

SOQUEL CREEK WATER DISTRICT  
Urban Water Management Plan Update 2005

SANTA CRUZ COUNTY, CALIFORNIA

December 2005

Soquel Creek Water District  
Santa Cruz County, California

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# Soquel Creek Water District

## 2005 Urban Water Management Plan

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Date Plan submitted to Department of Water Resources:	12/15/2005
The water supplier is a:	Special District – retailer
Utility services provided by the water supplier include:	Water
Is the agency a Bureau of Reclamation Contractor?	No
Is the agency a State Water Project Contractor?	No

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- Appendix A – Resolution Adopting the Urban Water Management Plan
- Appendix B – Draft Resolution Establishing the Criteria to Declare a Water Shortage Emergency
- Appendix C – Draft Ordinance for Water Service in the SqCWD During a Declared Water Shortage
- Appendix D – California Urban Water Management Planning Act

Public Notices and Other Related Materials

Written Public Comments and SqCWD Responses

Acronyms and Abbreviations

### Introduction

The California Urban Water Management Planning Act (Act) requires an Urban Water Management Plan (UWMP) from specified water suppliers. The Act became part of the California Water Code in 1983 with the passage of Assembly Bill 797. The Act has been amended and expanded since its inception to address new water related issues as they develop. The main purposes of the Act are to achieve proper water supply planning and conservation.

Every urban water supplier providing more than 3,000 acre-feet of water annually or providing to more than 3,000 customers must prepare and adopt an UWMP every five years (in years ending in zero and five). Soquel Creek Water District (SqCWD) falls under the requirement category and accordingly has produced an UWMP in 1985, which was last updated in SqCWD 2000.

This 2005 UWMP Update coalesces important information on SqCWD's water supply planning and studies, emergency response, and conservation activities. The UWMP is one of several documents that SqCWD uses as a long-range planning tool.

This report satisfies the requirements of the UWMP Act and consists of the following sections:

Chapter 1 General Information – This chapter contains information about SqCWD and its service area including climate, demographics, growth, and agency coordination.

Chapter 2 Current and Planned Water Supply Sources/Reliability – This chapter provides an overview of SqCWD's current and potential water supplies, water quality impacts, and water supply reliability. Discussion of water usage and projected demand, and the potential for recycled water, imported and desalinated water are included in this chapter.

Chapter 3 Water Supply Emergency Response Plan – This chapter addresses SqCWD's response to water supply shortages, both short and long term. Also included are estimates of the corresponding impacts.

Chapter 4 Water Demand Management Measures – This chapter discusses SqCWD's water conservation programs. Estimated quantities of water saved and other features of each conservation program are presented.

As shown in the Table of Contents, several appendices are included containing documents related to this UWMP. Attached at the end of the Appendices are the written public comments to the Draft UWMP and SqCWD responses, and a list of acronyms and abbreviations.

Since public participation is an important component of this document, SqCWD welcomes constructive input.

**Law**

10631. (a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

## **Soquel Creek Water District**

The SqCWD is a nonprofit, local government agency that provides potable water service and water resource management within its service area. Founded in 1961 under the County Water District Law (Water Code, Division 12, Section 30000 et. seq.), the SqCWD's original purpose was to provide flood control and water conservation services. The SqCWD acquired the Monterey Bay Water Company in 1964 and discontinued flood services. In 1983, "County" was dropped from the name and the District became known as Soquel Creek Water District (SqCWD).

### **SqCWD Service Area**

Today, the SqCWD serves a population of approximately 49,000 through approximately 14,900 connections in four service areas within mid-Santa Cruz County. The SqCWD encompasses seven miles of shoreline along Monterey Bay, and extends from one to three miles inland into the foothills of the Santa Cruz Mountains, essentially following the County Urban Services Line. Ninety percent of the SqCWD's customers are residential and the remaining 10 percent are primarily commercial and institutional. There are no agricultural connections to the system. The City of Capitola is the only incorporated area within the SqCWD. Unincorporated communities include Aptos, La Selva Beach, Rio Del Mar, Seascapes, Seacliff Beach, and Soquel.

The SqCWD produces approximately 5,500 acre-feet of water annually. This is equal to approximately 1.8 billion gallons of water. The SqCWD receives 100 percent of its water from two groundwater aquifers. The Purisima Formation provides two-thirds of the SqCWD's annual production (3,500 acre-feet) for Capitola, Soquel, Seacliff Beach, and Aptos. The Aromas Red Sands Aquifer provides the remaining one-third (2,000 acre-feet) for the communities of Seascapes, Rio Del Mar, and La Selva Beach.

A five-person Board of Directors, elected to four-year terms by the registered voters throughout the SqCWD's service area, governs the SqCWD. The Directors are responsible for policy decisions that govern the operations of the SqCWD. SqCWD staff consists of 36 full-time equivalent employees assigned to four departments: Administration, Engineering, Operations and Maintenance, and Financial/Business Services.

**Finances**

The SqCWD’s operating income is derived from providing/selling water via water rates, service charges, and storage and transmission fees and bond revenue. No tax revenues are received. From these sources, all of the SqCWD’s operating expenses are covered, including capital improvements, gas and electric costs, water-quality costs, wages and benefits for staff, supplies and services, insurance premiums, bond debt, and prudent reserves for emergencies and unexpected shortfalls in revenue.

**Climate**

The SqCWD is located 30 miles north of Monterey and 80 miles south of San Francisco. Since the area is located on the sunny side of Monterey Bay, it enjoys a mild climate with an average January temperature of 50 degrees and an average July temperature of 63 degrees. Summers are mild and dry, and winters are cool, with an average precipitation rate of approximately 30 inches per year. It is a sheltered area protected from winter fogs and summer heat by the Santa Cruz Mountains. Table 1 displays average climatic data for the SqCWD service area.

<b>Table 1 – Climate Data</b>						
	<b>Jan</b>	<b>Feb</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>
<b>Standard Monthly Average Evapotranspiration (Eto) (inches)</b>	1.36	1.93	3.26	4.70	4.87	5.32
<b>Average Rainfall (inches)</b>	6.57	5.48	4.28	2.12	0.65	0.19
<b>Average Temperature (Fahrenheit)</b>	49.5	51.7	53.2	55.5	58.6	61.6
	<b>July</b>	<b>Aug</b>	<b>Sept</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>
<b>Standard Monthly Average Evapotranspiration (Eto) (inches)</b>	5.03	4.84	3.60	2.96	1.64	1.30
<b>Average Rainfall (inches)</b>	0.08	0.09	0.34	1.29	3.90	5.50

<b>Average Temperature (Fahrenheit)</b>	63.1	63.6	63.5	60.2	54.3	49.9
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Table 1 Notes:

- Standard monthly average evapotranspiration (Eto) data are from the California Irrigation Management Information System (CIMIS) web site at [www.cimis.water.ca.gov/cimis/welcome.jsp](http://www.cimis.water.ca.gov/cimis/welcome.jsp). Data from the Santa Cruz, CA station No. 104 over the time period September 1990 through June 2005.
- Average rainfall and average temperature data are from the Western Regional Climatic Center administrated by NOAA at web site [www.wrcc.dri.edu/Climatedata.html](http://www.wrcc.dri.edu/Climatedata.html). Data from the Santa Cruz, CA station No. 047916 recorded from July 1, 1948 to December 31, 2004.

### Other Demographic Factors

The population within the SqCWD's service area has increased from approximately 15,920 in 1964 to approximately 49,000 in 2005. The area has changed from a rural agricultural and weekend or summer-resort water use area to a permanent, year-round, urbanized water use area. Santa Cruz County also is an important vacation and recreation area, having a spectacular coastline, accessible beaches, and forested mountains, all in proximity to several Northern California metropolitan areas.

### Growth

The population projections are based on the most recent Association of Monterey Bay Area Governments' (AMBAG) growth information for Santa Cruz County census tracts relative to the SqCWD service area that was available when this document was prepared. Table 2 shows the AMBAG low and high growth rate projections.

<b>Table 2 – Annual Projected Growth Rates (AMBAG Census Tract Projections)</b>		
Year	Low Range Growth Rate <sup>(a)</sup>	High Range Growth Rate <sup>(b)</sup>
2006-2010	0.55%	0.8%
2010-2015	0.4%	0.7%
2015-2020 <sup>(c)</sup>	0.3%	0.6%
2020-2030 <sup>(d)</sup>	0.2%	0.5%

- a) Includes County of Santa Cruz census tracts 1216, 1217, 1219, 1221, 1222.  
b) Includes County of Santa Cruz census tracts 1211, 1216, 1217, 1219, 1220, 1221, 1222 (includes faster growing region of Aptos Hills).  
c) No AMBAG data past year 2015; growth rate is a straight-line projection.  
d) Growth rate continues in a straight line, but at a slower rate consistent with the prior years' trend.

Since AMBAG only has projected growth rates to 2015, growth rates between the years 2015 and 2030 were estimated using straight-line projections and at rates slightly less than

# CHAPTER 1

## General Information

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previous years. The predicted growth rates are consistent with the County's Measure J, which currently holds growth under 1% per year. The projections also reflect a separate methodology that was used by SqCWD to calculate future demand based on land use data and corresponding water use factors for anticipated development of vacant parcels and infill within the SqCWD sphere of influence, which was confirmed by County of Santa Cruz and City of Capitola Planning Department Staff to be consistent with the existing General Plans. Nearly all the growth is expected to be in the residential sector. An average of the high and low growth rates shown in Table 2 were used to estimate growth as presented in Table 3. Table 3 shows the estimated projections for the SqCWD from 2005 to 2030. Population estimates were rounded to the nearest quarter of a hundred (25).

<b>Table 3 – Population Projections for SqCWD Service Area</b>						
	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
Estimated Service Area Population	49,000	50,675	52,075	53,500	54,450	55,400

### Law

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. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

### Public Participation

The SqCWD has actively encouraged community participation in its urban water management planning efforts, especially for the more recent updates. Since the last UWMP, the SQCWD has used the following methods to obtain input, inform, and educate:

- Farmers' Markets – the SqCWD has conducted outreach at numerous (estimated 20) “farmers’ markets” within the last five years to primarily promote conservation, but also to inform customers about SqCWD water issues, obtain input, and respond to questions.
- “Open Houses” – several open houses have been held at different venues to inform the public of the overdraft situation and the various supplemental water supply options.
- Presentations – SqCWD has provided numerous presentations to various public and special interest groups.
- Newsletters – the SqCWD publishes a newsletter six times a year that is oriented toward informing and educating customers about conservation and water supply issues. The newsletter is enclosed with the customer’s water bill and is posted on the District’s web site.
- Telephone Survey – in the Spring of 2004, the SqCWD hired a consultant to conduct a statistically valid telephone survey to determine the level and areas of customer knowledge about SqCWD’s water supply and quality issues and supplemental supply alternatives. The survey has been used as a tool to more effectively direct our outreach.
- Television Show – in the Spring of 2005, SqCWD initiated the idea for the local Public Community Television organization to produce a one-hour show regarding the local water situation. The managers from the four coastal water

# CHAPTER 1

## General Information

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providers/management agencies in Santa Cruz County responded to commonly asked questions. The show was aired at least twice a week for two months. Copies of the show also are available for loan from SqCWD.

Prior to adoption of this update, a noticed public hearing was held for commenting on the draft plan. A special outreach effort was made to a broad spectrum of potentially interested parties. Letters were sent to the following entities notifying them of SqCWD's Draft Urban Water Management Plan, approximately: 75 individuals, 70 homeowners associations (HOAs), 20 mutual water organizations, 17 special interest groups, 45 businesses, 13 media outlets, 26 special districts, 31 local government officials, 25 regional agencies, and 10 State and Federal officials/agencies.

Notice of the public hearing was posted on the SqCWD's web site. Legal notices and a display advertisement for the meeting were published in the local newspapers and posted at SqCWD facilities. Copies of the draft plan were available at the SqCWD office, local libraries, and on the SqCWD's web site.

### **Plan Adoption**

SqCWD staff prepared this update of its UWMP during 2005. The updated plan was adopted by the SqCWD Board of Directors and submitted to the California Department of Water Resources within 30 days of Board approval. Appendix A includes a copy of the signed Resolution adopting the 2005 UWMP. This plan includes all information necessary to meet the requirements of California Water Code Division 6, Part 2.6 (Urban Water Management Planning).

**Law**

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 practicable.

10620 (f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

**Agency Coordination**

The SqCWD coordinated the development of this plan with the City of Santa Cruz Water Department, City of Watsonville Public Utilities Department, City of Capitola, Pajaro Valley Water Management Agency, Central Water District, and the County of Santa Cruz. On July 22, 2005, employees from the local water and land-use planning agencies met with a Department of Water Resources (DWR) representative (Mr. David Todd) to discuss and coordinate preparation of the UWMPs for agencies in Santa Cruz County.

Table 4 summarizes the efforts SqCWD has taken to include various agencies and citizens in its planning process.

Table 4 – Coordination and Public Involvement				
Entities	Coordination and Public Involvement Actions			
	Was sent a copy of the draft or notified of electronic availability	Commented on the draft	Attended public meetings	Was sent a notice of intention to adopt
City of Santa Cruz	✓			✓
Pajaro Valley Water Management Agency	✓			✓
Central Water Dist.	✓			✓
Santa Cruz County Planning Dept. & Environmental Health	✓	✓		✓
Special Interest Groups	✓			✓
Citizen Groups	✓	✓	✓	✓
General Public	✓	✓	✓	✓
City of Capitola	✓			✓
City of Watsonville	✓			✓

## **Resource Maximization/Import Minimization**

Numerous management tools have been employed to maximize resources and minimize the need to import water. Currently the SqCWD does not import any water. The types of management tools used can be divided into two groups: (1) SqCWD Programs and (2) Plans/Collaboration.

### **SqCWD Programs**

The types of programs that SqCWD implements to maximize resources are:

Conservation – the goal of the conservation program is to reduce usage by 15 percent by the year 2030. See Chapter 4 for a detailed description of the conservation program measures.

Pumping Redistribution – SqCWD distributes the location and quantity of the groundwater pumping to minimize drawdown and the threat of saltwater intrusion and to maximize the resource.

Recycling – SqCWD is investigating potential methods of localized water reclamation as a tool. See the section of this report titled *Potential Use of Recycled Water* for more detail on water recycling.

Enhanced Recharge – SqCWD, in conjunction with other agencies, is evaluating methods of enhancing recharge in Arana Gulch which recharges the deep layers of the Purisima Formation and in the Aptos Creek Watershed that provides recharge to the Aromas Red Sands aquifer.

Desalination – SqCWD is evaluating the potential of jointly participating with the City of Santa Cruz to desalinate ocean water as the supplemental supply component of its conjunctive use program as opposed to importing water. This is described in the *Supplemental Water Supply* section.

### **Plans/Collaboration**

Since three local water agencies and numerous private parties pump from the same aquifers that SqCWD uses, collaboration with other groundwater basin users is crucial to effectively manage the shared resources within sustainable levels. The following documents provide plans for maximizing the water resources via a collaborative process.

- AB3030 Groundwater Management Plan for the Soquel-Aptos Area – In 1995, SqCWD entered into a Joint Exercise of Powers Agreement (JPA) with Central Water District (a county water district adjacent to SqCWD that relies on groundwater from the same sources.) Together, the agencies drafted a groundwater management plan for the Soquel/Aptos Area consistent with Assembly Bill 3030. The initial AB3030 Ground-Water Management Plan – Soquel/Aptos Area was completed in 1996 and is currently being updated.
- Integrated Resources Plan (IRP) – SqCWD completed a Draft IRP in 1999 and is currently updating it. The SqCWD formed a 20-member Public Advisory Committee (PAC), which met regularly over a two-year period to develop the Draft IRP. The

## CHAPTER 1

### General Information

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PAC represented a spectrum of stakeholders and provided a community-based collaborative decision-making process on the need and options for developing new water supplies to meet long-term reliability for SqCWD.

- Soquel-Aptos Groundwater Management Alliance (SAGMA) – The SAGMA was formed in 2005. The City of Santa Cruz, County of Santa Cruz, Central Water District and SqCWD are all parties to the SAGMA cooperative agreement for groundwater management activities within the overdrafted Soquel-Aptos Area. The SAGMA meets on a regular, ongoing basis to coordinate and support groundwater management efforts being undertaken by all four agencies.
- Integrated Regional Water Management Plan (IRWMP) – SqCWD actively participates as a partner agency and steering committee member for developing an IRWMP for Northern Santa Cruz County. The Preliminary Plan was completed in October 2005, with adoption by all partner agencies anticipated by the end of December 2005. The IRWMP was funded by seven partner agencies and, in addition, three other agencies provided input. Including SqCWD, the seven partner agencies are the County of Santa Cruz, the Santa Cruz County Resource Conservation District, Scotts Valley Water District, Santa Cruz County Sanitation District, Davenport Sanitation District, and Watsonville Wetlands Watch. The Cities of Santa Cruz and Watsonville and Central Water District provided additional input. The IRWMP identifies needs and projects to address the following objectives: water supply reliability, raw water quality, delivered water quality, habitat restoration and maintenance, recreation, public health, flood management, and regional economic health.

## CHAPTER 2

### Current & Planned Water Supply Sources/Reliability

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#### Law

10631 (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

- (1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750); or any other specific authorization for groundwater management.
- (2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

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

#### Water Sources

Currently the SqCWD obtains all its water from groundwater. The SqCWD operates 17 production wells, 16 of which are active, with an estimated production capacity of over 14 million gallons per day. The system encompasses approximately 130 miles of pipeline, which range in diameter from two to 16 inches. The 18 water storage tanks have a combined capacity of 7.5 million gallons.

## CHAPTER 2

### Current & Planned Water Supply Sources/Reliability

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#### Soquel-Aptos Groundwater Basin Description

Figure 1 shows the area coinciding with groundwater monitoring and management by SqCWD and Central Water District under AB3030. The area (as shown on Figure 1) ranges from the westerly outcrop of the Purisima Formation in the vicinity of the Branciforte Creek to the eastern limits of the SqCWD's and Central Water District's service areas, and from the Zayante Fault to Monterey Bay.

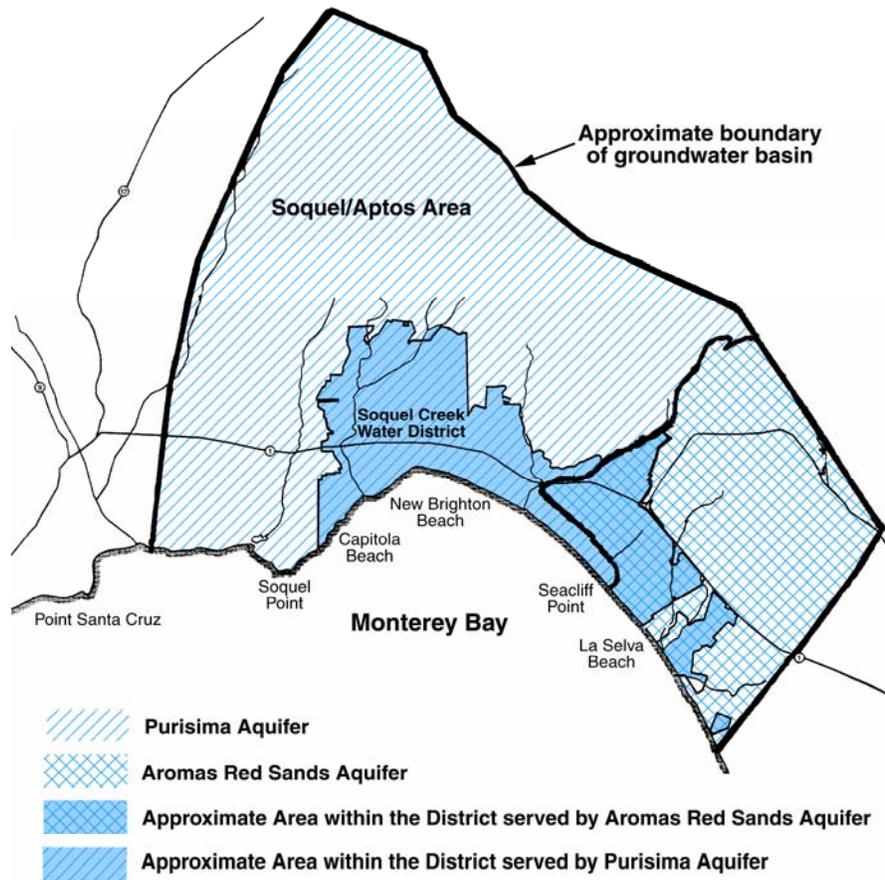
The aquifer system for the Soquel-Aptos area is comprised of two geologic formations: The consolidated Purisima Formation, which underlies the entire SqCWD and is developed by the SqCWD for water supply in the western two-thirds of its service area; and the unconsolidated Aromas Red Sands, which overlies the Purisima Formation in the eastern third of the SqCWD and is developed for water supply by the SQCWD in that portion of its service area (see Figure 1).

The two aquifers represent the SqCWD's sole supply of water. The basin groundwater pumping rights have not been adjudicated. The report titled "AB3030 Ground-Water Management Plan, Soquel-Aptos Area" was prepared in April 1996 (and is currently being updated) to help manage the basin. A copy of the most recent AB3030 Plan is included or available upon request from SqCWD.

Department of Water Resources (DWR) Bulletin 118 "California's Groundwater" designates the SqCWD groundwater basin as number 3-1 and states that there are not enough data to estimate a groundwater budget for the basin. Thus, the document does not indicate if the basin is in overdraft. However, a study published in September of 2004 (*Draft Technical Memorandum 2: Hydrogeologic Conceptual Model* by Johnson, N. and others, 2004), reaffirmed previous conclusions that the Soquel-Aptos Area is being overdrafted.

Symptoms of decline have appeared in both aquifers, indicating that sustainable levels of pumping have been exceeded, thereby increasing the potential for saltwater intrusion. Technical studies of the groundwater basin conditions for the SqCWD's service area indicate that, even with conservation savings, a supplemental source of supply needs to be developed within the near future because overdrafting and saltwater intrusion are occurring and these conditions could worsen if groundwater continues to be the sole source of water for the SqCWD. These conditions can affect both water supply and quality to the point that the SqCWD would no longer be able to meet customers' needs. Based on available information, and assuming an average pumping rate of 5,500 acre-feet/year, it appears that groundwater pumping should be reduced by approximately 700 acre-feet/year to restore and stabilize locally depressed coastal groundwater levels. Total SqCWD long-term sustainable yield is estimated to be not more than 4,800 acre-feet/year; however, because of limited data, this estimate has some uncertainty involved with its derivation.

The sustainable yield estimate of 4,800 acre-feet/year for SqCWD pumping assumes that the pumping from non-SqCWD water wells in the affected basin area will remain constant.



**Figure 1. Map Showing Groundwater Basin as designated in the Soquel-Aptos Area AB3030 Groundwater Management Plan**

A County ordinance requires new users to connect to the SqCWD if they are within 200 feet of a District water main. Limited growth is anticipated outside of the SqCWD sphere of influence.

