA	NA	NA	NA
# of multifamily surveys	NA	NA	NA	NA	NA
projected expenditures - \$	NA	NA	NA	NA	NA
projected water savings - AFY	NA	NA	NA	NA	NA

Describe the methods, if any, used to evaluate the effectiveness of this demand management measure (10631 (f)(3)) \_\_\_\_\_ Reference & Page Number

Provide estimates, if available, of existing conservation savings on water use and the effect of such savings on the supplier's ability to further reduce demand (10631(f)(4)) \_\_\_\_\_ Reference & Page Number

**Provided an evaluation for this DMM if it is not implemented**

**(Section 10631 (g))**

- Evaluate legal authority (10631 (g)(4))
- Evaluate economic and non-economic factors (10631 (g)(1))
- Evaluate environmental, social, health factors (10631 (g)(1))
- Evaluate customer impact & technological factors (10631 (g)(1))

Table A3 - 10631 (g)(2)	
Cost Effectiveness Summary	
<b>Total Costs</b>	
<b>Total Benefits</b>	
<b>Discount Rate</b>	
<b>Time Horizon</b>	
<b>Cost of Water (\$ per AF)</b>	
<b>Water Savings (AFY)</b>	

- Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of implementation (10631 (g)(4))
- Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

**If Another Agency Implementing**

- If another Agency is implementing (10631 (g)(4))

<b>Agency Name</b>

**DMM 2 - Residential Plumbing Retrofit (10631 (f)(1)(B))**

**Implementation**

**(Section 10631 (f) & (h))**

- Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2)) NA Reference & Page Number
- Year program started \_\_\_\_\_ or Year program scheduled to start \_\_\_\_\_

- Describes steps necessary to implement measure NA Reference & Page Number

# of pre-1992 SF accounts \_\_\_\_\_ # of pre-1992 MF accounts \_\_\_\_\_

Table B1					
Actual	1992-2001	2002	2003	2004	2005
# of single family devices	NA	NA	NA	NA	NA
# of multi-family devices	NA	NA	NA	NA	NA
actual expenditures - \$	NA	NA	NA	NA	NA
actual water savings - AFY	NA	NA	NA	NA	NA

Table B2					
Planned	2006	2007	2008	2009	2010
# of single family devices	NA	NA	NA	NA	NA
# of multi-family devices	NA	NA	NA	NA	NA
projected expenditures - \$	NA	NA	NA	NA	NA
projected water savings - AFY	NA	NA	NA	NA	NA

- Describe the methods, if any, used to evaluate the effectiveness of this demand management measure (10631 (f)(3)) NA Reference & Page Number
- Provide estimates, if available, of existing conservation savings on water use and the effect of such savings on the supplier's ability to further reduce demand (10631(f)(4)) NA Reference & Page Number

**Provided an evaluation for this DMM if it is not implemented**

**(Section 10631 (g))**

- Evaluate legal authority (10631 (g)(4))
- Evaluate economic and non-economic factors (10631 (g)(1))
- Evaluate environmental, social, health factors (10631 (g)(1))
- Evaluate customer impact & technological factors (10631 (g)(1))

Table B3 - 10631 (g)(2)	
Cost Effectiveness Summary	
Total Costs	
Total Benefits	
Discount Rate	
Time Horizon	
Cost of Water	
Water Savings (AFY)	

- Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of implementation (10631 (g)(4))
- Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

**If Another Agency Implementing**

- If another Agency is implementing (10631 (g)(4))

<b>Agency Name</b>

**DMM 3 - System Water Audits, Leak Detection and Repair (10631 (f)(1)(C))**

**Implementation**

**(Section 10631 (f) & (h))**

- Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2))
 

Year program started _____	or	Year program scheduled to start _____	
----------------------------	----	---------------------------------------	--
- Describes steps necessary to implement measure \_\_\_\_\_ Reference & Page Number \_\_\_\_\_
- Year of last complete audit 2005 Year of next complete audit 2006

Table C1					
Actual	2001	2002	2003	2004	2005
% of unaccounted water	3	3	2	1	3
miles of mains surveyed	35	35	35	35	35
miles of lines repaired	0	0	0	0	0
* actual expenditures - \$	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
actual water savings - AFY	NA	NA	NA	NA	NA

\* Estimated amount - included under O&M budget.

Table C2					
Planned	2006	2007	2008	2009	2010

% of unaccounted water	3	3	3	3	3
miles of mains surveyed	35	35	35	35	35
miles of lines repaired	0	0	0	0	0
projected expenditures - \$	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
projected water savings - AFY	NA	NA	NA	NA	NA

- Describe the methods, if any, used to evaluate the effectiveness of this demand management measure (10631 (f)(3)) \_\_\_\_\_ Reference & Page Number
- Provide estimates, if available, of existing conservation savings on water use and the effect of such savings on the supplier's ability to further reduce demand (10631(f)(4)) \_\_\_\_\_ Reference & Page Number

**Provided an evaluation for this DMM if it is not implemented**

**(Section 10631 (g))**

- Evaluate legal authority (10631 (g)(4))
- Evaluate economic and non-economic factors (10631 (g)(1))
- Evaluate environmental, social, health factors (10631 (g)(1))
- Evaluate customer impact & technological factors (10631 (g)(1))

Table C3 - 10631 (g)(2)	
<b>Cost Effectiveness Summary</b>	
<b>Total Costs</b>	
<b>Total Benefits</b>	
<b>Discount Rate</b>	
<b>Time Horizon</b>	
<b>Cost of Water</b>	
<b>Water Savings (AFY)</b>	

- Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of implementation (10631 (g)(4))
- Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

**If Another Agency Implementing**

- If another Agency is implementing (10631 (g)(4))

<b>Agency Name</b>

**DMM 4 - Metering with Commodity Rates (10631 (f)(1)(D))**

**Implementation**

**(Section 10631 (f) & (h))**

- Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2)) Section 10.1.4 Reference & Page Number
- Year program started \_\_\_\_\_ or Year program scheduled to start \_\_\_\_\_
- Describes steps necessary to implement measure \_\_\_\_\_ Reference & Page Number
- Total number of accounts 12 # of accounts w/o commodity rates 0

Table D1					
Actual	2001	2002	2003	2004	2005
# of unmetered accounts	0	0	0	0	0
# of retrofit meters installed	0	0	0	0	0
# of accounts w/o commodity rates	0	0	0	0	0
actual expenditures - \$	NA	NA	NA	NA	NA
actual water savings - AFY	NA	NA	NA	NA	NA

Table D2					
Planned	2006	2007	2008	2009	2010
# of unmetered accounts	0	0	0	0	0
# of retrofit meters installed	0	0	0	0	0
# of accounts w/o commodity rates	0	0	0	0	0
projected expenditures - \$	NA	NA	NA	NA	NA
projected water savings - AFY	NA	NA	NA	NA	NA

- Describe the methods, if any, used to evaluate the effectiveness of this demand management measure (10631 (f)(3)) \_\_\_\_\_ Reference & Page Number
- Provide estimates, if available, of existing conservation savings on water use and the effect of such savings on the supplier's ability to further reduce demand (10631(f)(4)) \_\_\_\_\_ Reference & Page Number

**Provided an evaluation for this DMM if it is not implemented**

**(Section 10631 (g))**

- Evaluate legal authority (10631 (g)(4))
- Evaluate economic and non-economic factors (10631 (g)(1))
- Evaluate environmental, social, health factors (10631 (g)(1))
- Evaluate customer impact & technological factors (10631 (g)(1))

Table D3 - 10631 (g)(2)	
Cost Effectiveness Summary	
<b>Total Costs</b>	
<b>Total Benefits</b>	
<b>Discount Rate</b>	
<b>Time Horizon</b>	
<b>Cost of Water</b>	
<b>Water Savings (AFY)</b>	

- Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of implementation (10631 (g)(4))
- Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

**If Another Agency Implementing**

- If another Agency is implementing (10631 (g)(4))