Within the Soquel-Aptos Subbasin, the total pumping rate from the Purisima (including SqCWD and non SqCWD wells) was estimated in the 2004 Draft TM2 Hydrogeologic Conceptual Model report by Johnson and others to be approximately 6,700 acre-feet/year. The total pumping rate from the portion of the Aromas Red Sands Aquifer (including SqCWD and non SqCWD wells) within the Soquel-Aptos Area Groundwater Management Plan boundaries is estimated to be approximately 3,600 acre-feet/year. Thus, based on those estimates, SqCWD pumps roughly one-half of the total water that is extracted from the subbasin. These pumping estimates are not adjusted to reflect return flow/recharge from septic systems and irrigation.

Table 5 shows the amount of groundwater SqCWD pumped from 2000 through 2005 and Table 6 shows the future pumping projections. The data for Table 5 were compiled from SqCWD pumping records. The projected pumping rates shown in Table 6 are based on

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SqCWD limiting its pumping to the sustainable yield value of 4,800 acre-feet/year and assumes a supplemental water supply will be online to meet demand.

<b>Table 5 – Amount of Groundwater Pumped by SqCWD</b>						
Basin Name	2000	2001	2002	2003	2004	2005 <sup>(2)</sup>
Purisima Formation	3,436	3,314	3,420	3,377	3,530	3,163
Aromas Red Sands Aquifer	2,027	2,116	2,194	2,169	2,016	1,722
Total Pumped	5,463	5,430	5,614	5,546	5,546	4,885
% of Total Water Supply <sup>(1)</sup>	114	113	117	116	116	102
Unit of Measure: acre feet/year						

Data from historical pumping records:

- (1) The % is derived by dividing the total amount pumped each year by the estimated long term sustainable yield (4,800 acre-feet/year).
- (2) October, November, and December 2005 pumping amounts were projected by substituting 2004 production for the same period.

<b>Table 6 – Projected Amount of Groundwater to be Pumped<sup>(1)</sup></b>					
Basin Name	2010	2015	2020	2025	2030
Purisima Formation	3,000	3,000	3,000	3,000	3,000
Aromas Red Sands Aquifer	1,800	1,800	1,800	1,800	1,800
% of Total Water Supply <sup>(2)</sup>	92	90	88	87	85
Unit of Measure: acre feet/year					

- (1) Total pumping values may actually be less than shown when a supplemental supply project is realized, to allow the aquifers to recover.
- (2) Total water supply is based on the projected average demand after adjusting for conservation savings.

Table 7 identifies and quantifies the existing and planned sources of water projected over time.

<b>Table 7– Projected Demand and Planned Sources of Water (acre-feet/year)</b>							
	2000	2005	2010	2015	2020	2025	2030
<b>High/Low Demand</b>	--	--	5960/5920	6190/6075	6420/6230	6585/6296	6750/6360
<b>Average Demand (high+low/2)</b>	5463 actual	5185	5940	6130	6320	6440	6550
<b>Conservation Savings<sup>a</sup></b>	--	(300)	(730)	(810)	(890)	(900)	(910)
<b>Adjusted Demand</b>	5463	4885	5210	5320	5430	5540	5640
<b>Groundwater Yield<sup>b</sup></b>	4800						
<b>Supplemental Supply Needs<sup>c</sup></b>	660	85	410	520	630	740	840

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Notes related to Table 7:

(a) An aggressive, yet realistic conservation program has been implemented since 2000. In 2003, the “water demand offset (WDO)” program was initiated. The WDO program is estimated to result in a decrease in adjusted demand until 2010. By 2020, adjusted demand will again begin to increase above 5,400 acre-feet/year. Conservation savings for 2005 approximated based on actual data and projected data from the ESA Technical Memo, dated June 2004 titled *SqCWD Water Conservation*.

(b) SqCWD’s sustainable production should not exceed 3,000 acre-feet/year from the Purisima and 1,800 acre-feet/year from the Aromas, for a total of 4,800 acre-feet/year. Groundwater yield estimated from *Draft Technical Memo 2: Hydrogeologic Conceptual Model*, by Johnson and others, dated September 2004.

(c) Approximate, due to rounding. Additional supplemental supply amounts, beyond the values shown, are being planned for as a contingency factor to account for uncertainty in the estimation process.

### Assumptions for each time period in Table 7:

- Year 2000 - Value from historical records.
- Year 2005 - Total pumping projected using actual 2005 January through September pumping data and substituting 2004 October, November and December pumping quantities. Lower pumping quantity believed to be largely due to wet and cool weather conditions.
- Year 2010 - Assumes the development of currently vacant lands inside the Urban Service Line (USL) and development of remaining vacant land in the City of Capitola in accordance with General Plans.
- Year 2015 - Straight-line projection between 2010 and 2020.
- Year 2020 - The development of vacant lands outside the Urban Service Line (USL), but within the SqCWD’s Sphere of Influence (SOI), in accordance with General Plans; and increased density/infill inside the USL.
- Year 2025 - Straight-line projection between 2020 and 2030.
- Year 2030 - Increased density/infill inside the SqCWD’s Sphere of Influence (SOI).

### **Efforts to Eliminate Overdraft**

The thrust of SqCWD’s effort to eliminate overdraft is to spatially distribute and minimize current pumping while developing a supplemental supply. Related efforts are:

- Redistribution of Pumping – the pumping of the SqCWD’s 16 active wells is monitored and modified to minimize localized groundwater overdraft and maintain coastal groundwater levels as a barrier against saltwater intrusion. Monitoring groundwater levels at both production well sites and coastal monitoring wells is an important component of this program.
- Conservation – SqCWD has a strong conservation program that helps minimize exacerbating the overdraft condition. The conservation measures are described in Chapter 4.
- Water Demand Offset Program (WDO) – In August 2003, the SqCWD adopted the WDO program. The objective of the WDO program is to neutralize water consumption impacts from new development. Developers must offset or “save” the amount of water proposed for a new development (actually 120% of proposed use) somewhere else in the SqCWD. The most common method of achieving the offset is

by retrofitting higher flow toilets to ultra-low flow toilets. The program is to remain in effect until a supplemental water supply is secured or retrofits are no longer available.

- Supplemental Supply – It has been determined that a supplemental water supply for conjunctive use with groundwater is needed to prevent overdraft and serve the projected growth demands. SqCWD has made progress on its efforts to obtain a supplemental water supply. After numerous years of evaluation of various supplemental supply options and public involvement, the SqCWD has narrowed the list down to two main potential alternatives. An in-depth evaluation of two regional alternatives is currently underway. One alternative involves a water import project with the Pajaro Valley Water Management Agency which lies to the south of SqCWD and the other involves jointly operating an ocean desalination plant with the City of Santa Cruz, which serves the area to the west of SqCWD. The supplemental supply goal is to provide up to 2,000 acre-feet per year of water to be used in conjunction with groundwater sources.

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**Law**

- 10631 (c) Provide data for each of the following:  
 (1) An average water year,  
 (2) A single dry water year,  
 (3) Multiple dry water years.

**Dry Weather Impacts on Reliability**

The SqCWD has not experienced any water supply shortage on a regular annual, monthly, or peak period basis. Because SqCWD currently relies on groundwater for its sole source of supply, it is not anticipated that any future short-term drought will affect its ability to provide water to its customers (Table 8). However, lowered groundwater levels as the result of drought could potentially increase the SqCWD’s vulnerability to saltwater intrusion. Therefore, precautionary measures to curtail water use by up to 15% may be taken as discussed in Chapter 3.

<b>Table 8 – Supply Reliability</b>					
<b>Average/ Normal Water Year 2005 (Volume)</b>	<b>Single Dry Water Year (Volume)</b>	<b>Multiple Dry Water Years</b>			<b>Year 4 2009 (Volume)</b>
		<b>Year 1 2006 (Volume)</b>	<b>Year 2 2007 (Volume)</b>	<b>Year 3 2008 (Volume)</b>	
4,800	4,800	4,800	4,800	4,800	4,800
Unit of Measure: acre-feet					

Note:

The 4,800 acre-feet/year value represents the estimated long-term sustainable yield for SqCWD’s portion of pumping from the basin. Larger quantities may be pumped on a short-term basis (a few years). As discussed as part of SqCWD’s Water Supply Emergency Response Plan, water-use curtailment measures to reduce demand by up to 15% may be implemented as precautionary measures during a drought and the loss of a supplemental supply source.

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#### Law

10631 (c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable.

#### Soquel-Aptos Groundwater Source Reliability

Currently, the SqCWD obtains all its water supply from two separate aquifers underlying the SqCWD, the Purisima Formation and the Aromas Red Sands (see Figure 1 on page 13). Overdrafting and saltwater intrusion resulting from overdraft are the two primary threats to the SqCWD's groundwater quality and reliability. Although SqCWD has practiced groundwater management for over 25 years, the cumulative impact of pumping in excess of sustainable yield will eventually lead to saltwater contamination. A recent hydrogeologic study for SqCWD (Draft TM 2: Hydrogeologic Conceptual Model, by Johnson and others, Sept. 2004) estimated total pumping in the Soquel-Aptos area at roughly 10,300 acre-feet/year. The 10,300 acre-feet/year pumping rate value does not account for return flow/recharge from septic systems and irrigation. Johnson and others (2004 Draft TM 2: Hydrogeologic Conceptual Model – Table 5-2) indicate that approximately 18 percent of the water pumped infiltrates back into the ground.

Pumping volumes vary significantly from year to year, but it is estimated that SqCWD pumping accounts for roughly half the total groundwater production within the Soquel-Aptos Area. In order to protect against seawater intrusion, SqCWD has set a goal of limiting its total annual groundwater yield to no more than 4,800 acre-feet/year, apportioned as 3,000 acre-feet/year from the Purisima Formation and 1,800 acre-feet/year from the Aromas Red Sands Aquifer. The assumed overdraft (i.e. pumping in excess of sustainable yield) is presumed to be approximately 700 acre-feet/year.

Seasonal or short-term climatic shortages are not believed to have a significant impact on the reliability of SqCWD's water supply. However, as discussed below, local and regional pumping are of the greatest concern with respect to overdrafting and saltwater intrusion.

Although an estimated total pumping value is provided above, the total amount of groundwater that is developed from the Soquel-Aptos Area is unknown. There are over 1,300 wells in addition to the SqCWD's and most of those are neither metered nor monitored; thus actual pumping data are not available for most non-SqCWD wells.

#### Purisima Formation

Based on the recent five-year average (years 2000 through 2004) of SqCWD pumping approximately 3,400 acre-feet/year, the sustainable yield of the Purisima Formation in the Soquel-Aptos Area has been exceeded by approximately 400 acre-feet/year. Production and monitoring wells in the Purisima Formation show no definitive signs of active saltwater intrusion. However, there is evidence of earlier intrusions into shallow zones and possible leakage into deeper zones. Water quality indicators for three production wells near the

coast (Opal, Garnet and the City of Santa Cruz's Beltz 2) in the Purisima Formation suggest that saltwater pathways exist into the Purisima A aquifer where it is exposed on the seafloor, and the persistence of deep-aquifer groundwater levels at or below sea level along the coast represent a significant potential for eventual saltwater intrusion (Johnson and others, 2004, Draft TM 2: Hydrogeologic Conceptual Model),

The location of the saltwater/freshwater interface is not known, but it is thought to be relatively close to shore, especially for the Purisima A layer, which is a major production zone for both SqCWD and the City of Santa Cruz wells. While coastal monitoring wells in the Purisima Formation have not yet shown evidence of saltwater intrusion, the SqCWD is proactively working on stabilizing and restoring the aquifer to healthy conditions through redistribution of pumping, conservation, and development of a supplemental source of supply.

#### **Aromas Red Sands Aquifer**

Based on the recent five-year average (years 2000 through 2004) of SqCWD pumping approximately 2,100 acre-feet/year, the sustainable yield of the Aromas Red Sands Aquifer in the Soquel-Aptos Area has been exceeded by approximately 300 acre-feet/year.

The saltwater interface has been moving onshore since the mid-1980s. The hydraulic gradient between the SqCWD's southern-most production wells was/is not sufficient to prevent saltwater intrusion. There has been a progressive degradation of groundwater quality (increasing concentrations of total dissolved solids and chloride) at two of the coastal monitoring wells designed specifically to monitor this saltwater intrusion. These conditions have not yet affected the SqCWD's water supply wells. Although SqCWD's Aromas Red Sands production wells show no definitive signs of saltwater intrusion, the freshwater-saltwater interface is actively moving inland, thereby posing a serious threat to future groundwater production. The local encroachment of the saltwater interface is believed to be due in part to a regional problem encompassing the entire Pajaro Valley coast.

In that light, and again recognizing future water demand projections, there is a need to develop a supplemental source of water supply that can be used in conjunction with groundwater and implementation of the conservation plan.

#### **Sustainable Groundwater Supply and Well Capacity**

Based on the most recent studies and assuming the pumping rates by others mentioned above, the SqCWD has estimated its long-term reliable groundwater supply at no more than 4,800 acre-feet/year. This amount represents a practical developable yield that is consistent with the SqCWD's groundwater management objectives to avoid overdraft, prevent or control seawater intrusion, and preserve groundwater quality. Note however that the 4,800 acre-feet/year value is an estimate that has some uncertainty involved with its derivation.

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It is important to maintain a system of multiple, functioning wells for the following reasons:

1. To provide reliable supply when individual wells are out of service due to maintenance, mechanical failure, or damage;
2. To have adequate system capacity to respond to peak, maximum day demand; and
3. To meet the basin management objective of uniform drawdown of the aquifers and to specifically redistribute pumping away from the coast in areas vulnerable to saltwater intrusion.

In 2004, SqCWD completed an evaluation of production capacity throughout its system as the first step toward determining the need and optimal location for replacement wells. Approximately two-thirds of the SqCWD (between 41st Ave. in Capitola and Aptos Creek) is served by the water systems known as Service Areas 1 and 2, which are intertied by the McGregor Drive transmission main. These service areas are currently supplied by eleven wells. One of these wells is close to sixty years old, two are nearly forty years old, and three others are nearing twenty years old. The SqCWD replaced one of the remaining five wells on the same site in 2001, the thirty-three year old Tannery Creek Well. At least three other wells are at or near the end of their useful lives and either are or soon will be no longer dependable (Maplethorpe (currently inactive), Monterey and Aptos Creek). Replacing any of these wells at the same location is neither practical nor recommended because of either space or access constraints and/or because such action would be inconsistent with the goals set forth in the AB 3030 Groundwater Management Plan.

The area from Rio Del Mar to La Selva Beach encompasses the water systems known as Service Areas 3 and 4, which are intertied by the San Andreas Road transmission main. There are currently six wells supplying these service areas. The Country Club well is fifty-two years old. Four of the remaining five wells in Service Areas 3 and 4 are more than twenty years old. Of all the service areas, Service Area 3 is most precarious from a source capacity standpoint in that the existing wells could not meet current maximum day demand, including blending water for Service Area 4 to reduce chromium 6 levels, if the largest single source (San Andreas Well) were to be unavailable.

For compliance with the California Waterworks Standards in Chapter 16 of Title 22, the SqCWD should have sufficient capacity from its combined individual sources (wells) to meet maximum day water demand independent of any water stored in tanks. On a SqCWD-wide basis, the maximum day demand, which occurred on July 7, 2002, was 5,550 gallons per minute (gpm.) The total source capacity from all active wells is 9,969 gpm, more than sufficient to meet legal compliance. However, each service area is predominately dependent on its own internal supply, with only limited ability to import water from adjacent service areas. Therefore, each service area was assessed separately.

For each service area, the generally accepted practice to conservatively assess the adequacy of supply by assuming the largest single source (well) was out of service was applied as was the impact of various well conditions on the adequacy of source capacity. "Impacted wells" were identified as those that can no longer maintain historic pumping capacities through prolonged pumping cycles during periods of high demand or are prone to failure due to

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holes in the well casings and the associated production of sand and gravel. Five wells qualify as “impacted”: Monterey in Service Area 1; Aptos Creek, Ledyard and Madeline in Service Area 2; and Country Club in Service Area 3.

The assessment results are summarized below:

#### Service Area 1

- Sufficient source capacity with all current sources and without largest single source including transfer of approximately 500 gpm to Service Area 2.
- Monterey Well has both age and structural issues. Loss of this well’s 325 gpm capacity would essentially eliminate the ability to hydraulically transfer source capacity to Service Area 2.

#### Service Area 2

- Sufficient source capacity with all sources.
- Without largest single source (Estates Well) and transfer from Service Area 1, there is a capacity shortfall of 36 gpm.
- Without largest single source and transfer from Service Area 1, and without impacted wells (Aptos Creek, Ledyard and Madeline), the capacity shortfall increases to 781 gpm.

#### Service Area 3

- Sufficient source capacity with all sources
- Without largest single source (San Andreas Well), there is a capacity shortfall of 367 gpm.
- Without largest single source and without the impacted Country Club Well, the capacity shortfall increases to 717 gpm.

#### Service Area 4

- Even without the largest single source (Altivo Well), there is surplus capacity of 552 gpm.
- Since May 2001, approximately one-half of the demand for Service Area 4 has been supplied by Service Area 3 in order to reduce chromium 6 levels in Service Area 4. Groundwater management considerations as well as present water quality concerns restrict the viability of operational changes to supply service Area 3 from Service Area 4.

SqCWD has undertaken the following actions to address the source capacity issues of immediate concern:

#### Service Area 1

1. Attempts to refurbish the Monterey Well in 2004 failed. At this time, it is anticipated that this well will be taken out of service once a new well can be developed.

#### Service Area 2

1. Ledyard Well was refurbished and can now provide production capacity of approximately 200 gpm during the high demand season.

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2. Suitable sites for replacement of the Aptos Creek Well are being identified. In the interim, repairs are being made to the well.
3. Due to limited well sites in Service Area 2 and in order to maximize potential to redistribute pumping for purposes of improved groundwater management, the SqCWD has separately pursued two new wells in the vicinity of 41<sup>st</sup> Avenue and Soquel Drive. Both of these wells were legally challenged, and SqCWD is now preparing to complete a full Environmental Impact Report before proceeding with at least one new well, which is necessary to meet the identified capacity shortfall in Service Areas 1 and 2.

#### Service Area 3

1. Country Club Well is scheduled to be refurbished in 2006, including upgrading the electrical service and pump.
2. Aptos Jr. High Well, which was previously removed from service because it does not have sufficient on-site treatment for iron and manganese removal, is being rehabilitated, including an upgraded treatment facility. This well is anticipated to have a production capacity of approximately 425 gpm.
3. Grant funds are being sought for conversion of the Polo Grounds irrigation well, currently owned and operated by Santa Cruz County Parks, to municipal use. This project would require an upgraded pump and motor, and constructing a treatment plant, sewer line for sludge disposal, and pipeline to connect to the SqCWD system.

An additional goal is to continue making improvements to the distribution system that enhance the ability to move water from one service area to another. This will increase the flexibility to operate different wells and improve groundwater management capabilities through redistributing pumping, thus creating a more even drawdown of groundwater levels and minimizing adverse impacts from pumping depressions.

#### **Climatic Changes**

The 2004 Draft *TM:2 Hydrogeologic Conceptual Model* report states that about 15 percent (approximately 4.6 inches/year) of the rain that falls in the 40.2 square mile Soquel-Aptos watershed area is estimated to infiltrate and become groundwater. The rest flows overland into streams or storm drains, is absorbed by plants, or evaporates. Recharging the aquifer where the SqCWD's pumping occurs is a slow process because groundwater moves slowly and some of the aquifers are deep (i.e. greater than 500 feet below the surface). The recharge process can take up to an estimated seven years in the deepest aquifer layers. Given the nature of groundwater recharge in the Soquel-Aptos area, the droughts and periods of above-normal precipitation of record do not appear to have had a near-term, appreciable effect on groundwater supplies.

Law

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

### **Water-Quality Impacts On Water Quantity**

The SqCWD safeguards its water supplies and has consistently met the standards required by the United States Environmental Protection Agency (USEPA) and California drinking water health standards. In two cases, the SqCWD has gone beyond what is required to monitor and treat for contaminants that have potential but unconfirmed health risks.

### **Source Water Assessments**

In 2002, the SqCWD completed its source water assessment for the portions of the Purisima and Aromas Red Sands Aquifers from which it obtains water. A source water assessment lists possible contaminating activities and the susceptibility of identified contamination threats that might affect the quality of drinking water supplies. To date, no SqCWD production wells have been impacted by the identified potentially contaminating activities.

### **Purisima Formation**

A study on the Purisima Formation identified dry cleaners, historic and active automobile gas stations, sewer collection systems, home manufacturing, grazing, known contaminant plumes, photo processing/printing establishments and utility stations/maintenance areas as the greatest threat to the SqCWD's drinking water wells in addition to seawater intrusion.

### **Aromas Red Sands Aquifer**

A study on the Aromas Red Sands Aquifer identified on-site residential septic systems and potential leakage from sewer lines as the greatest threat to the SqCWD's drinking water wells in addition to seawater intrusion.

Copies of the Executive Summary for each source water assessment are available from the SqCWD free-of-charge and on the SqCWD's web site. The full reports are available at the SqCWD's headquarters office.

### **Water Quality with Respect to Public Health Goals**

Provisions of the California Health and Safety Code, Section 116470 (b), specify that public water systems serving more than 10,000 service connections must prepare a special report by July 1, 1998 and every three years thereafter, that gives information on the detection of any contaminants above the Public Health Goals (PHG) published by the State Office of Environmental Health Hazard Assessment (OEHHA) which is part of Cal EPA. The law also requires that, where OEHHA has not adopted a PHG for a constituent, the water

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suppliers are to use the Maximum Contaminant Level Goals (MCLGs) adopted by the United States Environmental Protection Agency (USEPA).

The SqCWD completed its latest report on water quality relative to public health goals in June 2004. The full report is available from the SqCWD and on the SqCWD's web site.

All current SqCWD supply sources are well within existing limits for all identified constituents. As an added precaution, the SqCWD has taken measures to address several contaminants of concern even though the detected levels are below established thresholds for any known or anticipated adverse health effects. These contaminants and the associated actions taken by the SqCWD are described below:

#### Coliform Bacteria:

The reason for the coliform drinking water standard is to minimize the possibility of the water containing pathogens, which are organisms that cause waterborne disease. SqCWD has taken all of the steps described by California Department of Health Services (CDHS) as "best available technology" for coliform bacteria in Section 64447, Title 22, California Code of Regulations (CCR). These include adding chlorine at all supply sources to assure that the water served is microbiologically safe. The chlorine residual levels are carefully controlled to provide the best health protection without either causing the water to have undesirable taste and odor or increasing the disinfection byproduct level. Other equally important measures that have been implemented include: an effective cross-connection control program, maintenance of a disinfectant residual throughout the distribution system, and maintaining positive pressures in the distribution system.

#### Lead and/or Copper:

There is no Maximum Contaminant Level (MCL) for lead or copper. Instead the 90<sup>th</sup> percentile value of all samples from household taps in the distribution system cannot exceed an Action Level (AL) of 0.015 milligrams/Liter (mg/L) for lead and 1.3 mg/L for copper.

The SqCWD is in full compliance with the Federal and State Lead and Copper Rule. Based on extensive sampling, it was determined according to State regulatory requirements, that the SqCWD has met the Action Levels for Lead and Copper. Therefore, the California Department of Health Services (CDHS) deemed that the SqCWD has "optimized corrosion control" for its distribution system.