Agency Name

**DMM 5 - Large Landscape Conservation Programs and Incentives (10631 (f)(1)(E))**

**Agency installed a CIMIS station for use by its retailers and other for landscape conservation.**

**Implementation**

**(Section 10631 (f) & (h))**

Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2)) Section 10.1.5 Reference & Page Number

Year program started 2004 or Year program scheduled to start \_\_\_\_\_

Describes steps necessary to implement measure \_\_\_\_\_ Reference & Page Number

# of landscape accounts \_\_\_\_\_ # of landscape accounts with budgets \_\_\_\_\_  
 # of CII accounts \_\_\_\_\_ # of CII accounts w/ landscape surveys \_\_\_\_\_  
 (CII mixed use meters)

Table E1					
Actual	2001	2002	2003	2004	2005
# of budgets developed	NA	NA	NA	NA	NA
# of surveys completed	NA	NA	NA	NA	NA
# of follow-up visits	NA	NA	NA	NA	NA
actual expenditures - \$	NA	NA	NA	NA	NA
actual water savings - AFY	NA	NA	NA	NA	NA

Table E2					
Planned	2006	2007	2008	2009	2010
# of budgets developed	NA	NA	NA	NA	NA
# of surveys completed	NA	NA	NA	NA	NA
# of follow-up visits	NA	NA	NA	NA	NA
projected expenditures - \$	NA	NA	NA	NA	NA
projected water savings - AFY	NA	NA	NA	NA	NA

Describe the methods, if any, used to evaluate the effectiveness of this demand management measure (10631 (f)(3)) \_\_\_\_\_ Reference & Page Number

Provide estimates, if available, of existing conservation savings on water use and the effect of such savings on the supplier's ability to further reduce demand (10631(f)(4)) \_\_\_\_\_ Reference & Page Number

**Provided an evaluation for this DMM if it is not implemented**

**(Section 10631 (g))**

Evaluate legal authority (10631 (g)(4))

Evaluate economic and non-economic factors

Table E3 - 10631 (g)(2)	
Cost Effectiveness Summary	
<b>Total Costs</b>	

- (10631 (g)(1)) Evaluate environmental, social, health factors
- (10631 (g)(1)) Evaluate customer impact & technological factors

<b>Total Benefits</b>	
<b>Discount Rate</b>	
<b>Time Horizon</b>	
<b>Cost of Water</b>	
<b>Water Savings (AFY)</b>	

- Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of implementation (10631 (g)(4))
- Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

**If Another Agency Implementing**

If another Agency is implementing (10631 (g)(4))

<b>Agency Name</b>

**DMM 6 - High-Efficiency Washing Machine Rebate Programs (10631 (f)(1)(F))**

**Implementation**

**(Section 10631 (f) & (h))**

Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2)) Section 10.1.6 Reference & Page Number

Year program started 1999 or Year program scheduled to start \_\_\_\_\_

Other agencies offer rebates \_\_\_\_\_ Cost-effectiveness calcs attached \_\_\_\_\_

Describes steps necessary to implement measure \_\_\_\_\_ Reference & Page Number

Table F1					
Actual	2001	2002	2003	2004	2005
\$ per rebate	75	150	150	50 or 100	50 or 100
# of rebates paid	610	880	1500	1430	1500
actual expenditures - \$	\$56,800	\$104,000	\$126,500	\$121,400	\$106,000
actual water savings - AFY	10	15	23	22	23

Table F2					
Planned	2006	2007	2008	2009	2010
\$ per rebate	50 or 100	75	75	75	75
# of rebates paid	1500	1000	1000	1000	1000
projected expenditures - \$	\$106,000	\$75,000	\$75,000	\$75,000	\$75,000
projected water savings - AFY	23	23	23	23	23

Describe the methods, if any, used to evaluate the effectiveness of this demand management measure (10631 (f)(3)) Section 10.1.6 Reference & Page Number

Provide estimates, if available, of existing conservation savings on water use and the effect of such savings on the supplier's ability to further reduce demand (10631(f)(4))

Section 10.1.6 Reference & Page Number

**Provided an evaluation for this DMM if it is not implemented**

**(Section 10631 (g))**

- Evaluate legal authority (10631 (g)(4))
- Evaluate economic and non-economic factors (10631 (g)(1))
- Evaluate environmental, social, health factors (10631 (g)(1))
- Evaluate customer impact & technological factors (10631 (g)(1))