In general, optimizing corrosion control is considered to be the best available technology to deal with corrosion issues and with any lead or copper findings. The SqCWD continues to monitor water quality parameters that relate to corrosivity, such as the pH, hardness, alkalinity, and total dissolved solids. Action will be taken, as necessary, to maintain the system in an "optimized corrosion control" condition.

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#### Chromium VI (also known as Hexavalent Chromium):

The CDHS has determined that chromium, specifically in the form of chromium VI, is a health concern at certain levels of exposure. This inorganic metal occurs naturally in the ground and is often used in the electroplating of metals. Chromium can also be leached from serpentine rock, which is abundant in the Coast Ranges of California, causing it to be detected in groundwater. CDHS has set the Maximum Contaminant Level (MCL) for chromium at 50 parts per billion (ppb) to protect against significant risk of adverse health effects.

In 2001, the SqCWD was among the first agencies in the State to submit samples for CDHS required chromium VI analysis. Prior testing was for total chromium that can include the innocuous chromium III. Chromium VI was detected in the water from SqCWD's six Aromas Red Sands Production Wells. The detection levels range from 6 to 36 ppb and are all below the existing State MCL for chromium.

In September of 2001, the California legislature adopted SB 351 requiring the CDHS to adopt a MCL specifically for chromium VI by January 1, 2004. However, a prerequisite for setting the MCL is to establish a Public Health Goal (PHG) specifically for chromium VI. The previously established PHG was withdrawn because of findings that the study's data were flawed. Therefore, the current MCL of 50 ppb for chromium remains the regulatory standard.

In 2001, after detection of chromium VI in the Aromas Red Sands wells, the SqCWD adopted an initial response plan. Below is a summary of the actions taken to date:

- In May 2001, shortly after chromium VI was first detected, the SqCWD prepared and distributed a chromium VI fact sheet to all addresses within the impacted area.
- The SqCWD confirmed original laboratory results by using split samples from an expanded area that were sent to multiple laboratories.
- In order to reduce the highest levels of chromium VI, which were concentrated in Service Area 4, the SqCWD is blending water from Service Area 3 to 4 to reduce the chromium VI levels in Service Area 4 as much as practical.
- Outside consultants were engaged to prepare a source water assessment report, which was completed in April of 2002. The investigation indicates that the chromium VI detected in SqCWD wells is the result of naturally occurring chromium in the Aromas Red Sands Aquifer.
- The SqCWD encouraged pro-active involvement by the County Environmental Health, Regional Water Quality Control Board and CDHS. As a result, the Santa Cruz County Public Health Department requested the Greater Bay Area Cancer Registry at the Northern California Cancer Center to complete a review of the incidence of lung cancer or overall cancer occurring in the areas served by SqCWD wells having detected levels of chromium VI. This analysis revealed no apparent excess of either lung cancer or overall cancer incidence among residents receiving this water compared to the rest of the region.

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- The SqCWD notified the American Water Works Association Research Foundation of detection levels and limitations for alternative supply sources and has obtained all available information from studies associated with chromium VI treatment.
- The SqCWD actively monitors grant-funding opportunities for a pilot treatment project for chromium VI; however, this is no longer considered a high priority contaminant by the State.
- SqCWD staff is closely monitoring the DHS health effects studies and proposed drinking water standards and maintaining regular contact with DHS staff on this issue. The SqCWD will continue to inform its customers of changes via the SqCWD newsletter and website and by direct mail to affected customers, if appropriate.
- A status report on chromium VI was presented to the Board of Directors in March 2004 and updates will be provided as new information is received. Based on currently available information, the SqCWD does not anticipate losing any water supply sources because of chromium VI contamination. It may be necessary to install treatment facilities at two or more well sites to meet a future MCL. There are known technologies that either remove or convert chromium VI to innocuous chromium III.

#### Arsenic:

Low levels of arsenic have been regularly detected at two of SqCWD's water supply wells that produce water from the Purisima Formation. These two wells, T-Hopkins and Aptos Creek, have had detected average total arsenic concentrations of approximately 3 ppb and 4 ppb, respectively. The two wells are operated in tandem and share a single treatment facility. The federal drinking water standard for arsenic will be lowered to 10 ppb effective January 2006. The California maximum contaminant level (MCL) for arsenic is currently 50 ppb, but is in the process of being revised. In April 2004, OEHHA set a public health goal (PHG) for arsenic at 0.004 ppb.

In 2003, the SqCWD conducted a special investigation of the low levels of arsenic detected at the T-Hopkins and Aptos Creek wells. The investigation included review of the possible effects of historical land uses and a focused sampling program that included analyses of pertinent arsenic species and the governing oxidizing and reducing (redox) conditions at these well locations. In addition to the water supply well sampling program, four monitoring wells located at the nearby Ledyard well site were sampled to evaluate the occurrence of arsenic within the different subunits of the Purisima Formation.

The investigation concluded that the low level arsenic detections in SqCWD wells are most likely associated with the natural occurrence of arsenic resulting from the depositional and geochemical conditions in the Soquel-Aptos coastal environment. Desorption or dissolution of arsenic oxyanions from iron oxide appears to be the most common cause of arsenic in groundwater.

Following the investigation of the occurrence of low levels of arsenic, the SqCWD conducted an evaluation of treatment methods. A pilot test at the T-Hopkins treatment plant was conducted. It was determined that ferric chloride as a coagulant combined with the existing

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anthracite filtration was an effective method to remove arsenic. According to the consultant's report, a ferric chloride dosage of 1.5-3.7 mg/L removed the arsenic levels from about 4 ppb in the raw water down to an average of 0.51 ppb, a removal rate of 88%.

Although there is no existing regulatory requirement to do so, the SqCWD decided to proceed with modifications to the T-Hopkins treatment plant to remove arsenic using the method described above. This project is expected to be complete and on-line by early 2006.

Based on the treatment for low levels of arsenic that the SqCWD has already implemented beyond existing regulatory requirements, arsenic contamination is not foreseen as a potential threat that would reduce available water supply.

#### Saltwater Intrusion:

Saltwater intrusion into both the Aromas Red Sands and Purisima Aquifers is evaluated to pose the most threat to the water quality and thus the water quantity for the SqCWD. This has significantly affected SqCWD's water management strategies. SqCWD has installed and is currently adding to a network of coastal monitoring wells to detect early signs of saltwater intrusion before any production wells are impacted. Pumping optimization of the water supply wells has also been used to reduce the threat of saltwater intrusion. Another management technique has been to require new development to offset the amount of water it is anticipated to use by retrofitting existing users with low-flow devices (see Water Demand Offset program in Chapter 4), thus having a zero net impact from a groundwater withdrawal perspective. The threat of saltwater intrusion is one of the primary drives behind the SqCWD developing alternative water supplies as discussed in other sections of this report.

In summary and as shown in Table 9, SqCWD does not anticipate changes in water supply quantities due to water quality issues, and assuming that SqCWD obtains a supplemental water supply to prevent contamination from saltwater intrusion. SqCWD has aggressive management strategies to minimize the risk of water quality impacts.

<b>Water Source</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
Purisima Formation	0	0	0	0	0	0
Aromas Reds Sands Aquifer	0	0	0	0	0	0

Note:

There is no anticipated change in water supply due to water-quality issues.

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#### Law

10631 (d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

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) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; and (I) Agricultural.

(2) The water use projections shall be in the same 5-year increments to 20 years or as far as data are available.

#### Water Transfers

The SqCWD has two interties with the City of Santa Cruz Water Department and one intertie with Central Water District for emergency purposes exclusively. All the interties are small and are capable of providing only approximately five percent of the total water supplied by SqCWD.

SqCWD is part of a grant application that proposes an emergency intertie with the City of Watsonville. The intertie would consist of a 21,800-foot, 18-inch diameter pipeline that could supply up to 48 percent (2.5 million gallons per day (mgd)) of SqCWD's average daily demand of 5.2 mgd. The future of the project is unknown at this time.

#### Past, Current, and Projected Water Use

The SqCWD provides water service to a population of approximately 49,000 through about 14,900 connections within four service areas. The SqCWD classifies its customers into seven categories: 1) Residential (single-family) 2) Residential (multi-family), 3) Commercial, 4) Fire; 5) Institutional and Governmental, 6) Irrigation (dedicated connections), and 7) SqCWD connections (used to support SqCWD facilities).

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Table 10 shows the past, current and projected water use for each water use sector (customer type). Table 11 displays the past, current and projected connections by customer type.

<b>Table 10 – Past, Current, and Projected Water Use</b>									
<b>Water Use Sectors</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
Residential (single-family)	N/A	3,080	3,407	2,991	3,732	3,849	3,970	4,048	4,117
Residential (multi-family)	N/A	860	847	898	999	1,031	1,063	1,082	1,101
Commercial	N/A	601	738	638	752	777	801	815	829
Fire	N/A	1	1	1	1	1	1	1	1
Institutional and Governmental	N/A	178	191	149	204	211	217	221	225
Irrigation	N/A	150	257	188	230	238	245	249	253
SqCWD	N/A	22	22	20	22	23	23	24	24
Subtotal – before conservation	N/A	4,892	5,463	5,185	5,940	6,130	6,320	6,440	6,550
Conservation Savings	N/A	N/A	N/A	(300)	(730)	(810)	(890)	(900)	(910)
Total – after conservation	4,565	4,892	5,463	4,885	5,210	5,320	5,430	5,540	5,640
Unit of Measure: Acre-feet/Year									

Notes:

- Years 1990, 1995, and 2000 pumping values based on historical data.
- Year 2005 total pumping projected using actual 2005 January through September pumping data and substituting 2004 October, November and December pumping quantities. Lower pumping quantity believed to be largely due to wet and cool weather conditions.
- Years 2010, 2020 and 2030 based on values from ESA Technical Memorandum – June 2004.
- Years 2015 and 2025 based on straight-line extrapolation from 2010 to 2030 data.
- Projected total pumping values based on average of high and low.
- Water use by sector, where not available, based on percentage each used during the 2003/2004 fiscal year. 2003/2004 percentage values taken from SqCWD Water Revenue Refunding Bonds, Series 2004, Sale Date: February 11, 2004.

<b>Table 11 – Number of Connections by Customer Type</b>								
<b>Customer Type</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
Residential (single-family)	11,744	12,167	12,257	12,523	12,795	13,073	13,356	13,646
Residential (multi-family)	488	566	582	592	602	613	624	635
Commercial	574	615	723	788	858	935	1,019	1,110
Fire	273	762	1,051	1,272	1,540	1,864	2,256	2,731
Institutional and governmental	79	80	78	77	76	76	75	75
Irrigation	128	155	165	171	176	182	188	194
SqCWD	25	26	24	23	22	21	21	21
Total	13,311	14,371	14,880	15,446	16,069	16,764	17,539	18,412

Notes:

- Years 1995 and 2000 based on actual historical connections.
- Year 2005 number of connections as of October 5, 2005.
- Years 2010, 2015, 2020, 2025 and 2030 projected based on average historical change by sector from 1995 to 2005.

#### Water Needs Assessment

The SqCWD is currently using “build out” as the long-term planning horizon. Since the date for achieving build out may vary due to economic or other conditions not in a water agency’s control, a water agency must be flexible in its ability to respond to land use planning agencies’ decisions. In the case of the SqCWD, projections of demand at build out range from about 6,500 acre-feet per year to about 7,500 acre-feet per year and could occur between 2030 and 2050.

#### Demand Projections

To establish the most contemporary demand projections, the methodology and assumptions used in developing the SqCWD’s Draft Integrated Resource Plan (IRP, 1999) were reviewed and revised in 2004. Demand projections were recalculated by starting with actual water use for the year 2000 (5,463 acre-feet/year), rather than starting with a 1996 projection of 5,480 acre-feet/year. The original logic and methodologies applied in the 1999 Draft IRP to establish projected future demands (with very minor modifications) were then applied to the new base year. Upon review of the assumptions used in the 1999 Draft IRP and conversations with County planners, it became appropriate to push the timeline of development (and, therefore, water demand) further into the future since actual growth and new construction were both materializing slower than anticipated at the time the IRP was developed. Build out is now represented to occur in 2050 (versus 2030).

After accounting for current and projected demand, factoring in potential savings from an aggressive conservation program, addressing a minimum level of pumping reduction to correct and avoid undesirable groundwater conditions, and allowing for drought interruptions and subsequent recovery, it was determined that the SqCWD needs to augment its current water supply by approximately 1,400 acre-feet/year over the next 45 years. However, SqCWD is looking for a supplemental supply that can provide up to 2,000 acre-feet/year to provide a safety margin.

#### Review of Current Water Demands

The SqCWD’s water demands increase substantially in the summer and may be twice winter levels due primarily to landscape irrigation. The combined residential (single-family and multi-family) categories have by far the largest consumption volume, using about 80 percent of all billed water. The next highest use is by commercial customers at 15 percent of billed water. In addition, the SqCWD bills government and irrigation customers, each at about 3 percent of billed consumption. The SqCWD estimates that unaccounted-for water (UAW) averages 7.5 percent of production. UAW includes water for SqCWD needs (main flushing), fire, theft, and main leaks.

#### Law

10631 (c) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to replace that source with alternative sources or water demand management measures, to the extent practicable.

### Conjunctive Use Supply Planning

Due to the potential for overdrafting and saltwater intrusion, SqCWD has actively engaged in groundwater management since 1981. SqCWD has carefully considered the sustainable yield of the groundwater basin, current and long-term water needs, and the potential savings from an aggressive conservation program. These findings are documented in the Draft Integrated Resources Plan, June 1999.

The conclusions of several technical evaluations and a public advisory committee that studied the situation is that more water is currently being pumped from the groundwater basin than is being naturally supplied and, therefore, we cannot continue to rely solely on groundwater. It has also been concluded that conservation alone cannot solve the problem. The SqCWD's Board of Directors is committed to proceeding with developing a supplemental water supply for District-wide conjunctive use along with reducing water use through conservation, and enhancing water supply through reclamation and groundwater recharge as practical.

The obstacles to developing any new source of water supply are daunting. Any project will take years to complete. The SqCWD is currently buying time through promoting conservation and redistributing its pumping away from coastal areas where groundwater levels are low, but SqCWD believes it is imperative to have the supplemental supply on line as soon as possible. SqCWD

On April 6, 2004, SqCWD initiated preparation of a program-level Environmental Impact Report (EIR) to evaluate what appeared to be the two most viable conjunctive use options of a joint desalination project with the City of Santa Cruz or a water import/groundwater banking project with Pajaro Valley Water Management Agency (PVWMA) and the City of Watsonville. It was perceived at that time that this process would enable both options to be more clearly defined and explored, since both projects appeared to be comparable in yield, reliability, flexibility and implementation issues. Subsequent to the Board's decision to initiate the program-level EIR process, a Notice of Preparation was widely distributed and filed with the State Clearing House, and a public scoping meeting was held on June 1, 2004.

Preparation of the program-level EIR was then delayed for two reasons: 1) the City of Santa Cruz ran behind schedule completing its own program-level EIR on its Integrated Water Plan (IWP), from which the description of the regional desalination project alternative and the environmental impact analysis were to be incorporated by reference into the District's

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EIR; and 2) Pajaro Valley Water Management Agency encountered numerous obstacles that stymied its ability to move forward with the import pipeline project, the necessary cornerstone for developing that regional project concept.

In July 2005, it was reported to the Board that District representatives had met with the General Manager of PVWMA, who confirmed that PVWMA's course of action had changed to focus on implementing a water recycling project and that the import pipeline was being re-evaluated, thereby indefinitely postponing that project.

On November 8, 2005, the Santa Cruz City Council unanimously approved certification of the City's Integrated Water Plan (IWP) Final Program Environmental Impact Report and designated the cooperative operational scenario of a regional desalination project with Soquel Creek Water District as preferred. The City has, therefore, made a significant first step toward developing a regional desalination project and needs to move forward with all due speed in order to meet their goal of beginning construction in 2009.

As the result of actions by the City of Santa Cruz and PVWMA, the SqCWD Board of Directors decided on November 15, 2005 to place the Conjunctive Use Water Supply Alternatives Program-Level EIR on hold and, instead, to prepare an updated Integrated Resources Plan (IRP), which would identify a regional desalination project with the City of Santa Cruz as the preferred conjunctive use alternative. The reasons for this action were as follows:

1. The City of Santa Cruz is ready to proceed with more detailed evaluation of a regional desalination project;
2. There is increased uncertainty of a potential project with PVWMA and the City of Watsonville and a delay of at least a year before any fruitful evaluation could occur.
3. Given the uncertainties and lack of information on the PVWMA alternative, the District would incur a significant but unbeneficial expense by completing the Conjunctive Use Water Supply Alternatives Program-Level EIR.
4. The IRP document will provide more complete and accessible information for the public to comprehend the facts and issues that have been considered and weighed through the years to evolve into the District's multi-faceted plan for assuring reliable water supply.
5. There are no legal requirements to complete a program-level EIR before proceeding with identifying and evaluating a specific project; however, a project-level EIR must be certified before the actual project may be implemented.

The Draft Integrated Resources Plan is scheduled to be released for public review and comment in January 2006, with the Board of Directors holding a public hearing before adopting the final document.

#### Law

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 (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry years. The description shall identify specific projects and include a description for 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.

#### **Primary Potential Supplemental Supply Project for Conjunctive Use Program**

As noted in the preceding section, the apparent preferred conjunctive use project alternative SqCWD to meet long-term demand is a regional desalination project in conjunction with the City of Santa Cruz. This project could supply up to 2,800 acre-feet/year of additional potable water to SqCWD during non-drought years to supplement groundwater supplies. This project would help make up for the historical overpumping of the groundwater basin through in-lieu recharge and also help meet the supply shortfall needs when groundwater pumping is limited to the sustainable yield. SqCWD anticipates supplementing groundwater supplies from the new supply source by up to 1,400 acre-feet/year. The ability to obtain 2,800 acre-feet/year of supplemental supply during non-drought years would meet projected demand with some margin of safety in the event that demand is greater, the sustainable groundwater yield is determined to be less than current estimates, and/or a greater supplemental supply is needed at times to compensate for supply interruptions.

#### **Regional Desalination**

Under this conjunctive use alternative, the SqCWD would partner with the City of Santa Cruz to build and operate an ocean desalination plant. SqCWD is currently preparing a comprehensive evaluation of this alternative as part of its Integrated Resources Plan. The City of Santa Cruz has evaluated a regional ocean desalination project in a Program EIR for its Integrated Water Plan.

The proposed project would consist of a 2.5 million gallon per day (mgd) ocean water desalination plant located in the City of Santa Cruz (the plant would be expandable, for Santa Cruz's future needs, to 4.5 mgd). The City is developing the project because the City's water system relies primarily on surface water supplies, and during certain drought conditions, the surface water supplies are severely limited and an alternative supply is

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required. The City is proceeding with an ocean desalination project following the evaluation of several alternative water supply projects. Because the SqCWD’s primary water supply needs are associated with long-term supplemental supply and not short-term demand during a drought, the two agencies could utilize desalinated water during different periods. Implementation of this project would require SqCWD to install new conveyance facilities that would allow water to flow from the City’s water distribution system to the SqCWD’s system and to all four SqCWD service areas.

The intent would be that SqCWD could operate the desalination plant as needed to meet current and future demand (until and past 2030), except in drought years whereby groundwater pumping would conceivably increase temporarily to meet adjusted demand after curtailment measures are implemented. This alternative could provide up to 2,800 acre-feet/year, except during drought years. Based on historical drought statistics and supply needs, the probability that the City of Santa Cruz would need to operate the plant for drought supply is once every six years or 15 percent of the time. The anticipated season of operation by the City of Santa Cruz is May – October in dry and critically dry years. When there is excess capacity during drought periods, desalination water would be available to SqCWD.

Table 12 summarizes the estimated amount of water available from the regional desalination project and the other potential local water supply projects during dry years.

<b>Table 12 – Potential Future Water Supply Projects</b>					
			<b>Multiple-Dry Years Water to Agency</b>		
<b>Project Name</b>	<b>Normal-Year Water to SqCWD</b>	<b>Single-Dry Year Water to SqCWD</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Regional Desalination	Max. of 2,000	Up to 1400*	Up to 1400*	Up to 1400*	Up to 1400*
Off-Stream Diversion	1,500	0**	0**	0**	0**
Satellite Reclamation	450	450	450	450	450
Unit of Measure: acre-feet/year					

\*Since SqCWD would be sharing the desalination plant with the City of Santa Cruz and because they rely 94 percent on surface water supplies, the concept is that the City of Santa Cruz would operate the desalination plant during dry years as needed to meet demand. It is anticipated that the City’s water supply requirements during the winter and spring could be met with other sources, thereby making desalination water available for SqCWD use up to six months of the year even during multiple dry years.

\*\* Single and multiple dry years flow on Soquel Creek would fall below the required 37 cfs for the fish bypass.

#### Other Potential Supplemental Supply Projects

##### Off-Stream Diversion

Off-stream diversion from Soquel Creek is another potential conjunctive use project being considered and evaluated by SqCWD. However, it is not identified as a preferred alternative at this time because:

- The project would only supply about three-quarters of the 2,000 acre-feet/year optimal project yield that SqCWD is seeking.
- It may be difficult to obtain regulatory agency approvals, particularly with respect to fish bypass flow requirements. The project would only operate in the rainy season during wet years, which provides very limited flexibility compared to the two regional options.

The off-stream diversion project would divert water from Soquel Creek during periods of high flow (winter runoff period and wet years). The project would be located on the lower reach of the creek and require the construction and operation of a raw water intake to divert surface water from Soquel Creek to a settling pond. The settled water would then be delivered to a water treatment plant. After treatment, the potable water would be conveyed to the distribution system or may be injected into the aquifer for later withdrawal. The project would supply about 1,500 acre-feet/year allowing for a minimum flow of 37 cubic feet per second (cfs) for a fish bypass, a diversion capacity of 14 cfs, off-stream reservoir storage capacity of 49 acre-feet/year, and limited operation from November 1 to April 30.

An implementation timeline for this project has not been determined. However, if the regional desalination project cannot be implemented within a reasonable timeframe, then this project would probably be pursued more actively with an estimated completion date of 2015.

##### Satellite Reclamation Plants

Two sites, Anna Jeans Cummings (AJC) Park and Seascape Golf Course have been identified as potential candidates for satellite reclamation plants (SRP). The SqCWD is continuing to investigate the potential of using recycled water at the two identified sites and has applied for a planning study grant to further assess and design a SRP at the AJC Park site. Preliminary analysis of satellite reclamation at the AJC Park indicates a potential production of 45 acre-feet/year of which the Park could use about 22-44 acre-feet/year. The estimated production from a SRP located at Seascape Golf Course is approximately 400 acre-feet/year, which appears to be within current irrigation demand. Note that Seascape Golf Course irrigation is currently served by a private, unmetered well, thus the actual demand is unknown and it was not factored into the SqCWD supply planning calculations. Use of recycled water for both of these facilities is possible within the next five to ten years, thus reducing potable water demand by up to roughly 450 acre-feet per year.