Table F3 - 10631 (g)(2)	
Cost Effectiveness Summary	
Total Costs	
Total Benefits	
Discount Rate	
Time Horizon	
Cost of Water	
Water Savings (AFY)	

- Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of implementation (10631 (g)(4))
- Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

**If Another Agency Implementing**

If another Agency is implementing (10631 (g)(4))

<b>Agency Name</b>

**DMM 7 - Public Information Programs (10631 (f)(1)(G))**

**Implementation**

**(Section 10631 (f))**

Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2))

Section 10.1.7 Reference & Page Number

Year program started \_\_\_\_\_ or Year program scheduled to start \_\_\_\_\_

Describes steps necessary to implement measure \_\_\_\_\_ Reference & Page Number

Table G1					
Actual	2001	2002	2003	2004	2005
a. paid advertising			x		
b. Public Service Announcement					
c. Bill Inserts / Newsletters / Brochures	x	x	x	x	x
d. Bill showing water usage in comparison to previous year's usage	NA	NA	NA	NA	NA
e. Demonstration Gardens	x	x	x	x	x
f. Special Events, Media Events	x	x	x	x	x

g. Speaker's Bureau					
h. Program to coordinate with other government agencies, industry and public interest groups and media	x	x	x	x	x
actual expenditures * - \$	\$10,000	\$12,000	\$15,000	\$15,000	\$15,000

\* Estimated amount - included under overall water conservation budget.

Table G2					
Planned	2006	2007	2008	2009	2010
a. paid advertising					
b. Public Service Announcement					
c. Bill Inserts / Newsletters / Brochures	x	x	x	x	x
d. Bill showing water usage in comparison to previous year's usage	NA	NA	NA	NA	NA
e. Demonstration Gardens	x	x	x	x	x
f. Special Events, Media Events	x	x	x	x	x
g. Speaker's Bureau					
h. Program to coordinate with other government agencies, industry and public interest groups and media	x	x	x	x	x
Projected expenditures - \$	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000

Describe the methods, if any, used to evaluate the effectiveness of this demand \_\_\_\_\_ Reference & Page Number management measure (10631 (f)(3))

**Provided an evaluation for this DMM if it is not implemented**

**(Section 10631 (g))**

- Evaluate legal authority (10631 (g)(4))
- Evaluate economic and non-economic factors (10631 (g)(1))
- Evaluate environmental, social, health factors (10631 (g)(1))
- Evaluate customer impact & technological factors (10631 (g)(1))

Table G3 - 10631 (g)(2)	
Cost Effectiveness Summary	
<b>Total Costs</b>	
<b>Total Benefits</b>	
<b>Discount Rate</b>	
<b>Time Horizon</b>	
<b>Cost of Water</b>	
<b>Water Savings (AFY)</b>	

- Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of implementation (10631 (g)(4))
- Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

**If Another Agency Implementing**

If another Agency is implementing (10631 (g)(4))

<b>Agency Name</b>

**DMM 8 - School Education Programs (10631 (f)(1)(H))**

**Implementation**

**(Section 10631 (f) & (h))**

Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2)) Section 10.1.8 Reference & Page Number  
 Year program started \_\_\_\_\_ or Year program scheduled to start \_\_\_\_\_

Describes steps necessary to implement measure \_\_\_\_\_ Reference & Page Number

Table H1		No. of class presentations				
Actual	# of classes	2001	2002	2003	2004	2005
Grades K-3rd			9	24	103	105
Grades 4th-6th			18	23	5	10
Grades 7th-8th			2	10	23	5
High School		6	6	6	8	8
actual expenditures - \$		\$22,000	\$52,000	\$52,000	\$52,000	\$52,000

Table H2		No. of class presentations				
Planned	# of classes	2006	2007	2008	2009	2010
Grades K-3rd		105	105	105	105	105
Grades 4th-6th		10	10	10	10	10
Grades 7th-8th		5	5	5	5	5
High School		8	8	8	8	8
projected expenditures - \$		\$52,000	\$52,000	\$52,000	\$52,000	\$52,000