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#### Possible Programs to Further Supplement Supply

SqCWD has several innovative conservation programs, as discussed in Chapter 4 titled “Additional Demand Management Measures,” that are currently being implemented, and the organization constantly evaluates potential new programs that may be included in its Integrated Resources Plan (IRP) to meet the total projected demand.

Below are the currently identified localized supplemental supply programs under evaluation. There is insufficient analysis at this time to provide a timeline for possible implementation or estimate the quantity of enhanced water supply each program could produce. Any potential new program requires SqCWD Board approval.

- Enhanced Groundwater Recharge – SqCWD is working with the County of Santa Cruz, neighboring water agencies, and regional resource agencies to identify opportunities to enhance groundwater recharge through erosion control, reducing stormwater runoff and preserving primary recharge areas. Thus far, one potential project has been identified. This project, known as the “Blue Gully Trail Project” involves sediment reduction and enhanced groundwater recharge that would provide about 7 acre-feet/year to the deep layers of the Purisima Formation. Enhanced groundwater recharge in the Soquel-Aptos area has been identified as a priority project in the Northern Santa Cruz County Integrated Regional Water Management Plan for which grant funds are being sought.
- Landscape Incentives – provide incentives for native and other drought tolerant landscaping. This could help address the 50% increase in water consumption during the summer months.
- Gray Water – provide education and other methods to help promote this form of reuse if it is acceptable to the County Environmental Health Department.
- Water Budgets for Dedicated Irrigation Customers – recently, SqCWD has discussed the possibility of landscape water budgets on dedicated irrigation services. This has the potential to save significant quantities of water, but it is a complex program that will be evaluated more within the next few years.

**Law**

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.

**Opportunities for Desalinated Water**

Since the groundwater basin underlying SqCWD is in overdraft and because SqCWD borders the Pacific Ocean, opportunities for development of desalinated water have been evaluated. Table 13 lists the opportunities of desalinated water.

<b>Table 13 – Opportunities for Desalinated Water</b>					
<b>Project Description</b>	<b>Sources of Water</b>	<b>Yield*</b>	<b>Start Date</b>	<b>Type of Use</b>	<b>Method</b>
Regional Desalination	Ocean	1,400 - 2,800**	2010	Potable	Intake – existing offshore pipe
Local Desalination***	Ocean	Low	None	None	Intake - shallow beach wells
Brackish Groundwater	NA	--	--	--	--

\*Yield in acre-feet/year

\*\* Represents SqCWD’s portion operating a single train or both trains of the proposed City of Santa Cruz plant, and is not fully available during drought years.

\*\*\* Project evaluated as low feasibility

NA – not available

**Regional Desalination**

The primary desalination opportunity is a regional partnership with the City of Santa Cruz, which is discussed in Chapter 2 Section 10631 (h) under the heading “*Primary Potential Supplemental Supply Project for Conjunctive Use Program.*” Briefly summarized, the source water is the Pacific Ocean and the initial plant capacity would be up to 2.5 mgd which could provide up to 2,800 acre-feet/year for SqCWD use, except during drought periods. The initial plant will have two 1.25 mgd trains that could be operated singly or together. It is anticipated that, for the most part, operation of the plant for SqCWD only needs would be limited to a single train producing up to 1,400 acre-feet/year. The maximum amount SqCWD is estimated to need in the future is 2,000 acre-feet/year. The desalinated water would be used for distribution to SqCWD customers as potable water via an intertie with the City of Santa Cruz system. This potential project is estimated to be online in 2010.

**Local Desalination**

In 2000, SqCWD performed a reconnaissance-level assessment of the potential for development of a subsurface seawater intake on the beachfront areas within the SqCWD (Report from Martin Feeney (Consulting Hydrogeologist)) titled *SqCWD Desalination Facility – Letter Report – Beach Intake Feasibility Reconnaissance Study* (ESA #99049). The study evaluated whether seawater from shallow beach wells could be used as feedwater for a desalination facility that would produce two million gallons per day (mgd). The

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conclusions of the report indicated that, for various reasons (i.e., insufficient sand cover, erosion, permitting issues, etc.), local desalination based on this approach was unlikely and that any desire to pursue this concept further would require substantial additional work.

#### **Brackish or Contaminated Groundwater**

There are insufficient sources of brackish or contaminated groundwater to develop a supply project.

#### Law

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. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:

10633 (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 methods of wastewater disposal.

10633 (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.

10633 (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.

10633 (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.

10633 (e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years.

10633 (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.

10633 (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 and to promote re-circulating uses.

## Recycled Water

### Regional Wastewater Treatment Plant

Most of the SqCWD is sewerred; however, there are some septic systems. Wastewater collected in the SqCWD's service area is treated at the Santa Cruz wastewater treatment facility located approximately 5 miles west of the SqCWD's boundary. The sewer collection system terminates at the City of Santa Cruz wastewater treatment facility.

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The Santa Cruz County Sanitation District, a special district operated through the Santa Cruz County Public Works Department, collects approximately 4 million gallons a day of wastewater generated within the SqCWD's service area, which is treated at the City of Santa Cruz wastewater treatment facility. Wastewater is discharged to Monterey Bay through a deep-water outfall extending 12,000 feet on the ocean bottom and terminating one mile offshore at a depth of approximately 110 feet below sea level.

#### Quantity of Treated Wastewater

SqCWD does not treat or reclaim any wastewater at this time.

#### Recycled Water Use Within SqCWD Boundaries

There is currently no recycled water used within the SqCWD due to: 1) current treatment levels; 2) the five-mile distance from the City of Santa Cruz Wastewater Treatment Plant to the SqCWD boundary; 3) a limited irrigation market for recycled water in the SqCWD's service area; and 4) limitations on the ability to use recycled water for groundwater recharge. The cost/benefit ratio to produce recycled water at the regional wastewater treatment plant and deliver it to irrigation users within SqCWD's service area is very high compared to other conservation measures or supplemental supply alternatives, thus recycled water has not been implemented at this time. However, new technology using satellite reclamation plants (SRPs) may have appropriate applications within the SqCWD and is currently being evaluated, as discussed later.

#### Potential Use of Recycled Water

Within the SqCWD's service area, there are a number of parks, school playing fields, and a golf course that could use recycled water for irrigation. Most of these users are not currently served by the SqCWD, but they do contribute to the overall groundwater management concern through use of their own wells. Other potential uses of recycled water, such as agricultural and industrial, do not exist within the SqCWD service area. Recycled water as a source for groundwater recharge has been evaluated and rejected since the density and location of District and private drinking water wells within the SqCWD service area preclude meeting the State's detention and distance requirements. The cost and limitations on developing recycled water for use within the SqCWD service area make its use for wildlife habitat and wetlands enhancement impractical.

If recycled water was available, major landscape demands at parks and schools could be "anchor tenants" and ancillary uses that occur along the pipeline could be included, if cost effective. The water use factor, or water duty, used in SqCWD demand analysis for parks and open space is 2.5 acre-feet/year per acre. Using the 2.5 acre-feet/year per acre rate and an estimated 304 acres of irrigated land, the total recycled water use potential is approximately 760 acre-feet/year. The length of the pipeline necessary to serve these uses is approximately 17 miles, including the 5 miles from the SqCWD boundary to the Santa Cruz Wastewater Treatment Plant. In 2004 and 2005, SqCWD conducted a study to evaluate the

## **CHAPTER 2**

### **Current & Planned Water Supply Sources/Reliability**

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feasibility of providing recycled water through localized satellite reclamation plants (SRPs) using membrane bioreactor (MBR) treatment technology (Satellite Reclamation Plant Feasibility Study prepared for SqCWD by Black & Veatch, March 2005). SRPs would resolve the issue of an expansive distribution system being required to cover the distance between the supply of treated wastewater and potential irrigation uses.

#### **Feasibility and Projected Use of Recycled Water Within the SqCWD**

There are no projected uses of recycled water via conventional methods (i.e., Santa Cruz wastewater treatment plant or recirculating industrial uses) within the SqCWD's service area over the next 20 years due to the implementation risk and uncertainty as stated above. As an alternative, twenty potential sites for satellite reclamation plants (SRP) were selected for evaluation and preliminary screening based on recycled water demand and proximity to sewers. Three of the twenty sites were identified as potentially feasible and then sewer flow analysis revealed that only two of these sites, Anna Jean Cummings (AJC) Park and Seascope Golf Course, might have sufficient nearby sewer flows to support a SRP. The SqCWD is continuing to investigate the potential of using recycled water at the two identified sites and has applied for a planning study grant to further assess and design a SRP at the AJC Park site.

Preliminary analysis of satellite reclamation at the AJC Park indicates a potential production of 45 acre-feet/year of which the park could use about 22-44 acre-feet/year. The estimated production from a SRP located at Seascope Golf Course is approximately 400 acre-feet/year, which appears to be within current irrigation demand. (This facility is currently served by an unmetered private well, so actual daily demand is only estimated.) Use of recycled water for both of these facilities is possible within the next five to ten years, thus reducing potable water demand by up to roughly 450 acre-feet/year. Costs for these potential projects have yet to be determined.

Additional uses for recycled water over the next 15 and 20 years is projected to be minimal given that new large irrigation uses are not anticipated and restricted growth will substantially maintain existing wastewater supplies, which is a limiting factor for further SRP development.

#### **Optimizing and Encouraging Recycled Water Use**

The plan to optimize the use of recycled water in the SqCWD area is to continue exploring localized reclamation (i.e., SRPs) and other new technologies that may become feasible, and implement them if deemed appropriate.

Although large-scale recycled water use is not an option at this time, the SqCWD's Public Advisory Committee recommended that the SqCWD consider participating in the development of a recycled water supply for non-potable applications (such as irrigation), if, in the future, the City of Santa Cruz or another agency implements this supply option in such a manner that recycled water would be available in proximity to SqCWD uses.

## CHAPTER 2

### Current & Planned Water Supply Sources/Reliability

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For the potential park and golf course applications of recycled water from SRPs, according to current Department of Health Services information, it will not be necessary to replace the below-ground irrigation system with purple pipe since both facilities were constructed prior to the recycled reuse construction criteria. Capital costs for the irrigation system will thereby be substantially reduced even though all above-ground appurtenances will require marking.

It is anticipated that the SqCWD, with grant assistance, would fund the installation and operation of the two identified SRPs and provide financial incentives, including discounted price, to encourage use of reclaimed water. Public outreach on the safety and benefits of using reclaimed water would also be provided by SqCWD as an incentive to the users.

# CHAPTER 3

## Water Supply Emergency Response Plan

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**Law**

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 the state, regional, or local agency population projections within the service area of the urban water supplier.

### Supply and Demand Comparison Provisions

The SqCWD has not experienced any water supply shortage on a regular annual, monthly, or peak period basis. However, the SqCWD is withdrawing more water from the basin than can be sustained long term. Because the District currently relies on groundwater for its sole source of supply, it is not anticipated that any future short-term drought will perceptibly affect the ability of the SqCWD to provide water to its customers. However, in the event of a prolonged drought or the loss of a supplemental supply source during periods of drought, the SqCWD’s Water Supply Emergency Response Plan would be implemented. Table 14 shows water demand projections. Table 15 indicates water supply availability during droughts.

<b>Table 14 – Water Demand Projections Within Sphere of Influence</b>						
	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
Available Long-term Groundwater Supply	4,800	4,800	4,800	4,800	4,800	4,800
Conservation Savings	300	730	810	890	900	910
Demand totals	4,885	5,210	5,320	5,430	5,540	5,640
Difference	85	410	520	630	740	840
Units of Measure: acre-feet/year						

See Table 7 for sources of projections.

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## Water Supply Emergency Response Plan

Table 15 – Single Dry Year and Multiple Dry Water Years					
Water Supply	Current Supply 2005 (Volume)	Single Dry Water Year (Volume)	Multiple Dry Water Years		
			Year 1 (Volume)	Year 2 (Volume)	Year 3 (Volume)
Supply totals	4,800	4,800	4,800	4,800	4,800
Percent Shortage*	2%	0	0	0	0
Demand totals	4,885	4,800*	4,800*	4,800*	4,800*
Difference	85	20	N/A	N/A	N/A
Unit of Measure: acre-feet/year					

**Notes:**

The demand total for a single dry was based to be the typical recent average demand of approximately 5,500 acre-feet/year.

\* Not applicable due to evaluation that a one to three-year drought should not affect SqCWD's ability to provide water at 4,800 acre-feet/year. However, as discussed as part of SqCWD's Water Supply Emergency Response Plan, water-use curtailment measures to reduce demand by up to 15% may be implemented as precautionary measures during a drought and the loss of a supplemental supply source. Thus 15% less than 5,500 acre-feet/year is approximately 4,800 acre-feet/year.

**Law**

10632. The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

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.

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.

**Three-Year Minimum Water Supply**

The SqCWD has not experienced any water supply shortage on a regular annual, monthly, or peak period basis. Because the SqCWD currently relies on groundwater for its sole source of supply, it is not anticipated that any future short-term drought will perceptibly affect the ability of the SqCWD to provide water to its customers although lowered groundwater levels as the result of drought and the loss of a supplemental supply source during drought periods could potentially increase the SqCWD's vulnerability to saltwater intrusion. In the event of a prolonged drought or the loss of a supplemental supply, the SqCWD's Water Supply Emergency Response Plan would be implemented. Table 16 indicates SqCWD's expected minimum water supply based on the historical driest three-year drought.

<b>Table 16 – Three-year Estimated Minimum Water Supply</b>		
<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
4,800	4,800	4,800

Units of Measure: acre-feet/year.

The 4,800 acre-feet/year value represents the estimated long-term sustainable yield for SqCWD portion of pumping from the basin. Larger quantities may be pumped on a short-term basis (a few years).

**Water Supply Emergency Response Plan**

Table 17 summarizes the actions the water agency will take during a water supply catastrophe.

# CHAPTER 3

## Water Supply Emergency Response Plan

**Table 17 – Preparation Actions for a Catastrophe**

Examples of Actions	Check if Discussed
Determine what constitutes a proclamation of a water shortage.	✓
Stretch existing water supplies.	✓
Obtain additional water supplies.	✓
Develop alternative water supplies.	✓
Determine where the funding will come from.	✓
Contact and coordinate with other agencies.	✓
Create an Emergency Response Team/Coordinator.	✓
Create a catastrophe preparedness plan.	✓
Put employees/contractors on-call.	✓
Develop methods to communicate with the public.	✓
Develop methods to prepare for water quality interruptions.	✓

### Emergency Preparedness Program

SqCWD has prepared an Emergency Response Plan (ERP) consistent with Section 1433(b) of the Safe Drinking Water Act (SDWA) as amended by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002, California Health and Safety Code (Section 116460, 116555 and 116750), and California Waterworks Standards (Section 64560.) The purpose of the ERP is to provide a standardized response and recovery protocol to prevent, minimize, and mitigate injury and damage resulting from emergencies or disasters of natural or man-made origin.

The ERP also describes how to respond to potential threats or actual terrorist scenarios identified in the SqCWD’s vulnerability assessment, as well as additional emergency response situations. The ERP includes specific action plans (APs) that will be used to respond to events and incidents.

The goals of the ERP are to:

- Rapidly restore water service after an emergency.
- Ensure adequate water supply for fire suppression.
- Minimize water system damage.
- Minimize impact and loss to customers.
- Minimize negative impacts on public health and employee safety.
- Provide emergency public information concerning customer service.

SqCWD has developed Specific Action Plans (AP) to address each of the high-risk threat scenarios identified in the SqCWD’s vulnerability assessment. The Specific APs for natural disasters include: earthquake, flood, winter storm, and power outage. The Specific APs developed for response to human threats include: threatened or confirmed contamination to the water system, structural damage from explosive device, employee victim to armed assault, operational or informational system intrusion, water supply interruption, and bomb threat.

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## Water Supply Emergency Response Plan

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In general, the ERP includes the following:

1. System specific information for quick reference
2. Identification of alternate water sources including interconnections with adjacent water providers and supply options for short-term outages
3. An inventory of District-owned emergency equipment and supplies and a contact list of local vendors/contractors with such equipment and supplies
4. The emergency response organization for the incident command structure including personnel assignments and duties
5. Notification procedures along with contact information for coordination with other agencies
6. Procedures and sample notices and press releases for communicating with the public for both water supply and water quality interruptions
7. Emergency response, recovery and termination steps
8. Emergency contact information for SqCWD employees and Board members
9. Names and contact information for pre-arranged on-call contractors
10. A training, exercise and drill program for SqCWD employees

### **Catastrophic Supply Interruption Plan**

As stated above, the SqCWD Emergency Response Plan has Specific Action Plans for each of the high-risk scenarios identified in the vulnerability assessment.

SqCWD has undertaken a significant program to maintain water service and mitigate system damage during catastrophic emergencies such as natural disasters or regional power outages. Three such programs are noteworthy:

1. SqCWD has installed six electrical generators at critical facilities, including District headquarters, one well and four booster pump stations, and has four portable generators that can be moved to other sites as needed. The generators are inspected on a weekly basis for both operational readiness and fuel levels. SqCWD maintains a supply of diesel fuel at District headquarters. The current equipment should be sufficient to keep the storage tanks full for gravity-fed water supply throughout the system during a regional power outage.
2. All 18 of SqCWD's water storage reservoirs (aka tanks) are ground-supported flat-bottom welded-steel. Each of these reservoirs is designed according to the American Water Works Association (AWWA) D100-96 Standard Specifications. Since the District is located in the highly active Seismic Zone 4, all storage tanks are designed and anchored to prevent sliding and uplift. In order to maintain maximum flexibility in the vertical and tangential directions, all SqCWD tanks are being retrofitted with flexible seismic couplings between the tank and piping. To date, nine tanks have been retrofitted with flexible seismic couplings. Each fiscal year, the District plans to budget funds to continue the tank seismic retrofit program until all water tanks have been fitted with flexible couplings.

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3. Radio transmissions are used both for emergency communication and to operate the District's Supervisory Control And Data Acquisition (SCADA) system, which is critical for monitoring and operating the water system. The District has a spare antenna in the event the main antenna at headquarters is knocked down or damaged.

In the event of any catastrophe that may affect the Water System, the Water Utility Emergency Response Manager (WUERM) shall be immediately notified to determine if the Action Plan(s) shall be initiated. The WUERM shall notify the other members of the District's Standardized Emergency Management System (SEMS).

The following summarizes actions to be taken in the most likely catastrophes that may affect the SqCWD system: power outages, floods, earthquakes, and winter storms.

Possible Catastrophe:        Regional Power Outage  
Summary of Actions:

- Assess – Contact PG&E for estimated down time and determine which equipment and facilities are affected. Contact fuel suppliers, critical care customers and large water users, if necessary.
- Isolate and Remediate – Set up generators and perform any system changes to reroute water supply to affected area(s). Notify users of interrupted service if area cannot be served water during the power outage. As appropriate, issue “Boil Water”, “Do Not Drink” or “Do Not Use” orders and press releases. Arrangements for water to be supplied by an outside source or at other locations in the SqCWD water system should be established if the duration of the power outage is substantial.
- Monitor – Frequently check the status of the backup power supply (fuel and battery levels). If damage to equipment occurs, then seek mutual aid with local agencies and/or Water/Wastewater Agency Response Network (WARN).
- Recovery – Conduct disinfection, flushing, and sampling if necessary. Notify users when it is safe to drink water again.

Possible Catastrophe:        Earthquake  
Summary of Actions:

- Assess – In general, earthquakes occur without any advance warning, which makes it difficult to take proactive measures. After an earthquake occurs, personnel should inspect all structures and facilities for damage. If power supply and SCADA are working, review system status. However, significant power outages can occur with earthquakes and power can be interrupted for extended periods of time.
- Isolate and Remediate – If a tank has been damaged, immediately zone off the facility to reduce flooding and notify affected customers. Also, zone off sections of mains and/or fire hydrants that may have been broken. Perform system modifications to serve users from another source, if possible. As appropriate, issue

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“Boil Water”, “Do Not Drink” or “Do Not Use” orders and press releases. Notify affected customers that service is disrupted and arrange for alternate water sources. Make arrangements with contractors who can help with emergency repairs.

- Monitor – Continue to monitor water system after an earthquake occurs. Aftershocks and resettlement may cause additional damage that needs to be addressed.
- Recovery – Inspect all facilities for structural damage and prioritize repair schedule. Respond to side effects that may include loss of power, chemical spills, etc. Conduct necessary procedures to bring the system back on line. Notify users when it is safe to drink water again.

Possible Catastrophe: Flood

Summary of Actions:

- Assess – In general, flooding occurs with reasonable lead times. If a Flood Watch or Flood Warning is received, contact the local representative of the National Weather Service (NWS) for the exact location and probable extent of flooding, relative to District facilities. If flooding has already occurred, conduct site assessments and determine which equipment and/or facilities have been affected.
- Isolate and Remediate – Assemble essential personnel to assist with flood proofing duties such as elevating electrical components, sandbagging, and staging stand-by generators and water pumps. Notify customers that service may be disrupted. Confirm with contractors who can help with emergency repairs.
- Monitor – Observe damage that may occur and look for fire hazards. (Fire is the most frequent hazard following floods.)
- Recovery – Determine condition of the facilities and equipment in the affected areas. Schedule and prioritize any repairs that are needed. Arrange for alternate source of power or water, if necessary.

Possible Catastrophe: Winter Storm

Summary of Actions:

- Assess – Winter Storms are often accompanied by strong winds and heavy rains which result in localized power and phone outages and road closures. Storms can also escalate into larger events that may affect the water system with cold-weather main breaks and disruption of service.
- Isolate and Remediate – Prior to the storm, ensure that personnel has performed “winterizing” tasks which can include maintaining backup generators, weatherproofing windows/doors at offsite buildings, insulating necessary exterior piping/appurtenances, and testing backup communication systems. During the storm, notify customers if service is disrupted and make system modifications to provide water to affected areas and isolate mains that may break from freezing conditions. Confirm with contractors who can help with emergency repairs.

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- Monitor – Observe tank levels and backup power (if required). Test water quality and follow appropriate procedures if water quality emergencies arise.
- Recovery – Determine condition of the facilities and equipment of the affected areas. Schedule and prioritize repairs that are needed. Arrange for alternate source of power or water, if necessary.

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### **Water Supply Emergency Response Plan**

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#### **Law**

10632. The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

10632 (h) A draft water shortage contingency resolution or ordinance.

### **Draft Water Supply Emergency Response Plan Resolution**

Attached as Appendix B.

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### Law

10632. The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

10632 (a) 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.

10632 (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.

10632 (f) Penalties or charges for excessive use, where applicable.

10632 (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

## Rationing Stages and Reduction Goals

### Section I: Declaration of Policy, Purpose, and Intent

In order to conserve the available water supply and protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation, and fire protection, and to protect and preserve public health, welfare, and safety and minimize the adverse impacts of water supply emergency conditions, the SqCWD hereby adopts the following regulations and restrictions on the delivery and consumption of water during declared emergencies.

Water uses regulated or prohibited under this Water Supply Emergency Response Plan (the Plan) are considered to be non-essential and continuation of such uses during an emergency water supply condition are deemed to constitute a waste of water, which subjects the offender(s) to penalties as defined in Section IX.

### Section II: Types of Emergencies

**Short-term Water Supply Emergency** – This type of emergency can result from natural disaster, loss of production wells due to mechanical failure, major main breaks, prolonged power outage or other events that limit the District’s immediate ability to provide adequate water service to meet the requirements for human consumption, sanitation and fire protection. Such emergencies are of a limited duration and, at the time of declaration, are not expected to last more than a few weeks.

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**Long-term Water Supply Emergency** – This type of emergency can result from prolonged drought, contamination, major disaster that destroys critical water supply facilities or other situations that jeopardize the District’s ability to meet normal demand for human consumption, sanitation and fire protection for the foreseeable future. When declared, it is anticipated that a considerable period of time will pass until normal supply production can be resumed (e.g. groundwater levels reach acceptable recovery after drought, contamination is removed, or lost water supply facilities are replaced.)

**Groundwater Emergency Due to Overdraft** – This type of emergency affects many or all users of the groundwater basin, not just District customers. It is the result of ongoing pumping in excess of the recharge capabilities of the aquifer, e.g., in excess of the sustainable yield. The undesirable result would be a combination of chronically depressed coastal groundwater levels, reversed seaward gradients, and degraded groundwater quality that collectively define seawater intrusion. A groundwater emergency may be declared when it is demonstrated that a groundwater overdraft exceeding the sustainable yield threatens the public health, safety, and welfare of the community.

**Precautionary Drought Curtailment** – During drought periods, when groundwater conditions could be exacerbated or a supplemental supply may not be available, the District plans to institute a use curtailment program to reduce demand by up to 15 percent. The specifics on triggers for the curtailment program and how it applies to various customer classes and usage patterns have not yet been developed, but the measures used to achieve up to 15% reduction would be consistent with those identified in this plan.

#### Section III: Authorization

**Short-term Water Supply Emergency** – The General Manager or his/her designee is hereby authorized and directed to implement the applicable provisions of this Plan upon determination that such implementation is immediately necessary to protect public health, safety, and welfare. The General Manager, or his/her designee, shall have the authority to initiate or terminate short-term water supply emergency response measures as described in this Plan. The decision of the General Manager to initiate or terminate emergency response measures shall be presented to the Board of Directors for ratification at the next properly noticed Board meeting.

**Long-term Water Supply Emergency** – The Board of Directors shall make the determination of the need to declare long-term emergencies and authorize implementation of the applicable provisions of this Plan as necessary to protect public health, safety, and welfare. Prior to implementing mandatory measures in response to a long-term emergency, the Board of Directors shall conduct a public hearing on the proposed measures to be taken to reduce demand prior to imposing such measures.

**Groundwater Emergency** – Upon being informed by the District’s groundwater hydrologist that conditions exist which warrant declaration of a groundwater emergency,

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the Board of Directors shall receive the groundwater hydrologist's report and recommendations for appropriate actions at a public meeting. The Board of Directors shall act within its authority as established by AB 3030 and other applicable State Laws to address the groundwater emergency. Prior to implementing mandatory measures in response to a groundwater emergency, the Board of Directors shall conduct a public hearing on the proposed measures to be taken to reduce demand.

Precautionary Drought Curtailment - The Board of Directors shall make the determination of the need to declare an up to 15% precautionary drought curtailment and authorize implementation of the applicable provisions of this Plan as necessary to protect public health, safety, and welfare. Prior to implementing mandatory measures in response to a drought curtailment program, the Board of Directors shall conduct a public hearing on the proposed measures to be taken to reduce demand prior to imposing such measures.

### **Section IV: Application**

The provisions of this Plan shall apply to all persons, customers, and property utilizing water provided by the Soquel Creek Water District. The terms "person" and "customer" as used in the Plan include individuals, businesses, public agencies, corporations, partnerships, associations, and all other legal entities.

### **Section V: Definitions**

For the purposes of this Plan, the following definitions shall apply:

Aesthetic water use: water use for ornamental or decorative purposes such as fountains, reflecting pools, and water gardens.

Commercial and institutional water use: water use, which is integral to the operations of commercial and non-profit establishments and governmental entities, such as retail establishments, hotels and motels, restaurants, and office buildings.

Conservation: those practices, techniques, and technologies that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water or increase the recycling and reuse of water so that a supply is conserved and made available for future or alternative uses.

Customer: any person, company, or organization using water supplied by Soquel Creek Water District.

Domestic water use: water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.

Landscape irrigation use: water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, golf courses, parks, and rights-of-way and medians.

Non-essential water use: water uses that are not essential nor required for the protection of public health, safety, and welfare, including:

- (a) irrigation of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this Plan;
- (b) use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle;
- (c) use of water to wash down sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
- (d) use of water to wash down buildings or structures for purposes other than immediate fire protection;
- (e) flushing gutters or permitting water to run or accumulate in any gutter or street;
- (f) use of water to fill, refill, or add to any indoor or outdoor swimming pools or jacuzzi-type pools;
- (g) use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life; and
- (h) failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s).

### Section VI: Criteria for Initiation and Termination of Short-Term and Long-Term Water Supply Emergency Response Stages

In the event of reduced water production capacity, the General Manager or his/her designee shall monitor water supply and/or demand conditions on a daily basis and shall determine when conditions warrant initiation or termination of each stage of the Plan, that is, when the specified “triggers” are reached (see Table 18). The General Manager or his/her designee will determine which areas of the District will be affected depending on the location and severity of the water supply emergency. Each stage of the emergency may be rescinded upon the determination that all of the conditions identified as the triggering events have ceased to exist or a lower stage of emergency may be invoked in response to improved production capacity.

Table 18 – Water Shortage Stages and Triggering Mechanisms				
Percent Reduction of Supply	Stage I 5-15%	Stage 2 15 – 30%	Stage 3 30-50%	Stage 4 Over 50%
<b>Water Supply Condition</b>				
Current Supply	Total production capacity is 85-95% of “normal.”	Total production capacity is 70-85% of “normal.”	Total production capacity is 50-70% of “normal.”	Total production capacity is less than 50% of “normal.”

### Section VII: Water Supply Emergency Response Stages

The General Manager or his/her designee, shall serve as the Emergency Response Coordinator (ERC). The ERC shall monitor water supply and/or demand conditions on a daily basis and, in accordance with the triggering criteria set forth in Section VI of this

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## Water Supply Emergency Response Plan

Plan, shall determine that a water supply emergency condition exists and shall implement the following notification procedures:

### Notification

Notification of the Board of Directors:

The ERC shall contact Board members upon making the determination that a water-supply emergency exists and advise them of the short-term emergency actions to be taken and when the matter will be presented to the Board of Directors for ratification.

Notification of the Public:

The ERC shall notify the public by means of publication in a newspaper of general circulation, radio and television public service announcements, direct mail to each affected customer, signs posted in public places and any other method deemed necessary by the ERC. When a public hearing is to be conducted to consider water supply emergency response, public display ads will be published in a newspaper of general circulation giving the nature of the water supply emergency, the actions being considered and the time, date and place of the hearing in addition to other legal requirements for noticing public hearings as specified in the California Government Code.

Table 19 indicates SqCWD’s water rationing stages. Table 20 shows the methods to reduce consumption at the various rationing stages.

Table 19 – Water Rationing Stages and Reduction Goals			
Shortage Condition	Stage	Customer Reduction Goal	Type of Rationing Program
5 – 15%	1	5-15%	Voluntary
15 – 30%	2	15-30%	Mandatory
30 - 50%	3	30-50%	Mandatory
Over 50%	4	Over 50%	Mandatory

Table 20 – Consumption Reduction Methods	
Examples of Consumption Reduction Methods	Stage When Method Takes Effect
Demand reduction program	All stages
Restrict for only priority uses	Stage 4
Use prohibitions	All stages
Water shortage pricing	All stages
Per capita allotment by customer type	Stage 4
Plumbing fixture replacement	All stages
Voluntary rationing	Stage 1
Mandatory rationing	Stages 2, 3, 4
Incentives to reduce water consumption	All Stages
Education Program	All Stages
Percentage reduction by customer type	Stage 4
Restrictions on new or expanded service	Stage 2, 3, 4

# CHAPTER 3

## Water Supply Emergency Response Plan

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### **Stage 1 Response – Voluntary Conservation**

Goal: Achieve up to a 15 percent voluntary reduction in daily water demand.

#### SqCWD Water Management Measures:

1. Notification of affected customers of water shortage.
2. Provide technical information to customers on ways to improve efficiency.
3. Conduct media campaign to remind customers of the need to save water.
4. Flushing of District water lines is prohibited except in the immediate interest of public health, safety, and welfare.

In the event of a long-term supply shortage, the following actions will also be taken:

5. Publicize and expand the toilet rebate, showerhead, and other efficiency programs.
6. Will-serve letters for new service applications will be conditional or limited. Such letters should communicate the District's supply shortage and the necessity of resolution in order to approve additional connections.

#### Voluntary Water Use Restrictions:

1. Water customers are requested to voluntarily limit the irrigation of landscaped areas.
2. District customers are requested to practice water conservation and to minimize or discontinue water use for non-essential purposes.

### **Stage 2 Response – Mandatory Conservation**

Goal: Achieve up to a 30 percent reduction in daily water demand.

#### SqCWD Water Management Measures:

1. Irrigation of District owned property prohibited.
2. Contact surrounding agencies that have interties with District to investigate purchasing water.
3. Mail information to every affected customer explaining the importance of significant water use reductions.
4. Contact large non-District water users within service area requesting water use reductions.

In the event of a long-term supply shortage, the following actions will also be taken:

5. No application for new, additional, expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or water service facilities of any kind shall be approved except in the immediate interest of public

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### Water Supply Emergency Response Plan

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health, safety, and welfare. Time limits for approval of such applications are hereby suspended for such time as this water supply emergency response stage or a higher-numbered stage shall be in effect. Such a moratorium on service commitments and connections shall be implemented by Ordinance of the District. (A sample is attached as Appendix C)

Water Use Restrictions. Under threat of penalty for violation, the following water use restrictions shall apply to all persons:

1. Irrigation of landscaped areas shall be between the hours of 5:00 a.m. and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight and limited to the following schedule:
  - a) Sundays and Thursdays: Capitola, Rio Del Mar, and Seascap, south of Highway 1;
  - b) Saturdays and Wednesdays: Soquel and Aptos, inland of Highway 1;
  - c) Mondays and Fridays: La Selva Beach.
2. These schedules may be refined based on the nature of the emergency and area affected.
3. Irrigation shall be by means of hand-held hoses, hand-held buckets, soaker hoses, or drip irrigation only. The use of hose-end sprinklers or permanently installed automatic sprinkler systems are prohibited at all times.
4. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle not occurring on the premises of a commercial car wash and commercial service stations and not in the immediate interest of public health, safety, and welfare is prohibited. Such washing may be exempted from these regulations if the health, safety, and welfare of the public is contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables.
5. Use of water to fill, refill or add to any indoor or outdoor swimming pools, wading pools, hot tub or jacuzzi-type pools (public or private) is prohibited.
6. Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life or where such fountains or ponds are equipped with a re-circulation system.
7. Use of water for the irrigation of golf course greens, tees, and fairways is prohibited except on designated watering days between the hours 8:00 p.m. and 10:00 a.m. However, if the golf course utilizes a water source other than that provided by the Soquel Creek Water District, the facility shall not be subject to these regulations.
8. All restaurants are prohibited from serving water to patrons except upon request of the patron.
9. The following uses of water are defined as non-essential and are prohibited:
  - a) Wash down of sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
  - b) Use of water to wash down buildings or structures for purposes other than immediate fire protection;
  - c) Use of water for dust control;

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## Water Supply Emergency Response Plan

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- d) Flushing gutters or permitting water to run or accumulate in any gutter or street; and
- e) Failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s).

### **Stage 3 Response – Mandatory Conservation**

Goal: Achieve up to a 50 percent reduction in daily water demand.

Water Use Restrictions. All requirements of Stage 2 shall remain in effect during Stage 3 except:

- 1. Irrigation of landscaped areas is absolutely prohibited.
- 2. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is absolutely prohibited.
- 3. The watering of golf course tees is prohibited unless the golf course utilizes a water source other than that provided by the SqCWD.

### **Stage 4 Response – Water Allocation**

Goal: Achieve over a 50 percent reduction in daily water demand.

Water Use Restrictions. All requirements of Stage 2 and 3 shall remain in effect during Stage 4 except:

- 1. In the event that water shortage conditions threaten public health, safety, and welfare, the General Manager is hereby authorized to allocate water according to the following water allocation plan:

**Single-Family Residential Customers:** The allocation to residential water customers residing in a single-family dwelling over a two-month period (i.e., bi-monthly) shall be as follows:

Tier 1: 0-20 units bi-monthly per household (equivalent to 62 gallons per person per household per day).

Tier 2: Water usage above 20 units bi-monthly will be subject to fines to be determined by the General Manager at the time of the emergency.

“Household” means the residential premises served by the customer’s meter. “Persons per household” includes only those persons currently physically residing at the premises and expected to reside there for the entire billing period. It shall be assumed that a particular customer’s household is comprised of four (4) persons unless the customer notifies the Soquel Creek Water District of a greater number of persons per household on a form prescribed by the General Manager. Each additional person over four (4) persons per household will receive an allotment of five (5) units over a two-month period. In prescribing the method for claiming more than four (4) persons per household, the General Manager shall adopt methods to ensure the accuracy of the claim. Any person who knowingly, recklessly, or with

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## Water Supply Emergency Response Plan

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criminal negligence falsely reports the number of persons in a household shall be subject to a fine to be determined by the General Manager.

**Master-Metered Multi-Family Residential Customers:** The General Manager, or his/her designee, shall establish a bi-monthly water allocation for each Master-Metered Multi-Family Residential customer. The Master-Metered Multi-Family Residential customer allocation shall be determined based on number of units and historical average usage. The General Manager shall give his/her best effort to see that notice of each customer's allocation is mailed to such customer. If however, a customer does not receive such notice, it shall be the customer's responsibility to contact the District to determine the allocation. Upon request of the customer or at the initiative of the General Manager, the allocation may be reduced or increased, if (1) the designated period does not accurately reflect the customer's normal water usage, (2) other objective evidence demonstrates that the designated allocation is inaccurate under present conditions. A customer may appeal an allocation established hereunder to the District's Board of Directors.

**Commercial/Government Customers:** The General Manager, or his/her designee, shall establish a bi-monthly water allocation for each Commercial/Government customer. The Commercial/Government customer allocation shall be approximately 50 percent of the customer's usage to be determined based on historical average usage. The General Manager shall give his/her best effort to see that notice of each customer's allocation is mailed to such customer. If, however, a customer does not receive such notice, it shall be the customer's responsibility to contact the District to determine the allocation. Upon request of the customer or at the initiative of the General Manager, the allocation may be reduced or increased, if (1) the designated period does not accurately reflect the customer's normal water usage, (2) other objective evidence demonstrates that the designated allocation is inaccurate under present conditions. A customer may appeal an allocation established hereunder to the District's Board of Directors.

**Irrigation Meters:** The use of water through irrigation meters is prohibited.

### Section VIII: Groundwater Emergencies

The SqCWD shall employ the services of one or more qualified groundwater hydrologists to review groundwater-monitoring data and periodically report on aquifer conditions. Where it is demonstrated by a professional hydrologist that the groundwater basin is experiencing groundwater overdraft exceeding the sustainable yield and where such degradation threatens the public health, safety and welfare of the community, a groundwater emergency may be declared to prevent further depletion and degradation of groundwater resources.

- A. Declaration.** Prior to declaring a groundwater emergency, the SqCWD shall consult with neighboring water agencies, such as the Pajaro Valley Water Management

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## Water Supply Emergency Response Plan

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Agency, Central Water District, City of Santa Cruz, and the County of Santa Cruz to explore joint options and/or programs that could be undertaken or adopted to

possibly defray the need for such a declaration. If a cooperative effort cannot successfully address the concerns, then consideration will be given to declaring a groundwater emergency. Such an emergency shall be declared by resolution of the Board after a public hearing to consider all relevant information such as, but not limited to, the most current groundwater study and recommendations of other water purveyors with an interest in the basin and other governments having water, land-use or other relevant jurisdiction within the basin, and only after the following findings can be made:

1. The groundwater basin is experiencing overdraft conditions;
2. The addition of new wells or the expanded use of existing wells in order to meet supply needs will significantly increase the demand on the affected aquifer and thereby increase the overall overdraft; and
3. The continuation of the overdraft will result in further depletion and degradation of the water resource that can lead to, but is not limited to, impairment of the aquifer or allowing the ingress of poor quality or saline waters.

**B. Immediate Measures to Alleviate.** In areas where a groundwater emergency is declared, the Board of Directors shall take those actions identified in the Water Supply Emergency Response Stages (Section VII) of this Plan as deemed appropriate to achieve the level of reduced demand recommended by the professional hydrologist based on the extent and severity of the groundwater emergency. Prior to declaring a Stage 2 or greater response, a peer review panel of two or more qualified groundwater hydrologists shall be formed to review and confirm the findings and recommendations of the District's hydrologist. In addition to those actions identified in the Water Supply Emergency Response Stages, the District's Board of Directors shall also consider the following potential actions:

1. Request the County to place a moratorium on new wells within the overdrafted aquifer, and request other water purveyors pumping from the aquifer to place a moratorium on service commitments and connections similar to any imposed by the District;
2. Request all other water purveyors utilizing the affected aquifer for water supply to implement water conservation measures and use restrictions consistent with those actions taken by the District to the extent feasible;
3. Request the County to require meters and monitoring of all wells within the impacted area, and require water conservation measures and use restrictions by private well owners consistent with those actions taken by the District to the extent feasible;
4. Request the County to enact restrictions on agricultural water use within the affected area in accordance with its Groundwater Emergency policy;

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### Water Supply Emergency Response Plan

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5. Take such other actions as authorized and appropriate within the joint powers shared with Central Water District as established by AB 3030 (Water Code Section 10750 *et seq.*)

**C. Long-term Measures to Alleviate.** The Board shall initiate actions such as, but not limited to, joint power agreements with other agencies and development of supplemental supply projects, with the goal of finding permanent solutions to the groundwater problem.

**D. Duration.** A groundwater emergency and the measures enacted to alleviate the emergency shall remain in effect until rescinded as established in Subsection F of this Section.

**E. Annual Review.** The establishment of a groundwater emergency and all actions to alleviate the emergency shall be reviewed by the Board of Directors, and other governing boards who have implemented restrictions as the result of the emergency, within one year of the date of enactment of the measures at a public hearing to decide whether the declaration of emergency shall remain in effect.

**F. Rescinding.** A groundwater emergency shall be rescinded by resolution of the Board of Directors after a public hearing when one of the following findings are made:

1. Alternative water sources which compensate for the existing overdraft and supply the affected area are developed;
2. A groundwater management program is implemented which will allow for additional demand without contribution to groundwater overdraft as determined by the District's hydrologist and confirmed by a panel of two or more qualified groundwater hydrologists; or
3. The Board of Directors determines that new information is available which indicates that groundwater basin conditions are sufficiently improved and that the original findings of overdraft are no longer applicable after review by a panel of two or more qualified groundwater hydrologists.

#### **Section IX: Enforcement/Penalties**

No person shall knowingly or intentionally allow the use of water from the SqCWD for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this Plan, or in an amount in excess of that permitted by the water supply emergency response stage in effect at the time pursuant to action taken by General Manager, or his/her designee, in accordance with provisions of this Plan.

Any person, including a person classified as a water customer of the District, in apparent control of the property where a violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on the person's property shall constitute a

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## Water Supply Emergency Response Plan

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rebuttable presumption that the person in apparent control of the property committed the violation, but any such person shall have the right to show that he/she did not commit the violation. Parents shall be presumed to be responsible for violations of their minor children

and proof that a violation, committed by a child, occurred on property within the parents' control shall constitute a rebuttable presumption that the parent committed the violation, but any such parent may be excused if he/she proves that he/she had previously directed the child not to use the water as it was used in violation of this Plan and that the parent could not have reasonably known of the violation.

Any person, firm, partnership, association, corporation, or political entity within the Soquel Creek Water District who is in violation of the water prohibition provisions of the *Water Supply Emergency Response Plan Ordinance* may be subject to disconnection of water service. Prior to disconnection, a written notice shall be served upon the violator, which shall state the time, place, and general description of the violation. After two such notices, with a minimum of 24 hours between notices, of a continuation of a violation or additional violations, a third notice shall be issued stating the time, date, and place of a hearing, if requested by the alleged violator, and the date the water service will be disconnected. Upon issuance of the third notice or violation, the service shall be subject to a re-establishment of service charge, to be determined by the District's General Manager, regardless of whether water service is in fact physically terminated.

### **Section X: Variances**

The General Manager, or his/her designee, may, in writing, grant temporary variance until ratified by the Board for existing water uses otherwise prohibited under this Plan if it is determined that failure to grant such variance would cause an emergency condition adversely affecting the health, sanitation, or fire protection for the public or the person requesting such variance and if one or more of the following conditions are met:

- (a) Compliance with this Plan cannot be technically accomplished during the duration of the water supply shortage or other condition for which the Plan is in effect.
- (b) Alternative methods can be implemented which will achieve the same level of reduction in water use.

Persons requesting an exemption from the provisions of the *Water Supply Emergency Response Plan Ordinance* shall file a petition for variance with the District within five business days after the Plan or a particular emergency response stage has been invoked. All petitions for variances shall be reviewed by the General Manager, or his/her designee, and shall include the following:

- (a) Name and address of the petitioner(s).
- (b) Purpose of water use.
- (c) Specific provision(s) of the Plan from which the petitioner is requesting relief.

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### Water Supply Emergency Response Plan

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- (d) Detailed statement as to how the specific provision of the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this Ordinance.
- (e) Description of the relief requested.
- (f) Period of time for which the variance is sought.
- (g) Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this Plan and the compliance date.
- (h) Other pertinent information.

Variations granted by the District shall be subject to the following conditions, unless waived or modified by the General Manager or his/her designee:

- (a) Variations granted shall include a timetable for compliance.
- (b) Variations granted shall expire when the Plan is no longer in effect, unless the petitioner has failed to meet specified requirements.

No variance shall be retroactive or otherwise justify any violation of this Plan occurring prior to the issuance of the variance.

# CHAPTER 3

## Water Supply Emergency Response Plan

### Law

10632. The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

10632 (g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier and proposed measures to overcome those [revenue and expenditure] impacts, such as the development of reserves and rate adjustments.

10632 (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

### Revenue and Expenditure Impacts

The analysis reveals that SqCWD has sufficient funds in the Capital Improvement Fund and OCR Fund to mitigate the monetary shortfall for Stages 1 through 3. Table 21 is an analysis of the financial impacts due to various Stages (1 – 4) of water shortages. The various water sales reductions associated with the four stages are: Stage 1 - 15%, Stage 2 - 25%, Stage 3 - 35%, and Stage 4 - 50%.

To mitigate the financial impacts of a water shortage, the SqCWD would reduce projects from its Capital Improvement Fund and, if needed, use money from the Operating Contingency Reserve (OCR) Fund. This process is used to stabilize rates during periods of reduced water sales due to a catastrophic interruption of water supply. The analysis reveals that SqCWD has sufficient funds in the Capital Improvement Fund and OCR Fund to mitigate the monetary shortfall for Stages 1 through 3. SqCWD may consider raising rates if it appears that a Stage 3 or 4 shortage may be of significant duration.