Describe the methods, if any, used to evaluate the effectiveness of this demand management measure (10631 (f)(3)) Section 10.1.8 Reference & Page Number

Did your agency's material meet state education framework requirements? Section 10.1.8 Reference & Page Number

**Provided an evaluation for this DMM if it is not implemented**

**(Section 10631 (g))**

- Evaluate legal authority (10631 (g)(4))
- Evaluate economic and non-economic factors (10631 (g)(1))
- Evaluate environmental, social, health factors (10631 (g)(1))
- Evaluate customer impact & technological factors (10631 (g)(1))

Table H3 - 10631 (g)(2)	
Cost Effectiveness Summary	
Total Costs	
Total Benefits	
Discount Rate	
Time Horizon	
Cost of Water	
Water Savings (AFY)	

Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of

implementation (10631 (g)(4))

Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

**If Another Agency Implementing**

If another Agency is implementing (10631 (g)(4))

<b>Agency Name</b>

**DMM 9 - Conservation Programs for Commercial, Industrial and Institutional (10631 (f)(1)(I))**

**Implementation**

**(Section 10631 (f) & (h))**

Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2)) Section 10.1.9 Reference & Page Number

Year program started \_\_\_\_\_ or Year program scheduled to start \_\_\_\_\_ 2006

Describes steps necessary to implement measure Reference & Page Number

# of Commercial accounts 1 # of Industrial accounts 0 # of Institutional accounts 4

Table I1					
Actual	2001	2002	2003	2004	2005
# of surveys completed					
Were incentives provided?					
# of follow-up visits					
actual expenditures - \$					
actual water savings - AFY					

Table I2					
Planned	2006	2007	2008	2009	2010
# of surveys completed	0	1	1	1	1
Were incentives provided?	no	yes	yes	yes	yes
# of follow-up visits	0	0	0	0	1
projected expenditures - \$	\$1,000	\$2,000	\$2,000	\$2,000	\$2,000
projected water savings - AFY	0	2	2	2	2

Describe the methods, if any, used to evaluate the effectiveness of this demand management measure (10631 (f)(3)) Reference & Page Number

Provide estimates, if available, of existing conservation savings on water use and the effect of such savings on the supplier's ability to further reduce demand (10631(f)(4)) Reference & Page Number

**Provided an evaluation for this DMM if it is not implemented**

**(Section 10631 (g))**

- Evaluate legal authority (10631 (g)(4))
- Evaluate economic and non-economic factors (10631 (g)(1))
- Evaluate environmental, social, health factors (10631 (g)(1))
- Evaluate customer impact & technological factors (10631 (g)(1))

Table I3 - 10631 (g)(2)	
Cost Effectiveness Summary	
Total Costs	
Total Benefits	
Discount Rate	
Time Horizon	
Cost of Water	
Water Savings (AFY)	

- Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of implementation (10631 (g)(4))
- Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

**If Another Agency Implementing**

- If another Agency is implementing (10631 (g)(4))

Agency Name

**Conservation Programs for Commercial, Industrial & Institutional - Toilet Replacement (10631 (f)(1)(i))**

(this data is part of the Council Annual Report but is not specifically requested in the UWMP Act)

**Implementation**

**(Section 10631 (f) & (h))**

- Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2)) \_\_\_\_\_ Reference & Page Number  
 Year program started \_\_\_\_\_ or Year program scheduled to start \_\_\_\_\_
- Describes steps necessary to implement measure \_\_\_\_\_ Reference & Page Number

Table I4					
Actual	2001	2002	2003	2004	2005
# of commercial replacements					
# of industrial replacements					
# of institutional replacements					
actual expenditures - \$					
actual water savings - AFY					

Table I5					
Planned	2006	2007	2008	2009	2010
# of commercial replacements					
# of industrial replacements					
# of institutional replacements					
projected expenditures - \$					

projected water savings - AFY					
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- Describe the methods, if any, used to evaluate the effectiveness of this demand management measure (10631 (f)(3)) \_\_\_\_\_ Reference & Page Number
- Provide estimates, if available, of existing conservation savings on water use and the effect of such savings on the supplier's ability to further reduce demand (10631(f)(4)) \_\_\_\_\_ Reference & Page Number