<b>Table 21 – Financial Impacts of Water Shortages</b>					
	Normal Yr.	Stage 1	Stage 2	Stage 3	Stage 4
DESCRIPTION	2005-06	15%	25%	35%	50%
<b>REVENUES</b>					
<i>Water Sales</i>	\$6,051,400	\$5,143,690	\$4,538,550	\$3,933,410	\$3,025,700 (a)
Service Charges	2,161,600	2,161,600	2,161,600	2,161,600	2,161,600
<b>Storage &amp; Transmission</b>	135,000	135,000	0	0	0
Other Operating	5,000	5,000	5,000	5,000	5,000
<b>Installation Fees</b>	85,000	85,000	0	0	0
Interest Income	52,000	52,000	52,000	52,000	52,000
Other Non Operating	24,400	24,400	24,400	24,400	24,400
<b>TOTAL REVENUES</b>	\$8,514,400	\$7,606,690	\$7,001,550	\$6,396,410	\$5,488,700

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## Water Supply Emergency Response Plan

**Table 21 – Financial Impacts of Water Shortages - continued**

	Normal Yr.	Stage 1	Stage 2	Stage 3	Stage 4
<b>EXPENDITURES</b>					
Personnel service (wages)	\$2,302,100	\$2,302,100	\$2,302,100	\$2,302,100	\$2,302,100
Personnel expense (benefits)	1,086,200	1,086,200	1,086,200	1,086,200	1,086,200
Non Operating Expense (debt service)	964,215	964,215	964,215	964,215	964,215
<i>Power</i>	<i>590,000</i>	<i>501,500</i>	<i>442,500</i>	<i>383,500</i>	<i>295,000 (a)</i>
Services	418,700	418,700	418,700	418,700	418,700
Supplies	242,500	242,500	242,500	242,500	242,500
Community Info & Conservation	223,200	223,200	223,200	223,200	223,200
Insurance	190,800	190,800	190,800	190,800	190,800
Network Systems Administrator	104,000	104,000	104,000	104,000	104,000
Outside Services (Misc. & Engineering)	98,500	98,500	98,500	98,500	98,500
Water Treatment (labs)	80,000	80,000	80,000	80,000	80,000
Litigation	50,000	50,000	50,000	50,000	50,000
<i>Hypochlorite</i>	<i>47,000</i>	<i>39,950</i>	<i>35,250</i>	<i>30,550</i>	<i>23,500 (a)</i>
Paving/Backfill	38,300	38,300	38,300	38,300	38,300
Gasoline	36,000	36,000	36,000	36,000	36,000
Postage	27,000	27,000	27,000	27,000	27,000
Fleet Maintenance	24,400	24,400	24,400	24,400	24,400
Property taxes/sewer assessment	19,200	19,200	19,200	19,200	19,200
Annual audit	15,600	15,600	15,600	15,600	15,600
Uncollectible accounts	12,500	12,500	12,500	12,500	12,500
Bills/Envelopes	11,200	11,200	11,200	11,200	11,200
<b>TOTAL EXPENDITURES</b>	\$6,581,415	\$6,485,865	\$6,422,165	\$6,358,465	\$6,262,915
<b>REVENUES &gt; EXPENDITURES</b>	\$1,932,985	\$1,120,825	\$ 359,385	\$ (182,055)	\$ (994,215)
<b>LESS: CAPITAL IMPROVEMENTS (b)</b>	\$1,932,985	\$1,120,825	\$ 359,385	–	–
<b>RESERVE (c)</b>	\$ 490,000	\$490,000	\$ 490,000	\$ 307,945	\$ (686,270)

(a) Amount reduced by the percentage indicated in each Stage level.

(b) Capital Improvement Projects reduced to maintain \$490,000 Reserve level.

(c) Reserve reduced to fund deficit.

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### Water Supply Emergency Response Plan

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#### **Mechanism to Determine Reductions in Water Use**

**Normal monitoring procedure:** In normal water supply conditions, production figures are recorded daily. Totals are reported weekly and monthly to the Operations and Maintenance Manager.

**Stages 1 – 4 Water Shortages:** During a shortage, daily production figures are reported to the Operations and Maintenance Manager. The Operations and Maintenance Manager compares the weekly production to the target weekly production to verify that the reduction is being met. Weekly reports are forwarded to the General Manager and the Water Shortage Response Team. Monthly reports are given to the SqCWD's Board of Directors. If reduction goals are not met, the General Manager will notify the SqCWD's Board so that corrective action can be taken.

# CHAPTER 4

## Water Demand Management Measures

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### Law

10631 (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

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

### Water Demand Management Measures (DMMs)

The SqCWD is committed to an effective conservation program. This Section discusses water conservation demand management measures (DMMs).

In 1997, a water conservation program analysis was developed as part of the SqCWD's long-term supply planning and Integrated Resource Plan (IRP). The methodology used to determine the most beneficial Demand Management actions for the SqCWD is documented in the Draft IRP and supporting Montgomery Watson technical document. In summary, the California Urban Water Conservation Council's 16 Best Management Practices (BMPs) for urban water conservation were used as the primary basis for consideration of conservation measures to be implemented by the SqCWD. Each identified conservation measure was initially screened for technical feasibility, environmental impacts, implementation difficulty and customer acceptance. Cost/benefit was considered as a factor in developing the final list of recommended measures. Since the 1997 IRP, similar procedures have been used to evaluate and incorporate newly identified conservation measures that are described at the end of this section.

Table 7 indicates the projected conservation savings from the programs described below. In summary, the projected water savings range from 300 acre-feet/year (6% of demand) in 2005 to 910 acre-feet/year (16%) in 2030. The current annual cost for the conservation program is approximately \$230,000, not including 2.5 full-time employees' associated wages and benefits. The costs also do not include the current irrigation controller program, developer fees associated with the Water Demand Offset (WDO) program, or time other SqCWD staff members contribute to the conservation efforts.

#### A. DMM 1 – Residential Water Survey Program

**Status:** Ongoing

**Implementation Description:** In 2003, the SqCWD started to offer indoor and outdoor water surveys to existing single-family and multi-family residential customers with a history of high water use. Surveys initially targeted the top 20 percent of water users to ensure significant water savings, but all customers are currently targeted. The surveys

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### Water Demand Management Measures

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focus on indoor and outdoor water use, identifying water waste, offering information to improve water use efficiency, and offer the customer a customized lawn irrigation schedule. As part of the indoor survey, Staff installs cost-effective conservation devices such as low-flow showerheads and faucet aerators. Each single-family survey takes approximately one hour; multi-family surveys take longer, depending on the building size and the complexity of the irrigation system.

The SqCWD evaluated water bills to identify the top 20 percent of water users in single-family and multi-family classes on an annual average gallons per dwelling unit per day basis. The SqCWD mailed these customers a letter offering a free water survey, and scheduled a survey for all those who responded. Some telephone follow-up was performed for customers who did not respond to the letter offer. Currently and planned for the next five years, some of the main methods to obtain signups for the survey program include outreach via newspapers, District newsletters and public events.

Another method that is used to obtain customers for surveys is via the SqCWD Water Demand Offset Program (WDO) – described at the end of this Chapter under “Additional Conservation Measures.” When customers request a free toilet from the WDO program, a survey also is conducted.

The multi-family survey program targets building owners and management companies. The programs are marketed through direct contact with management companies or landlords and direct mail for the smaller building owners. Presentation to Home Owners Associations (HOA) also has been another effective means of outreach.

Institutional, governmental, and commercial customers also are offered the water use surveys. Please see DMM 9 for further description.

SqCWD staff performs the surveys year round. Before the survey, staff distributes materials that explain the survey to participants. Additionally, the SqCWD requests customers to accompany staff during the site visit.

Specific activities for each indoor survey include:

- Locate meter and teach customers how to read it;
- Check for faucet and toilet leaks and recommend repair;
- Adjust toilet tank float arms, as necessary, to eliminate any waste overflow;
- Install faucet aerators and low-flow showerheads in bathrooms; and
- Identify opportunities to replace toilets, clothes washing machines, etc., with water conserving models.

The outdoor survey consists of the following:

- Providing basic literature and guidance about irrigation and landscaping (e.g., mulching; water efficient plant material; soil, water, and plant relationships);
- Recommending adjustments to the irrigation system to correct identified leaks, over

## CHAPTER 4

### Water Demand Management Measures

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- spray, and runoff;
- Collecting information about grass type, soil type and precipitation rate of existing irrigation system, and develop a customized irrigation schedule in minutes of watering time per week for spring, summer, and fall;
- Collecting information about landscaping to assist with the design of other landscape conservation programs;
- Advising customers about the benefit of low-water-use landscaping; and
- Providing irrigation schedules and controller adjustments.

The auditors generally describe the survey findings and recommendations to the customer orally and in a written report. They provide the customer water-conservation tips and information on other conservation programs offered by the SqCWD. The SqCWD plans to offer follow-up surveys every five years to ensure continued savings. The survey, water conservation literature, low-flow showerheads, aerators, hose nozzles, hose timers, and watering schedules are provided at no charge to the customer. These incentives are advertised in the program literature used to publicize the program.

**Implementation Schedule:** Table 22 shows the estimated implementation schedule for conservation savings from the water use survey program.

**Methods To Evaluate Effectiveness:** For each dwelling unit, the surveyor completes a customer data form (including number of people per household, number of bathrooms, age of appliances, and lot and landscaped area square footage). The data are entered into a database for easy tracking. The data are used periodically to analyze the customer's water use, and to refine the program.

**Conservation Savings:** SqCWD's plan is to achieve at least 8.7 acre-feet/year water savings from this program. As shown in Table 22, the District on average has historically exceeded its goal.

The savings per survey is estimated to be 25 gallons per day. Studies (i.e., North Marin Water District, Contra Costa Water District, etc.) have shown that 25 gallons per day per survey are realistic water savings from a residential survey program. These water savings are assumed to be permanent if follow-up surveys are conducted at least every five years.

The breakdown of water savings according to the California Urban Water Conservation Council (CUWCC) is:

- Retrofit of homes built before 1980 saves approximately 9.6 gallons per capita per day (presumes a low-flow showerhead installation and leak repair). Retrofit of homes built after December 1980 saves about 3.4 gallons per capita per day.
- The outdoor water survey will save an average of 5 to 10 percent of exterior water use for surveyed homes.
- Water savings from retrofitting 1.6 gallon-per-flush toilets are provided for in the toilet

# CHAPTER 4

## Water Demand Management Measures

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replacement program.

The implementation effects (i.e. demand hardening) of the water savings from DMM 1 are expected to be moderate regarding the ability to further reduce consumption during a water shortage emergency.

Table 22 – DMM 1 Implementation Schedule and Water Savings				
Year	Surveys completed Single Family <sup>1</sup>	Surveys completed Multi- Family <sup>2</sup>	Annual Water Savings (acre-feet/year)	Cumulative Water Savings (acre-feet/year)
2003	232	57	11.3	11.3
2004	490	60	18.8	30.1
2005 (projected)	320	80	15.7	45.8
2006	250e	20e	8.7	54.5
2007	250e	20e	8.7	63.2
2008	250e	20e	8.7	71.9
2009	250e	20e	8.7	80.6
2010	250e	20e	8.7	89.3
e = estimated				

Assumes each survey saves 25 gallons per day, 365 days per year.

(1) 20 percent of 12,500 single-family connections (10 years) = 250

(2) 20 percent of 600 multi-family connections = 12 (Note: estimates each multi-family connection/survey serves three residences.)

**Budget:** The 2005 annual budget and estimated expenditures are \$25,000 per year, which includes staff, brochures, and purchase of showerheads, aerators, dye tablets, and other miscellaneous items. Previous and future budgets for this program are estimated to be about the same.

### B. DMM 2 – Residential Plumbing Retrofit

**Status:** Ongoing

**Implementation Description:** Since 1998, the SqCWD has distributed showerheads, faucet aerators, low-flow hose nozzles, and toilet tank leak detection tablets to customers in its service area. These devices are currently distributed at the headquarters office, at community events, by the customer service field crew, and by water use surveyors. In addition, the SqCWD tracks high water use and mails out leak detection tablets to customers whose water use has increased dramatically during a billing cycle. The mailer includes information on how to conduct a toilet leak test and the sources of a toilet tank leak. Enforceable ordinances also exist in the SqCWD service area that require the retrofit of high-flow toilets/urinals and showerheads with low-flow fixtures upon sale of the property. The two local jurisdictions and codes are:

- City of Capitola Municipal Code 13.01, and
- Santa Cruz County Code Chapter 7.69.

The compliance with these codes in the SqCWD area is monitored with a software system that tracks sales and compares them with submittal of retrofitted compliance forms.

# CHAPTER 4

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**Implementation Schedule:** The SqCWD has and plans to continue to implement this DMM as shown in Table 23. The number of devices shown in Table 23 includes those provided as part of DMM 1. The retrofit upon resale ordinances cited above will increase the rate at which this DMM is implemented. An estimated 575 houses sell each year in the SqCWD service area and a large portion of those are retrofitted at the time of sale.

Table 23 – DMM 2 Implementation Schedule						
Year	Showerheads		Aerators		Leak Detection Tablets	
	Single Family	Multi-Family	Single Family	Multi-Family	Single Family	Multi-Family
2003	230e	150e	460e	300e	500	200
2004	490e	180e	980e	460e	1,200	500
2005	320e	240e	640e	480e	1,200	500
2006	250e	60e	500e	120e	1,200	500
2007	250e	60e	500e	120e	1,200	500
2008	250e	60e	500e	120e	1,200	500
2009	250e	60e	500e	120e	1,200	500
2010	250e	60e	500e	120e	1,200	500

e = estimated conservatively based on approximately one showerhead and two aerators per survey.

**Methods To Evaluate Effectiveness:** See DMM 1

**Conservation Savings:** The yearly water savings from implementation of DMM 2 in year 2005, exclusive of DMM 1, are not estimated. However the breakdown of water savings can be estimated using the following information:

- Retrofit of service area homes built before 1980 saves approximately 9.6 gallons per capita per day (gpcd) (presumes a low-flow showerhead installation and leak repair).
- Retrofit of homes built after December 1980 saves about 3.4 gpcd.
- Low-flow showerhead – retrofit in pre-1980 construction saves approximately 7 gpcd; post 1980 construction saves 2.9 gpcd.

The implementation effects (i.e. demand hardening) of the water savings from DMM 2 are expected to be low to moderate regarding the ability to further reduce consumption.

**Budget:** The SqCWD budgets about \$3,000 a year to purchase conservation devices to distribute to customers in its service area that are not distributed as part of DMM 1.

### C. DMM 3 – System Water Audits, Leak Detection, and Repair

**Status:** Ongoing

**Implementation Description:** The SqCWD maintains data on detected leaks within the distribution system. The SqCWD’s field crew routinely repairs leaking water mains. A map is maintained showing all leaks in the system. Areas prone to leaking are given high

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priority for main replacement. A leak detection survey was last conducted approximately 13 years ago. Another survey is not scheduled for the near future, unless the unaccounted for water losses rise above 7.5 percent.

**Implementation Schedule:** The SqCWD has permanently incorporated this DMM into its operations and maintenance procedures. Since 1969, 136 miles of water mains have been replaced. Approximately 7.5 miles of mains were replaced from 2000 to 2005. This is an ongoing program.

**Methods to Evaluate Effectiveness:** The accounting staff annually review the data records to confirm that the unaccounted for water losses stay under 7.5 percent.

**Conservation Savings:** The SqCWD does not quantify conservation savings for this measure. The water savings from this DMM does not negatively impact SqCWD's ability to further reduce demand.

**Budget:** The SqCWD appropriates funds each year to replace deteriorated mains.

#### D. DMM 4 – Metering with Commodity Rates

**Status:** Ongoing

**Description:** The SqCWD requires meters on all services and has since the District was formed. In 2003, the SqCWD adopted a policy requiring separate meters for each unit on a parcel in multi-family housing. All customers are billed based on the quantity of water used.

This is an effective conservation measure that directly associates cost with the amount of water used. It also provides the means for the SqCWD to identify and monitor high use customers. The SqCWD's computer system registers increases in individual service consumption. The computer system will generate a written notice to the customer alerting them to check for leaks if there is a substantial or notable increase in consumption; if there is an extreme increase, a service representative is dispatched to make personal contact with the customer and investigate.

To help ensure that the water is metered correctly, SqCWD has an aggressive meter replacement program. Small meters (1 inch or less) are replaced at 15-year intervals. Large meters (1.5 inch and greater) are changed or tested at 3 to 4 year intervals.

**Implementation Schedule:** The SqCWD will continue to install and read meters on all new services, and will continue to conduct its meter calibration and replacement program.

**Methods To Evaluate Effectiveness:** As the result of an aggressive replacement program, meters within the SqCWD are all now less than fifteen years old, the manufacturer's warranty period. This effort improves the SqCWD's confidence in the

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reliability and accuracy of its meters. The SqCWD also has a meter-testing program for large capacity meters.

**Conservation Savings:** Studies have shown that metered accounts average a 20% reduction in demand compared to non-metered accounts. Also, as meters get older, they tend to measure less water than is actually being transmitted. The conservation savings associated with this DMM is believed to have a minimal impact to further reduce demand.

**Budget:** New meter installation costs are part of service connection fees. Approximately \$80,000 is budgeted annually for the meter replacement program.

### E. DMM 5 – Large Landscape Conservation Programs

**Status:** Ongoing

**Implementation Description:** This measure is designed to improve irrigation efficiency and reduce peak demand. SqCWD has approximately 180 dedicated irrigation meter accounts, some of which are greater than 3 acres. All irrigators of landscapes larger than three acres are candidates for this measure. (Note – sites less than 3 acres also are considered.) The SqCWD offers this service to green belts, common areas, multifamily housing landscapes, schools, business parks, cemeteries, parks, golf courses and publicly owned landscapes on or adjacent to roadways. Participants:

- Learn the targeted site's current irrigation efficiency and water budget;
- Are advised of available low-cost hardware improvements;
- Receive baseline irrigation schedules;
- Receive instructions about how to modify the schedules according to weather changes;
- Receive weather-based irrigation controllers; and
- Receive water savings information.

Modeled after the successful program implemented by North Marin Water District (NMWD) and NEOS Corporation in 1989, this program has trained irrigation technicians (currently one SqCWD employee is trained to implement this DMM) to provide a system maintenance check-up; a baseline irrigation schedule; periodic performance feedback; and follow-up field visits (at least every five years) at no cost to the customer.

Follow up surveys will be provided every five years. Site landscape managers will be responsible for implementing survey findings.

**Implementation Schedule:** Implementation of this measure began in 2003 with the creation of a new position (Water Conservation Specialist) and is ongoing. Participants are first screened to determine their savings potential under this service. The screening involves estimating the current overall irrigation efficiency and ensuring the existing system is neither too poorly designed or in too poor a condition to benefit from the survey.

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The participants then receive a survey according to their needs, addressing the lowest efficiencies first, and according to the program budget.

The screening correlates billed water use with irrigated area and local evapotranspiration (ET) data. The owners of sites that appear to have water savings potential are offered a survey by mail and telephone. SqCWD staff perform an initial site survey to evaluate each irrigation system's design, operating condition, and current overall efficiency. Sites are examined to identify low-cost improvements such as aligning sprinkler heads, replacing broken heads, or trimming grass that disrupts spray patterns.

After customer improvements are made, SqCWD staff proceeds with a detailed irrigation audit to determine precipitation rate, distribution uniformity, grass type, root depth, and soil type. Surveys are conducted according to methods described in the Landscape Water Management Handbook prepared for the California Department of Water Resources. Acquired data are used to develop a base irrigation schedule showing weekly watering times for every month. The schedule is provided in a brief written report to the site manager for implementation. Follow-up checking is done to assess implementation and satisfaction, and to adjust schedules as needed. A five-year duration is expected for this measure's water savings; thus, a follow-up survey will be conducted every five years.

**Methods To Evaluate Effectiveness:** SqCWD documents the number of site reviews. Staff also conducts follow-up visits and reviews pre- and post-survey water consumption data to determine effectiveness and water savings.

**Conservation Savings:** Based on an independent analysis of the NMWD audits, water savings for audited sites was 14 percent. SqCWD evaluations have shown approximately 20 percent savings of the landscape water.

**Budget:** SqCWD has budgeted \$8,500 for large irrigation incentives, and Staff time is estimated to equal about \$10,000 for the fiscal year 2004/05. This budget is projected to remain approximately the same or increase during the next five years.

#### **F. DMM 6 – High-Efficiency Clothes Washing Machine Rebate Program**

**Status:** Ongoing

**Implementation Description:** Clothes washing machines have become the single largest user of water in homes today, accounting for as much as 22 percent of the total water used inside the home. Recognizing this, in July 1999, the SqCWD began offering a \$100 credit to residential and commercial customers in the SqCWD's service area who purchase and install high-efficiency rated washing machines. The program works as follows:

- After purchasing a SqCWD approved high-efficiency washing machine, the customer returns the SqCWD application with original dated sales receipt.
- After SqCWD approval, the rebate appears as a credit on the customer's water bill.

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The program guidelines are:

- Rebates are given on qualified single-load, high-efficiency washing machines purchased and installed after May 1, 1999. The SqCWD uses the EPA Energy Star list of approved machines.
- The program is open to SqCWD residential homeowners and commercial customers.
- Washing machines must be new and must meet the Consortium for Energy Efficiency specifications for resource efficiency.
- Washing machines must be installed in the SqCWD service area.
- Rebates will be credited to the account of the SqCWD customer of record only. Customer's account must be in good standing to receive a rebate.
- An original, dated sales receipt must be provided.
- An on-site inspection may be required prior to receiving the credit.

Note that for Commercial, Industrial, and Institutional (CII) customers, the rebate is currently \$300 per clothes washer, of which Pacific Gas and Electric (PGE) funds \$100 and SqCWD funds \$200. The CII rebate is administered via the "Lightwash" program. Customers must select clothes washers from an approved list and refunds are distributed via the LightWash program. The PGE funding for LightWash program will end December 31, 2005. Thus, the commercial washer rebate will decrease to \$200 after 2005.

**Implementation Schedule:** As shown in Table 24, the SqCWD anticipates continuing to implement this DMM at the current annual target rate of 350 rebates for at least the next five years.

<b>Table 24 – High-Efficiency Clothes Washer Credit Program</b>	
Year	# of High-Efficiency Washer Retrofits
1999	118
2000	246
2001	245
2002	225
2003	266
2004	333
2005 (projected)	350 (335 for residential, 15 for CII)
2006e	350 (335 for residential, 15 for CII)
2007e	350 (335 for residential, 15 for CII)
2008e	350 (335 for residential, 15 for CII)
2009e	350 (335 for residential, 15 for CII)
2010e	350 (335 for residential, 15 for CII)
e = estimated	

**Methods to Evaluate Effectiveness:** SqCWD periodically reviews customer water use, comparing current water use per capita with historic data. The number of rebates multiplied by the average water savings from high efficiency clothes washers also provides an approximate SqCWD-wide water savings from this method.

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**Conservation Savings:** Estimated to result in a seven percent (or 5,100 gallons per rebate) annual reduction in demand of total water used inside a home. CII water savings vary depending on the type of entity, but the California Energy Commission estimates 21,000 gallons per year saved per each CII rebate. The conservation savings associated with this DMM are believed to have a moderate effect on the ability to further reduce demand.

**Budget:** The fiscal year 2004/05 budget for this program was \$32,000. However, the 2004/05 budget amount was exceeded by about \$12,000. The 2005/06 budget was increased by \$13,000 to \$45,000. Future budgets are expected to remain at \$45,000 until rebates appear to decrease. The budgeted amount does not include Staff time, which is estimated to be 2 hours per week.

### G. DMM 7 – Public Information

**Status:** Ongoing

**Implementation Description:** The SqCWD promotes wise water use. A study of the SqCWD's customer communication needs by the Argent Group completed in 1991 recommended that the SqCWD focus efforts on heightening community awareness of groundwater management and water quality issues. A SqCWD customer newsletter was developed to provide information on major projects, water quality concerns, conservation activities, and other SqCWD issues. In 2004, SqCWD conducted another statistically valid customer survey to identify areas on which to focus outreach and education.

In 1998, the SqCWD hired a full-time communications and conservation coordinator to expand the SqCWD's public outreach and conservation programs. Public information is still a significant component of the SqCWD conservation program and is expected to continue through at least 2010. SqCWD is currently interviewing outreach/communication firms to focus and enhance the public information program and tentatively plans to hire a firm in 2006.

Public outreach programs include:

- A bi-monthly newsletter (*What's on Tap*), mailed with customer bills and distributed to multi-family residences, keeps SqCWD customers informed of current SqCWD activities including water supply, conservation, and incentive programs.
- SqCWD water bills were redesigned in 1998 to show gallons used per day for the last billing period compared to the same period the previous year. The message section of the bill is periodically modified. In 2005, the message was modified showing the customer's usage related to the SqCWD service-area wide average.
- In July 1999, the SqCWD established a World Wide Web Home Page at [www.soquelcreekwater.org](http://www.soquelcreekwater.org). Customers can obtain information on the SqCWD, conservation, download applications for rebate programs, read past issues of the SqCWD customer newsletter, and link to other sites pertaining to conserving water.
- The SqCWD offers free low-flow showerheads, faucet aerators, hose nozzles, shower timers, leak detection tablets, and water saving kits to all customers in the SqCWD.

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- Bill Inserts: Occasionally “coupon” type inserts are incorporated into the bills to promote a conservation item.
- The SqCWD is a member of a 10-agency countywide water conservation committee, which coordinates a countywide communication program with the public and the media about water conservation and other resource issues.
- The SqCWD participates in a number of community events including the Cabrillo and Aptos Farmers’ Markets, the Aptos and Capitola Chamber of Commerce Business Showcase, and the Aptos/La Selva Fire District’s Open House where conservation information and low-flow devices are distributed.
- Waterwise Garden Mini Grant Program: Funds innovative projects designed to encourage public acceptance, desire for, and use of water-wise landscapes. This grant is available to schools, nonprofit organizations, and public agencies. Grants are awarded from \$250 to \$2,000 per grant.
- Presentations: Several times a year, SqCWD representatives present at different venues (HOAs, real estate groups, service groups, advocacy groups, etc.) regarding conservation and water supply planning.
- Video and Book Resource Lending Library: A small, yet valuable, collection of books, videos and CD Roms are available for loan from the SqCWD.
- Demonstration Garden and Educational Workshops: In 2005, SqCWD conducted two workshops to provide information and hands-on experience installing a demonstration garden that includes synthetic turf and water-wise plants. Additional workshops are planned to expand the garden and further educate the public about low-water landscape alternatives.
- Advertising: SqCWD runs at least one conservation ad per month in the local newspapers and once per year teams with other agencies to promote conservation through radio and television media.
- Educational Brochures: The SqCWD provides an assortment of conservation brochures to customers free-of-charge.
- Press Releases/Articles: SqCWD has been and anticipates continuing to be successful at having several press releases and conservation articles published annually in local newspapers and supplements.
- Public Television Program: In 2005, SqCWD, along with three other local water agencies, participated in the production of a segment for the local public television network concerning local water issues and conservation. The show was broadcast over a two-month period.

**Implementation Schedule:** The SqCWD will continue to provide outreach and public information through the methods described, although some programs may be modified or removed and others added.

**Methods to Evaluate Effectiveness:** The SqCWD will periodically conduct customer surveys and compare findings to past results.

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**Conservation Savings:** The SqCWD has no method to quantify the savings of this DMM but believes that this program is in the public's interest. The water savings from this DMM is not believed to negatively impact SqCWD's ability to further reduce demand.

**Budget:** Proposed annual budget including staff salary is approximately \$180,000.

### H. DMM 8 – School Education

**Status:** Ongoing

**Implementation Description:** The SqCWD had a water-wise school education program from 1980 to 1992. In 2000, the SqCWD re-established and expanded its school education program. Currently, the following programs and services are offered:

- **Incredible Water Journey:** This is a joint science and art educational program. Art is used as a vehicle to promote understanding of water conservation. Over six classes of 4<sup>th</sup> and 5<sup>th</sup>-grade students (totaling 60, 1-hour sessions) are taught each year.
- **WET Curriculum Workshops/Groundwater Curriculum Workshops:** California Project WET (Water Education for Teachers) is a Water Education Foundation program. Project WET promotes awareness and stewardship of water resources through the development and dissemination of classroom-ready teaching aids and the establishment of state and internationally sponsored Project WET Programs. The District currently conducts one to two Project WET training sessions annually.
- **Local Water Resources Activity Book:** The SqCWD is the lead agency in developing a bilingual local water resource conservation guide tailored to 5<sup>th</sup> and 6<sup>th</sup> grade students for Santa Cruz County Schools.
- **Education Program Brochures:** Funds the design and printing of the District's Education Program brochures.
- **Field Trip Supplies:** Funds supply purchases for interactive field trips to District facilities and local water resources and class presentations.
- **School Poster Contest:** In recognition of May as Water Awareness Month, the District holds an annual "How I Conserve Water" poster contest for 4<sup>th</sup> and 5<sup>th</sup> grade students. Participants are asked to create a colorful drawing and slogan that tells people why water is so important and how they can conserve it.
- **Santa Cruz County Fair ("World of Water"):** For the past four years, SqCWD has participated in "Water Awareness Day" at the Santa Cruz County Fair, a program the District established that now includes participation by nine water and resource management agencies that provides games and entertainment to teach children about water.
- **Water Conservation Education Assemblies:** In 2004/05 and 2005/06, SqCWD has allocated funding for a local musical theater performance about water to be performed in nine schools for 3<sup>rd</sup> – 5<sup>th</sup> grades. The SqCWD may continue this community educational service in the future, depending on the availability and quality of various types of performing artists.

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- **Water-Wise Class Retrofit Program:** For the past two years, SqCWD has funded a program to bring the water-wise Resource Action Program retrofit kits to one 6<sup>th</sup> grade class per year.

**Implementation Schedule:** The SqCWD will continue to implement this DMM at the levels described, except as noted.

**Methods to Evaluate Effectiveness:** The SqCWD will continue to survey the institutions and educators on the number of programs, materials and attendance at water conservation activities.

**Conservation Savings:** The SqCWD has no method to quantify the savings of this DMM but believes that this program is in the public's interest. The water savings from this DMM is not believed to negatively impact SqCWD's ability to further reduce demand.

**Budget:** The SqCWD's education budget, including Staff time, is about \$40,000 annually.

### I. DMM 9 – Commercial, Industrial, and Institutional Water Conservation

**Status:** Ongoing

**Implementation Description:** The commercial, industrial and institutional (CII) sector has been targeted since late 2003. The top 20 percent of water users were either sent letters or contacted by telephone and offered a free interior and/or exterior survey and incentives sufficient to achieve customer implementation of survey findings. This service has been expanded to not just the top 20 percent, but to all CII customers. Site-specific surveys are an efficient way to lower water use in this category. CII customers usually use more water per account than any other customer categories. This survey will be repeated every five years to maintain or improve the conservation level.

The SqCWD also partners with the County of Santa Cruz's Green Business Program to provide "one-stop shopping" and added value. In 2004, SqCWD partnered with a local nonprofit to provide pre-rinse spray nozzles to over 95 percent of the restaurants in the SqCWD service area.

**Interior Survey:** SqCWD staff conducts an on-site interior inspection and produces a customized report that describes fixture inspections, leak tests, retrofit possibilities, cooling tower operation and improvements, process water improvements, and recycling opportunities for each site.

**Exterior Survey:** A key goal of this survey is to establish correct watering rates. A water survey using techniques similar to those used in the Large Landscape Water Survey program is performed at each site. The surveyor explains the schedule to the facility manager or professional landscape maintenance company's representative. In addition, the facility manager will be provided information about new irrigation

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technology and low-water-use landscaping for use in possible retrofitting. A repeat survey will be offered after five-years.

**Implementation Schedule:** Since 2003, the SqCWD has and will continue to recompile the list of CII customers who have indoor water use in the top 20 percent of all accounts at least every five years. The targeted CII customers have been contacted (via letters, email or telephone) and offered free surveys and conservation incentives.

**Conservation Savings:** For commercial conservation, a 12 percent indoor water savings is assumed for the audited sites based on estimates used with the California BMPs. A 20-year lifetime is also assumed, since it represents the average lifetime of the equipment used. Site-specific conservation savings resulting from this DMM are to be evaluated by 2007. The conservation savings from this DMM are believed to have a minor impact on SqCWD's ability to further reduce demand.

**Methods to Evaluate Effectiveness:** The SqCWD will use CII feedback information and review use data to determine effectiveness and water savings. CII customers whose water use increases over time will trigger revisits.

**Budget:** Approximately \$10,000 per year.

#### **J. DMM 10 – Wholesale Agency Programs**

**Implementation Description:** The SqCWD is a retail water supplier exclusively.

**Implementation Schedule:** Not Applicable

**Methods to Evaluate Effectiveness:** Not Applicable

**Conservation Savings:** Not Applicable

**Budget:** Not Applicable

#### **K. DMM 11 – Conservation Pricing**

**Implementation Description:** Since 1999, the SqCWD has had a conservation-based tiered rate structure for residential customers on a five-eighths inch meter (approximately 90 percent of the SqCWD's residential customer base). Effective January 2005, the conservation tier for 5/8-inch meters was lowered from 50 units to 35 units for a two-month billing period. A unit is 100 cubic feet or 748 gallons. Currently, for residential 5/8-inch meters, the rate for 35 units or below is \$2.56 per unit and for over 35 units the cost is \$4.76 per unit.

In January 2005, a conservation-based tiered rate structure also was instituted for residential 3/4-inch and 1-inch meters. Water usage over 57 units during each two-month billing period costs \$4.76 per unit. The rate for 57 units or below is \$2.56 per unit.

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The conservation-based tiered rate structure provides an incentive for high-use customers to evaluate their usage and determine whether there are opportunities to save. In addition, separate meters are required on fire sprinkler systems, with associated monthly service charges. Due to the varied uses, no tiered rate applies to the commercial, industrial, and institutional (CII) accounts at this time. CII accounts represent approximately 10 percent of the connections.

**Methods to Evaluate Effectiveness:** The SqCWD has compared usage to pre- and post-tiered rate implementation and adjustments in order to evaluate the effectiveness of rates on promoting conservation. However, this analysis is difficult to perform due to confounding factors.

The SqCWD's computer system registers increases in individual service consumption and allows for periodic review of customer water use by comparing current water use per capita with historic data. If there is an extreme increase, a service representative is dispatched to make personal contact with the customer and investigate; substantial or notable increases generate a written notice to the customer alerting them to check for leaks.

**Conservation Savings:** The purpose of this DMM is to decrease the customer's water use through price incentives as described above. The water savings due to the tiered rate structure are difficult to derive, but the current structure is designed to encourage the residential customers using more than 35 units bi-monthly to lower their water use. The effects of the water savings associated with this DMM to further reduce demand are believed to be minor.

**Budget:** Approximately \$7,500 per year – includes costs for staff and consulting services.

#### L. DMM 12 – Water Conservation Coordinator

**Status:** Ongoing

**Implementation Description:** The SqCWD hired its first full-time Water Conservation Coordinator in May 1998, and the position will continue to be filled for the foreseeable future. The Conservation Coordinator reports directly to the General Manager and is responsible for planning and managing the water conservation program and supervising approximately 1.5 conservation staff. In 2002, the SqCWD hired a part-time staff person to assist with conservation education programs. Then in 2003, a full-time conservation specialist was hired to perform residential and commercial audits.

**Implementation Schedule:** The SqCWD will continue to implement this DMM.

**Methods to Evaluate Effectiveness:** The SqCWD will continue to survey customers, institutions and educators on the effectiveness of programs and materials and also monitor attendance at water conservation activities.

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**Conservation Savings:** The SqCWD has no method to quantify the specific savings of this DMM but believes that this program is in the public's interest and necessary to the overall conservation program. The effects of the water savings associated with this DMM to further reduce demand are believed to be moderate.

**Budget:** The 2005 budget for water conservation personnel is \$170,950 (including salary and benefits).

#### M. DMM 13 – Water Waste Prohibition

**Status:** Ongoing

**Implementation Description:** The SqCWD has adopted two resolutions that mandate water conservation. The first, adopted in 1979 and updated in 2004, establishes interior and exterior policies for all new development, but not for existing development. This resolution supports the Water-Use Efficiency program described under "*Additional Demand Management Measures*". The second resolution, adopted in 1981, prohibits certain wasteful uses of water and establishes the SqCWD's authority to disconnect service for chronic violators.

**Methods to Evaluate Effectiveness:** Effectiveness is evaluated based on the number of citations noted and general staff observations of water waste.

**Implementation Schedule:** Resolutions have been adopted by SqCWD Board of Directors and are presently in effect.

**Conservation Savings:** The SqCWD has no method to quantify the savings of this DMM but believes that this program is in the public's interest. The effects of the water savings associated with this DMM to further reduce demand are believed to be minor.

**Budget:** Enforcement costs are part of the SqCWD's overhead.

#### N. DMM 14 – Ultra-low Flush Toilet Replacement

**Status:** Ongoing

**Implementation Description:** The SqCWD established a high visibility ultra-low flush toilet replacement program in 1997. The program offers a \$75 credit to existing residential customers who replace their high-water-use toilets with ultra-low flush (ULF) toilets. ULF toilets reduce toilet flushing water to 1.6 gallons per flush (gpf). This is a significant water savings from an average of 5-7 gpf for regular toilets, and from 3.5 gpf for low-water-use toilets. California state law has required 1.6 gpf toilets, 1.0 gpf urinals, 2.5-gallons-per-minute (gpm) showerheads, and 2.2-gpm faucets since January 1, 1992. Beginning January 1, 1994, the Federal Energy Policy Act of 1992 limits toilets sold for residential use to 1.6 gpf.

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This program, applicable to all existing residential dwellings, has an overall goal of replacing approximately 25 percent of existing residential toilets with ULF toilets within 10 years, or by the year 2010.

**Implementation Schedule:** The SqCWD’s program targets all customers who do not already have ULF toilet models. Rebate forms are available by contacting the SqCWD. No rebates are provided for new dwelling units. Customer’s mail completed rebate forms to the SqCWD for processing and payment. The SqCWD will continue to implement this DMM until the SqCWD’s goal is met: at least 80 percent of all non-conserving and low-flush model toilets in the SqCWD will be replaced with ultra-low flush models. Table 25 shows the historical and estimated ULF toilet schedule and associated water savings.

Table 25 – ULF Toilet Retrofit Program		
Year	# of ULF Toilet Retrofits	Cumulative Water Savings (acre-feet/year)
1997	181	6
1998	347	18
1999	346	30
2000	192	37
2001	253	46
2002	304	57
2003	376	70
2004	566	90
2005 (projected)	500	107
2006e	500	125
2007e	500	136
2008e	500	142
2009e	500	160
2010e	500	177
Assume each toilet retrofit saves 0.035 acre-feet/year. e = estimated		

**Conservation Savings:** ULF toilets are assumed to save approximately 30-45 gallons per day per toilet (or 0.035 acre-feet per year). For this report, ULF toilets are assumed to save approximately 30 gallons per day. While this is at the low range, it allows for the fact that secondary toilets that have lower use than the primary toilet in the residence may also be retrofitted. Assuming 500 rebates per year equates to an annual water savings of 17.5 acre-feet/year. The effects of the water savings associated with this DMM to further reduce demand are believed to be moderate.

**Budget:** Accounting for the \$75 rebate and assuming an additional \$5 per toilet for advertising materials and administrative costs, the total cost per toilet rebate is estimated to equal \$80. The toilet rebate budget is expected to average about \$40,000 for the next five years. If the number of toilet rebates exceeds 500 per year, then SqCWD will try to reallocate funds to cover the additional rebate requests.

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### **Additional Demand Management Measures**

Provided below are brief descriptions of water demand management measures that SqCWD implements beyond those required to be addressed in the UWMP and beyond those prescribed by California Urban Water Conservation Council (CUWCC). Although these additional measures are not required to be discussed in the UWMP, they are included to provide a more complete picture of SqCWD's conservation efforts.

#### **Water Demand Offset Program**

In 2003, the SqCWD started the "Water Demand Offset (WDO) Program" that requires new development to "offset" or neutralize its projected water use. The purpose of the program is to prevent having to declare a building moratorium and avoid exacerbating the existing groundwater situation during the interim before sufficient supplemental supply is available to overcome overdraft of the groundwater basin. The offset requirements are met by retrofitting high water use devices in existing development with lower water use devices (e.g., toilets, etc.).

#### **Water Efficiency Requirements**

The SqCWD passed a landscape resolution in 1979, and revisions in 2004 included an indoor component as well. The purpose of the resolution is to incorporate reasonable water conservation techniques in all new development.

#### **Retrofit on Resale**

This program tracks and enforces compliance with the City of Capitola and County of Santa Cruz ordinances that require installation of water efficient devices when properties sell. This includes installing 1.6 gallon per flush toilets, low-flow showerheads and faucet aerators, and repairing leaking toilets whenever a property changes ownership. In 2004, SqCWD began tracking retrofit on sale compliance in the City of Capitola portion of the SqCWD. In September 2005, the SqCWD Board of Directors voted to track and enforce the retrofit on sale program throughout its service area.

#### **Weather-Based Controller Program**

In 2003, SqCWD started a pilot program to evaluate weather-based irrigation controllers and installed and tested the devices for over a year at 10 sites (mostly large landscapes, but a few residential sites, too). The results showed approximately 20 percent landscape water savings. In 2005, Bureau of Reclamation awarded SqCWD a matching grant for a total of \$218,790 to install 325 weather-based devices. Approximately one-third to one-half of the 325 controllers are designated for dedicated irrigation meter sites, for an estimated water savings of at least 26 acre-feet/year. This program is to be implemented over a two-year period from 2005 into 2007.

## **CHAPTER 4**

### **Water Demand Management Measures**

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#### **Zero-Water Urinals**

In 2004, the SqCWD started a rebate program for customers who replace existing urinals with waterless urinals. The rebate is \$75 per urinal.

#### **Synthetic Turf Rebate**

In 2004, the SqCWD started a rebate program for customers who replace existing lawn with synthetic turf. The rebate is \$1 per square foot with a maximum of \$300.

#### **Demonstration Garden**

In 2005, SqCWD created a demonstration garden with native plants and synthetic turf that is open to the public during daylight hours. Customers developed the garden during two workshops.

#### **Incentives to Encourage Private Wells Located in Critical Groundwater Areas to Connect to SqCWD's System**

In 2005, SqCWD's Board of Directors adopted conservation and financial incentives to encourage private pumpers along the coast to abandon their wells and connect to the District.

**APPENDIX A**

**BOARD RESOLUTION NO. 05-57**

**RESOLUTION OF THE BOARD OF DIRECTORS  
OF THE SOQUEL CREEK WATER DISTRICT  
ADOPTING THE  
2005 URBAN WATER MANAGEMENT PLAN AND  
AUTHORIZING IT TO BE FILED IN ACCORDANCE WITH AB 797**

WHEREAS, the California Legislature enacted Assembly Bill No. 797 during the 1983-1984 Regular Session of the California Legislature (Water Code Section 10610, et. seq.), known as the Urban Water Management Planning Act, and as amended subsequently, which mandates that every supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, AB 797 requires that said Plan be adopted by December 31, 1985, after public review and hearing, and filed with the California Department of Water Resources within thirty days of adoption; and

WHEREAS, the SOQUEL CREEK WATER DISTRICT did prepare and file said Plan with the California Department of Water Resources in December 1985; and

WHEREAS, AB 797 requires that said Plan be periodically reviewed at least once every five years, and that the urban water supplier shall make any amendments or changes to its Plan which are indicated by the review; and

WHEREAS, the District is an urban supplier of water providing water to over 49,000 customers services, and has, therefore, prepared and circulated for public review a Draft Urban Water Management Plan Update, in compliance with the requirements of AB 797, and a properly noticed public hearing regarding said Draft Plan Update was held by the District Board on December 6, 2005, and a Final Plan prepared.

NOW, THEREFORE, BE IT RESOLVED by the District Board of the SOQUEL CREEK WATER DISTRICT as follows:

1. The 2005 Urban Water Management Plan Update is hereby adopted and ordered filed with the Secretary of the Board;

2. The District Manager is hereby authorized and directed to file the Plan Update with the California Department of Water Resources within 30 days after this date, in accordance with AB 797;

3. The District Manager is hereby authorized and directed to implement the water conservation programs as detailed in the adopted Urban Water Management Plan Update, including recommendations to the District Board regarding necessary procedures, rules and regulations to carry out effective and equitable water conservation programs. Such steps will include further improvement of water use efficiency in all landscape areas under the District's control.

ADOPTED this 6th day of December, 2005, by the following vote:

AYES: Directors Daniels, LaHue, Kriege, Jaffe, Beebe

NOES: None

ABSENT: None

APPROVED:



Bruce Daniels, President

ATTEST:



Denise Alexander, Board Clerk

## **APPENDIX B**

### **BOARD RESOLUTION**

#### **A MODEL RESOLUTION ESTABLISHING THE CRITERIA TO DECLARE A WATER SHORTAGE EMERGENCY**

NOW, THEREFORE, BE IT RESOLVED by The Board of Directors of the Soquel Creek Water District as follows:

PURSUANT to California Water Code Section 350 et seq., the Board has conducted duly noticed public hearings to establish the criteria under which a water shortage emergency may be declared.