**Provided an evaluation for this DMM if it is not implemented**

**(Section 10631 (g))**

- Evaluate legal authority (10631 (g)(4))
- Evaluate economic and non-economic factors (10631 (g)(1))
- Evaluate environmental, social, health factors (10631 (g)(1))
- Evaluate customer impact & technological factors (10631 (g)(1))

Table I6 - 10631 (g)(2)	
Cost Effectiveness Summary	
Total Costs	
Total Benefits	
Discount Rate	
Time Horizon	
Cost of Water	
Water Savings (AFY)	

- Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of implementation (10631 (g)(4))
- Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

**If Another Agency Implementing**

- If another Agency is implementing (10631 (g)(4))

Agency Name

**DMM 10 - Wholesale Agency Programs (10631 (f)(1)(J))**

- Not a wholesale agency

**Implementation**

**(Section 10631 (f) & (h))**

- Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2)) Section 10.1.10 Reference & Page Number
- Year program started \_\_\_\_\_ or Year program scheduled to start \_\_\_\_\_
- # of suppliers you serve \_\_\_\_\_

- Describes steps necessary to implement measure \_\_\_\_\_ Reference & Page Number

Table J1 program activities	Number of agencies assisted				
	2001	2002	2003	2004	2005
Water Surveys					
Residential Retrofit					

System Audits					
Metering-Commodity Rates					
Landscape Programs	4				
Washing Machines	4	4	4	4	4
Public Information	4	4	4	4	4
School Education	3	3	3	3	3
CII WC					
CII ULF					
Water Waste					
Pricing					
WC Coordinator					
Water Waste					
UFLT Replacement	4	4	4	4	4
actual expenditures * - \$	\$135,000	\$135,000	\$135,000	\$135,000	\$150,000

\* Estimated amount - included under overall water conservation budget.

Table J2	Number of agencies to be assisted				
program activities	2006	2007	2008	2009	2010
Water Surveys					
Residential Retrofit					
System Audits					
Metering-Commodity Rates					
Landscape Programs					
Washing Machines	4	4	4	4	4
Public Information	4	4	4	4	4
School Education	3	3	3	3	3
CII WC					
CII ULF					
Water Waste					
Pricing					
WC Coordinator					
Water Waste					
UFLT Replacement	4	4	4	4	4
projected expenditures - \$	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000

- Describe the methods, if any, used to evaluate the effectiveness of this demand management measure (10631 (f)(3)) \_\_\_\_\_ Reference & Page Number
- Provide estimates, if available, of existing conservation savings on water use and the effect of such savings on the supplier's ability to further reduce demand (10631(f)(4)) \_\_\_\_\_ Reference & Page Number

- Evaluate legal authority (10631 (g)(4))
- Evaluate economic and non-economic factors (10631 (g)(1))
- Evaluate environmental, social, health factors (10631 (g)(1))
- Evaluate customer impact & technological factors (10631 (g)(1))

Table J3 - 10631 (g)(2)	
Cost Effectiveness Summary	
Total Costs	
Total Benefits	
Discount Rate	
Time Horizon	
Cost of Water	
Water Savings (AFY)	

- Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of implementation (10631 (g)(4))
- Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

**If Another Agency Implementing**

- If another Agency is implementing (10631 (g)(4))

Agency Name

**DMM 11 - Conservation Pricing (10631 (f)(1)(K))**

**Implementation**

**(Section 10631 (f) & (h))**

- Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2)) \_\_\_\_\_ Reference & Page Number
- Year program started \_\_\_\_\_ or Year program scheduled to start \_\_\_\_\_
- Agency provides sewer service
- Describes steps necessary to implement measure \_\_\_\_\_ Reference & Page Number

Table K1			
RETAILERS			
Residential			
Water Rate Structure	pop-up list	Sewer Rate Structure	pop-up list
Year rate effective		Year rate effective	
Commercial			
Water Rate Structure	pop-up list	Sewer Rate Structure	pop-up list
Year rate effective		Year rate effective	
Industrial			
Water Rate Structure	pop-up list	Sewer Rate Structure	pop-up list
Year rate effective		Year rate effective	
Institutional/Government			
Water Rate Structure	pop-up list	Sewer Rate Structure	pop-up list
Year rate effective		Year rate effective	

<b>Irrigation</b>			
Water Rate Structure	pop-up list		
Year rate effective			
<b>Other</b>			
Water Rate Structure	pop-up list	Sewer Rate Structure	pop-up list
Year rate effective		Year rate effective	
Table K2			
<b>WHOLESALEERS</b>			
Water Rate Structure	pop-up list		
Year rate effective			

**Provided an evaluation for this DMM if it is not implemented**

**(Section 10631 (g))**

- Evaluate legal authority (10631 (g)(4))
- Evaluate economic and non-economic factors (10631 (g)(1))
- Evaluate environmental, social, health factors (10631 (g)(1))
- Evaluate customer impact & technological factors (10631 (g)(1))
- Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of implementation (10631 (g)(4))
- Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

Table K3 - 10631 (g)(2)	
<b>Cost Effectiveness Summary</b>	
<b>Total Costs</b>	
<b>Total Benefits</b>	
<b>Discount Rate</b>	
<b>Time Horizon</b>	
<b>Cost of Water</b>	
<b>Water Savings (AFY)</b>	

**If Another Agency Implementing**

- If another Agency is implementing (10631 (g)(4))

<b>Agency Name</b>

**DMM 12 - Water Conservation Coordinator (10631 (f)(1)(L))**

**Implementation**

**(Section 10631 (f) & (h))**

- Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2))
 

Year program started	_____ 1992	or	Year program scheduled to start	_____
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Section 10.1.12	Reference & Page Number
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- Describes steps necessary to implement measure
 

_____	Reference & Page Number
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Table L1					
Actual	2001	2002	2003	2004	2005
# of full-time positions	1	1	1	1	1
# of full/part-time staff					
actual expenditures * - \$	\$60,000	\$61,000	\$62,000	\$63,000	\$65,000

\* Estimated amount - included under overall water conservation budget.

Table L2					
Planned	2006	2007	2008	2009	2010
# of full-time positions	1	1	1	1	1
# of full/part-time staff					
projected expenditures - \$	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000

**Provided an evaluation for this DMM if it is not implemented**

**(Section 10631 (g))**

- Evaluate legal authority (10631 (g)(4))
- Evaluate economic and non-economic factors (10631 (g)(1))
- Evaluate environmental, social, health factors (10631 (g)(1))
- Evaluate customer impact & technological factors (10631 (g)(1))

Table L3 - 10631 (g)(2)	
Cost Effectiveness Summary	
<b>Total Costs</b>	
<b>Total Benefits</b>	
<b>Discount Rate</b>	
<b>Time Horizon</b>	
<b>Cost of Water</b>	
<b>Water Savings (AFY)</b>	

- Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of implementation (10631 (g)(4))
- Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

**If Another Agency Implementing**

- If another Agency is implementing (10631 (g)(4))

<b>Agency Name</b>

**DMM 13 - Waste Water Prohibition (10631 (f)(1)(M))**

**Implementation**

**(Section 10631 (f) & (h))**

- Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2)) \_\_\_\_\_ Reference & Page Number  
 Year program started \_\_\_\_\_ or Year program scheduled to start \_\_\_\_\_
- Describes steps necessary to implement measure \_\_\_\_\_ Reference & Page Number

Table M1

Actual	2001	2002	2003	2004	2005
waste ordinance in effect	NA	NA	NA	NA	NA
# of on-site visits	NA	NA	NA	NA	NA
water softener ordinance	NA	NA	NA	NA	NA
actual expenditures - \$	NA	NA	NA	NA	NA

Table M2					
Planned	2006	2007	2008	2009	2010
waste ordinance in effect					
# of on-site visits					
water softener ordinance					
projected expenditures - \$					

Describe the methods, if any, used to evaluate the effectiveness of this demand management measure (10631 (f) (3)) \_\_\_\_\_ Reference & Page Number

**Provided an evaluation for this DMM if it is not implemented**

**(Section 10631 (g))**

- Evaluate legal authority (10631 (g)(4))
- Evaluate economic and non-economic factors (10631 (g)(1))
- Evaluate environmental, social, health factors (10631 (g)(1))
- Evaluate customer impact & technological factors (10631 (g)(1))

Table M3 - 10631 (g)(2)	
Cost Effectiveness Summary	
<b>Total Costs</b>	
<b>Total Benefits</b>	
<b>Discount Rate</b>	
<b>Time Horizon</b>	
<b>Cost of Water</b>	
<b>Water Savings (AFY)</b>	

- Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of implementation (10631 (g)(4))
- Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

**If Another Agency Implementing**

If another Agency is implementing (10631 (g)(4))

<b>Agency Name</b>

**DMM 14 - Residential Ultra-Low-Flush Toilet Replacement Programs (10631 (f)(1)(N))**

**Implementation**

**(Section 10631 (f) & (h))**

Describe demand management measure currently being implemented or scheduled for implementation (10631 (f) (1)(2)) \_\_\_\_\_ Reference & Page Number

Year program started 10/3/2005 1994 or Year program scheduled to start \_\_\_\_\_

# of SF pre-1992 accounts \_\_\_\_\_

x

Describes steps necessary to implement measure \_\_\_\_\_

Reference & Page Number \_\_\_\_\_

Table N1	Single-Family				
Actual	2001	2002	2003	2004	2005
# of ULF rebates	858	623	625	504	500
# of ULF direct installs	0	0	0	0	0
# of ULF CBO installs	0	0	0	0	0
actual expenditures - \$	\$63,200	\$45,200	\$49,000	\$38,000	\$40,000
actual water savings - AFY	40	30	30	20	20

Table N2	Single-Family				
Planned	2006	2007	2008 *	2009 *	2010 *
# of ULF rebates	400	400	500	500	500
# of ULF direct installs	0	0	0	0	0
# of ULF CBO installs	0	0	0	0	0
projected expenditures - \$	\$30,000	\$30,000	\$40,000	\$40,000	\$40,000
projected water savings - AFY	20	20	20	20	20

\* HET Program scheduled to begin

# of MF pre-1992 units \_\_\_\_\_

Table N3	Multi-Family				
Actual	2001	2002	2003	2004	2005
# of ULF rebates					
# of ULF direct installs					
# of ULF CBO installs					
actual expenditures - \$					
actual water savings - AFY					

Table N4	Multi-Family				
Planned	2006	2007	2008	2009	2010
# of ULF rebates					
# of ULF direct installs					
# of ULF CBO installs					
projected expenditures - \$					
projected water savings - AFY	1				

Is a toilet retrofit on resale ordinance in effect for your service area?

No

10/3/2005

- Provide estimates, if available, of existing conservation savings on water use and the effect of such savings on the supplier's ability to further reduce demand (10631 (f)(4)) \_\_\_\_\_ Reference & Page Number

**Provided an evaluation for this DMM if it is not implemented**

- Evaluate legal authority (10631 (g)(4))
- Evaluate economic and non-economic factors (10631 (g)(1))
- Evaluate environmental, social, health factors (10631 (g)(1))
- Evaluate customer impact & technological factors (10631 (g)(1))

**(Section 10631 (g))**

Table N5 - 10631 (g)(2)	
<b>Cost Effectiveness Summary</b>	
<b>Total Costs</b>	
<b>Total Benefits</b>	
<b>Discount Rate</b>	
<b>Time Horizon</b>	
<b>Cost of Water</b>	
<b>Water Savings (AFY)</b>	

- Describe efforts to work with other relevant agencies to ensure implementation of the measure and to share the cost of implementation (10631 (g)(4))
- Describe funding available to implement any planned water supply project that would provide water at a higher unit cost (10631 (g)(3) & (h))

**If Another Agency Implementing**

- If another Agency is implementing (10631 (g)(4))

<b>Agency Name</b>