WHEREAS, the Board finds, determines and declares as follows:

1. During 2005, the District served approximately 4,880 acre-feet per year (AFY) of water to District property owners and inhabitants;
2. The demand for water service by District inhabitants and property owners is not expected to lessen;
3. For the foregoing reasons, customers shall be required to comply with the requirements and restrictions on certain non-essential water uses provided in the 2005 Urban Water Management Plan, Chapter 2-Water Supply Emergency Response, Section IV when the General Manager or his/her designee determines that production capacity has been reduced by 25 to 35 percent due to prolonged drought, contamination, natural disaster, loss of production well(s), major main break, prolonged power outage, or any other water supply emergency that limits the District's ability to provide adequate water service;

NOW, THEREFORE, BE IT RESOLVED that the District Board of Directors of the Soquel Creek Water District hereby directs the District Manager to find, determine, declare and conclude that a water shortage emergency condition exists that threatens the adequacy of water supply for human consumption, sanitation, and fire protection requirements, until the District's water supply is deemed adequate. After the declaration of a water shortage emergency, the District Manager is directed to determine the appropriate Rationing Stage and implement the District's Water Shortage Emergency Response.

FURTHERMORE, the District shall periodically conduct proceedings to determine additional restrictions and regulations which may be necessary to safeguard the adequacy of the water supply for domestic, sanitation, fire protection, and environmental requirements.

## APPENDIX C

### ORDINANCE NO.

#### **A MODEL ORDINANCE OF THE SOQUEL CREEK WATER DISTRICT FOR WATER SERVICE IN THE SOQUEL CREEK WATER DISTRICT DURING A DECLARED WATER SHORTAGE**

The Board of Directors of the Soquel Creek Water District does hereby resolve:

#### MORATORIUM ON SERVICE COMMITMENTS AND CONNECTIONS

1. When the District declares a water shortage emergency the following regulations shall become effective immediately and shall continue in full force and effect to prohibit the following throughout the emergency:
  - A. The District shall not issue oral or written commitments to provide new or expanded water service, including will-serve letters.
  - B. The District shall not sell meters for water service connections, despite the prior issuance of will-serve letters or other oral or written service commitments, unless building permits have been issued.
  - C. The District shall not provide new or expanded water service connections, despite the prior issuance of will-serve letters or other oral or written service commitments and meters, unless building permits have been issued.
  - D. The District shall not provide water for use on any new plantings installed after the declaration of a Water Shortage Emergency.
  
2. The following uses are exempt from the moratorium and upon application to the District shall receive necessary water service commitments and connections to receive water from the District:
  - A. Uses, including but not limited to, commercial, industrial, single and multifamily residential, for which a building permit has been issued on or before the declaration of a Water Shortage Emergency;
  - B. Uses, including but not limited to, commercial, industrial, single and multifamily residential, for which a retail meter had been purchased from the District before the declaration of a Water Shortage Emergency, as evidenced by a written receipt and for which a building permit has been issued and remains in full force and effect.
  - C. Publicly owned and operated facilities, including but not limited to schools, fire stations, police stations and hospitals and other facilities as necessary to protect the public health, safety, and welfare.

## **APPENDIX D**

### **CALIFORNIA URBAN WATER MANAGEMENT PLANNING ACT**

**Established:** AB 797, Klehs, 1983

**Amended:** AB 2661, Klehs, 1990

AB 11X, Filante, 1991

AB 1869, Speier, 1991

AB 892, Frazee, 1993

SB 1017, McCorquodale, 1994

AB 2853, Cortese, 1994

AB 1845, Cortese, 1995

SB 1011, Polanco, 1995

AB 2552, Bates, 2000

SB 553, Kelley, 2000

SB 610, Costa, 2001

AB 901, Daucher, 2001

SB 672, Machado, 2001

SB 1348, Brulte, 2002

SB 1384, Costa, 2002

SB 1518, Torlakson, 2002

AB 105, Wiggins, 2004

SB 318, Alpert, 2004

## **CALIFORNIA WATER CODE DIVISION 6 PART 2.6. URBAN WATER MANAGEMENT PLANNING**

### **CHAPTER 1. GENERAL DECLARATION AND POLICY**

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

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

- (1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.
- (2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.
- (3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.
- (4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in

its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.

- (5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.
- (6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.
- (7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.
- (8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.
- (9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

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

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

- (a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.
- (b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.
- (c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

## **CHAPTER 2. DEFINITIONS**

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

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

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

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

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

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

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

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

10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

### **CHAPTER 3. URBAN WATER MANAGEMENT PLANS**

#### **Article 1. General Provisions**

10620.

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

- (b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.
- (c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.
- (d)
  - (1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.
  - (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.
- (e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.
- (f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621.

- (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.
- (b) Every urban water supplier required to prepare a plan pursuant to this part shall notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.
- (c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

## **Article 2. Contents of Plans**

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

10631. A plan shall be adopted in accordance with this chapter 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 five-year increments to 20 years or as far as data is available.
- (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:
  - (1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.
  - (2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

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

- (4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.
- (c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:
  - (1) An average water year.
  - (2) A single dry water year.
  - (3) Multiple dry water years.

For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

- (d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.
- (e)
  - (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:
    - (A) Single-family residential.
    - (B) Multifamily.
    - (C) Commercial.
    - (D) Industrial.
    - (E) Institutional and governmental.
    - (F) Landscape.
    - (G) Sales to other agencies.
    - (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
    - (I) Agricultural.
  - (2) The water use projections shall be in the same five-year increments described in subdivision (a).

- (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:
- (1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:
    - (A) Water survey programs for single-family residential and multifamily residential customers.
    - (B) Residential plumbing retrofit.
    - (C) System water audits, leak detection, and repair.
    - (D) Metering with commodity rates for all new connections and retrofit of existing connections.
    - (E) Large landscape conservation programs and incentives.
    - (F) High-efficiency washing machine rebate programs.
    - (G) Public information programs.
    - (H) School education programs.
    - (I) Conservation programs for commercial, industrial, and institutional accounts.
    - (J) Wholesale agency programs.
    - (K) Conservation pricing.
    - (L) Water conservation coordinator.
    - (M) Water waste prohibition.
    - (N) Residential ultra-low-flush toilet replacement programs.
  - (2) A schedule of implementation for all water demand management measures proposed or described in the plan.
  - (3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

- (4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.
- (g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:
- (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.
  - (2) Include a cost-benefit analysis, identifying total benefits and total costs.
  - (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.
  - (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.
- (h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.
- (i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.
- (j) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that 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).

- (k) Urban water suppliers that rely upon a wholesale agency for a source of water, shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier’s plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c), including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

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.

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

- (a) 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.
- (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.
- (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.

- (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.
- (g) An analysis of the impacts of each of the actions and conditions described in subdivisions (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.
- (h) A draft water shortage contingency resolution or ordinance.
- (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

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

- (a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.
- (b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.
- (c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

- (d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.
- (e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.
- (f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.
- (g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

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

### **Article 2.5 Water Service Reliability**

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.

### **Articl 3. Adoption and Implementation of Plans**

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

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

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

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

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

10644.

- (a) An urban water supplier shall 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.

#### **CHAPTER 4. MISCELLANEOUS PROVISIONS**

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

- (a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.
- (b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.

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

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

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

10654. An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the "Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.

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

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

10657.

- (a) The department shall take into consideration whether the urban water supplier has submitted an updated urban water management plan that is consistent with Section 10631, 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.
- (b) This section shall remain in effect only until January 1, 2006, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2006, deletes or extends that date.

## **PUBLIC NOTICES AND OTHER RELATED MATERIALS**

## **PUBLIC NOTICE**

### **Soquel Creek Water District's Draft Urban Water Management Plan 2005 Update is available for public comment**

**Public Hearing** on Tuesday, Dec. 6, 2005 7:00 pm  
At District Office, 5180 Soquel Dr., Soquel, CA

**Available for review at:**

- Soquel Creek Water District Office
- Online at [www.soquelcreekwater.org](http://www.soquelcreekwater.org)
- Four public libraries: Capitola, Aptos, La Selva Beach and Porter Memorial Library in Soquel

Written comments must be received no later than 4:00 p.m. on the day of the meeting to be considered by the Board prior to action. Address written comments to Ron Duncan at SCWD, P.O. Box 158, Soquel, CA 95073-0158 or email to [rond@soquelcreekwater.org](mailto:rond@soquelcreekwater.org) by Dec. 5, 2005. Contact Ron Duncan at above email or at 831 475-8500 for questions.

**The Urban Water Management Plan is a long-range planning document that focuses on projected water supplies, conservation, and emergency response.**

Call 475-8500 for more information



## **PUBLIC NOTICE**

### **Soquel Creek Water District's Draft Urban Water Management Plan 2005 Update Is available for public comment**

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**The Urban Water Management Plan is a long-range planning document that focuses on projected water supplies, conservation, and emergency response.**

Call 475-8500 for more information

**SOQUEL**

**Plan describes  
water use through 2030**

Over the next 25 years, water conservation should triple to 900 acre-feet despite an increase in hookups, according to a long-range plan completed by the Soquel Creek Water District.

The district projects residential, commercial and irrigation hookups to increase from 14,880 to 18,400 and water consumption from 4,885 to 5,640 acre-feet annually by 2030.

Public input is welcome. Comments should be submitted by Nov. 22 at 4:30 p.m. for review at a public hearing Dec. 6 at 7 p.m. at the district office, 5180 Soquel Drive.

Comments also can be faxed to conservation coordinator Ron Duncan at 475-4291 or e-mailed to [rond@soquelcreekwater.org](mailto:rond@soquelcreekwater.org).

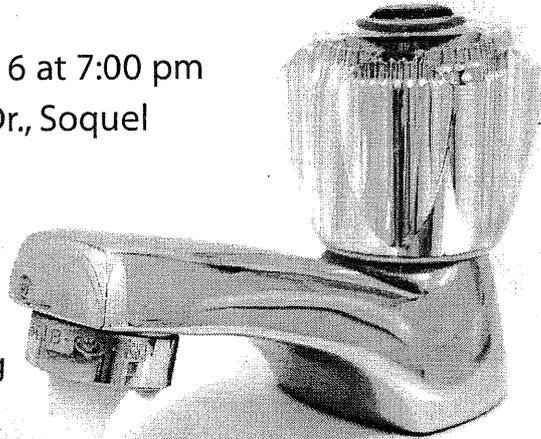
Copies of the plan are available for \$25 at the district office. The plan also is online at [www.soquelcreekwater.org](http://www.soquelcreekwater.org). For information, call 475-8500.

## **Soquel Creek Water District's Draft Urban Water Management Plan 2005 Update available for public comments**

Public Hearing on Tuesday, Dec. 6 at 7:00 pm  
At District Office, 5180 Soquel Dr., Soquel

### **Available for review at:**

- ⊗ Soquel Creek Water District Office
- ⊗ Online at [soquelcreekwater.org](http://soquelcreekwater.org)
- ⊗ Four public libraries:  
Capitola, Aptos, La Selva Beach  
and Porter Memorial Library in Soquel



SOQUEL CREEK  
WATER DISTRICT

**Call 475-8500 for more information.**



*Board of Directors*  
Bruce Daniels, *President*  
Dr. Thomas R. LaHue, *Vice President*  
John W. Beebe  
Dr. Bruce Jaffe  
Daniel F. Kriege

Laura D. Brown, *General Manager*

November 1, 2005

**To:** Interested Agencies, Organizations, and Individuals  
**Subject:** Soquel Creek Water District's Draft Urban Water Management Plan 2005

The Soquel Creek Water District (SCWD) has updated its Urban Water Management Plan (UWMP). The enclosed Draft UWMP 2005 is provided for your review.

The California Water Code requires SCWD to update and adopt an UWMP. The UWMP is a long-range planning document that focuses on projected water supplies and conservation. The City of Capitola and the County of Santa Cruz may rely on the UWMP to verify the adequacy of water supplies for land use planning.

The SCWD encourages public participation as part of the UWMP update process. The SCWD Board of Directors will hold a public hearing to provide the public an opportunity to comment on the Draft UWMP as noted below:

**SCWD Board of Directors Meeting**  
**Tuesday, December 6, 2005 at 7:00 p.m.**  
**District Office, 5180 Soquel Drive, Soquel, CA**

SCWD staff anticipates the Board adopting the Draft UWMP with recommended modifications at the December 6, 2005 meeting after hearing public input. If significant modifications are recommended, then the Draft UWMP will be revised and brought back to the Board on December 20, 2005 (at the same location and time as noted above) for adoption.

Each agency, organization, or individual that submits comments should include contact information. The SCWD will review and carefully consider all comments. Written comments on the Draft UWMP should be received by 4:30 p.m. on Tuesday, November 22, 2005 for inclusion with the Board packet for the hearing and sent to:

Soquel Creek Water District  
Attn: Mr. Ron Duncan  
P.O. Box 158  
Soquel, CA 95073-0158  
Fax: 831 475-4291; email: [rond@soquelcreekwater.org](mailto:rond@soquelcreekwater.org)

If you have questions about the Draft UWMP, please contact Ron Duncan, Water Conservation Coordinator, via email [rond@soquelcreekwater.org](mailto:rond@soquelcreekwater.org) or by phone (831) 475-8500.

Sincerely,  
SOQUEL CREEK WATER DISTRICT

A handwritten signature in cursive script that reads 'Laura D. Brown'.

Laura D. Brown  
General Manager

The following were sent a DRAFT copy of the UWMP 2005 Update

|||||

Eric Zigas  
Environmental Science Associates  
225 Bush Street, Suite 1700  
San Francisco, CA 94104

|||||

Derrick Williams  
HydroMetrics LLC  
1611 Telegraph Avenue, Suite 404  
Oakland, CA 94612

|||||

Brian Jordan  
Black & Veatch  
800 Wilshire Boulevard, Suite 600  
Los Angeles, CA 90017

|||||

Mr. Nicolas Papadakis, Executive Director  
AMBAG  
PO Box 809  
Marina, CA 93933

|||||

Mr. David Koch, Dir. of Public Works and Utilities  
City of Watsonville  
Public Works and Utilities Department  
PO Box 50000  
Watsonville, CA 95077-5000

|||||

Ms. Janet K. Beautz, Supervisor, First District  
County of Santa Cruz  
Board of Supervisors  
701 Ocean St. Ste. 500  
Santa Cruz, CA 95060-4069

|||||

Ms. Ellen Pirie, Supervisor, Second District  
County of Santa Cruz  
Board of Supervisors  
701 Ocean St. Ste. 500  
Santa Cruz, CA 95060-4069

|||||

Mr. Mike Cloud, Hydrologist  
County of Santa Cruz  
Planning Department  
701 Ocean St. 4th Fl.  
Santa Cruz, CA 95060

|||||

Mr. Tom Burns, Director  
County of Santa Cruz  
Planning Department  
701 Ocean St. Rm. 510  
Santa Cruz, CA 95060

|||||

Mr. Bill Kocher, Water Director  
City of Santa Cruz  
Water Department  
809 Center St. Rm. 102  
Santa Cruz, CA 95060

|||||

Ms. Juliana Rebagliati, Director of  
Community Development  
City of Capitola  
420 Capitola Ave.  
Capitola, CA 95010

The following were sent a DRAFT copy of the UWMP 2005 Update

|||||

Mr. Mark Deming, Principal Planner  
County Planning Department  
701 Ocean St.  
Santa Cruz, CA 95060

|||||

Mr. John Ricker, Resources Coordinator  
County Environmental Health Service  
701 Ocean St. Rm. 312  
Santa Cruz, CA 95060

|||||

Capitola Branch Library  
2005 Wharf Road  
Capitola, CA 95010

|||||

Aptos Branch Library  
7695 Soquel Drive  
Aptos, CA 95003

|||||

La Selva Beach Branch Library  
316 Estrella Avenue  
La Selva Beach, CA 95076

|||||

Porter Memorial Library  
3050 Porter Street  
Soquel, CA 95073

|||||

Ms. Mary Bannister Interim General Manager  
Pajaro Valley Water Management Agency  
36 Brennon St.  
Watsonville, CA 95076

|||||

Mr Charles McNiesh, General Manager  
Scotts Valley Water District  
PO Box 660006  
Scotts Valley, CA 95067

|||||

Mr. Tom Crosser, Fire Chief  
Aptos/La Selva Fire District  
6934 Soquel Dr.  
Aptos, CA 95003

|||||

Mr. Bruce Clark, Fire Chief  
Central Fire Protection District  
930 17th Ave.  
Santa Cruz, CA 95062

|||||

Mr. Michael Casser, Chairman  
La Selva Beach Recreation District  
314 Estrella Ave.  
La Selva Beach, CA 95076

|||||

Mr. Clarke Wales, General Manager  
Central Water District  
PO Box 1869  
Aptos, CA 95001-1869

This letter was sent to over 300 people/entities potentially interested in the Draft UWMP

November 4, 2005

**To:** Interested Agencies, Organizations, Businesses and Individuals  
**Subject:** Soquel Creek Water District's Draft Urban Water Management Plan 2005

The Soquel Creek Water District (SCWD) has updated its Urban Water Management Plan (UWMP). The document is available for review on the SCWD's web site ([www.soquelcreekwater.org](http://www.soquelcreekwater.org)), at the District office located at 5180 Soquel Dr., Soquel, and at the following libraries: Capitola Branch, Aptos Branch, LaSelva Beach Branch, and Porter Memorial. Copies may be purchased from the District for \$25 each.

The California Water Code requires SCWD to update and adopt an UWMP. The UWMP is a long-range planning document that focuses on projected water supplies and conservation. The City of Capitola and the County of Santa Cruz may rely on the UWMP to verify the adequacy of water supplies for land use planning.

The SCWD encourages public participation as part of the UWMP update process. The SCWD Board of Directors will hold a public hearing to provide the public an opportunity to comment on the Draft UWMP as noted below:

**SCWD Board of Directors Meeting**  
**Tuesday, December 6, 2005 at 7:00 p.m.**  
**District Office, 5180 Soquel Drive, Soquel, CA**

SCWD staff anticipates the Board adopting the Draft UWMP with recommended modifications at the December 6, 2005 meeting after hearing public input. If significant modifications are recommended, then the Draft UWMP will be revised and brought back to the Board on December 20, 2005 (at the same location and time as noted above) for adoption.

Each agency, organization, or individual that submits comments should include contact information. The SCWD will review and carefully consider all comments. Written comments on the Draft UWMP should be received by 4:30 p.m. on Tuesday, November 22, 2005 for inclusion with the Board packet for the hearing and sent to:

Soquel Creek Water District  
Attn: Mr. Ron Duncan  
P.O. Box 158  
Soquel, CA 95073-0158  
Fax: 831 475-4291; email: [rond@soquelcreekwater.org](mailto:rond@soquelcreekwater.org)

If you have questions about the Draft UWMP, please contact Ron Duncan, Water Conservation Coordinator, via email [rond@soquelcreekwater.org](mailto:rond@soquelcreekwater.org) or by phone (831) 475-8500.

Sincerely,  
SOQUEL CREEK WATER DISTRICT

Laura D. Brown  
General Manager

# WRITTEN PUBLIC COMMENTS AND SqCWD RESPONSES



# COUNTY OF SANTA CRUZ

## PLANNING DEPARTMENT

701 OCEAN STREET, 4<sup>TH</sup> FLOOR, SANTA CRUZ, CA 95060  
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123

**TOM BURNS, PLANNING DIRECTOR**

November 22, 2005

Laura Brown, General Manager  
Soquel Creek Water District  
P.O. Box 158  
Soquel, CA 95073-0158

FAX: (831) 475-4291

**SUBJECT: Comments on Draft Urban Water Management Plan**

Dear Ms. Brown,

Thank you for the opportunity to comment on Soquel Creek Water District's Draft Urban Water Management Plan. Upon review of the Draft Plan, Planning Department staff has the following comments:

1. On Page 4, mention is made that Measure J restricts the County's population growth rate under 1% per year. While this may currently be true, it has and will not always necessarily be true. The Board of Supervisors sets the growth rate each year and there may be years in the future when they set a growth rate higher than 1%.
2. Also on Page 4, a citation should be included as to which (presumably the most current) AMBAG Population and Employment Forecast was used.
3. On Page 37, under "Regional Desalination", an explanation is needed of what percentage of the desalination plant's capacity would be used in your district as opposed to the City of Santa Cruz Water District. This section should also explain if this supplemental water source is to be used only in times of drought, and how that would be defined.

Thank you again for giving us the chance to provide input on this important document. Please address any questions regarding these comments to Frank Barron of the Policy Section staff at 454-2530.

Sincerely,

Tom Burns  
Planning Director

cc: City of Santa Cruz Water Department

RECEIVED  
NOV 29 2005  
S.C.W.D.

December 14, 2005

Tom Burns, Planning Director  
County of Santa Cruz  
Planning Dept., 4<sup>th</sup> Floor  
701 Ocean Street  
Santa Cruz, CA 95060

Subject: Response to Comments on Urban Water Management Plan Update 2005

Dear Mr. Burns:

Thank you for taking the time to review and comment on Soquel Creek Water District's Draft Urban Water Management Plan Update. Your letter dated November 22, 2005 was provided to the District's Board of Directors for consideration before adopting the Final Urban Water Management Plan (UWMP) Update.

Response to Question 1:

The section on projected growth rates has been revised to read as follows:  
“...The predicted growth rates are consistent with the County's Measure J, which *currently limits growth to 1% per year. The projections also reflect a separate methodology that was used by SqCWD to calculate future demand based on land use data and corresponding water use factors for anticipated development of vacant parcels and infill within the SqCWD sphere of influence, which was confirmed by County of Santa Cruz and City of Capitola Planning Department Staff to be consistent with the existing General Plans.*

Response to Question 2:

The sentence has been revised to read as follows:  
The population projections are based on *the most recent* Association of Monterey Bay Area Governments' (AMBAG) growth information for Santa Cruz County census tracts relative to the SqCWD service area *that was available when this document was prepared.*

Response to Question 3:

Information about the availability of desalinated water for SqCWD use during normal and drought years is provided in Table 12. There is not yet a joint operation plan for the proposed desalination plant, so the availability of that source for SqCWD use has only been developed at a conceptual level at this time. The definition of drought and how that would apply to the availability of desalinated water for SqCWD use have yet to be worked out.

Sincerely,

SOQUEL CREEK WATER DISTRICT

Laura D. Brown  
General Manager

Copy of email: Santa Cruz Co. Environmental Health Comments and SqCWD  
Responses

Hi John,

Thanks for your review and comments. Yes, if and when a long-term groundwater emergency occurs, the District would appreciate the County's contributions to help manage excessive water use. Working together we would be much more effective at protecting our water resources.

Respectfully,

Ron Duncan  
Water Conservation Coordinator  
Soquel Creek Water District  
475-8500

-----Original Message-----

From: John Ricker [mailto:ENV012@co.santa-cruz.ca.us]  
Sent: Friday, December 02, 2005 1:41 PM  
To: Ron Duncan  
Cc: Laura Brown; Ron Duncan  
Subject: RE: UWMP-SqCWD

Ron, I have completed reviewing the UWMP. Again, you are to be commended for a very thorough document.

With regard to a declaration of groundwater emergency, County staff intends to work closely with the District to manage excessive use throughout the basin and take steps to bring the basin back into balance. With regard to the specific actions by the County that are listed to be considered, we would need to further consult with legal counsel and our Board before we could commit to specific actions at this time. We look forward to working with the District in the Soquel-Aptos Groundwater Management Authority to further define joint actions to be taken to manage the basin and address a potential groundwater emergency.

Thanks, John

John Ricker  
Water Resources Program Coordinator  
Santa Cruz County Environmental Health Services  
831-454-2750  
Fax: 831-454-3128

-----Original Message-----

From: Ron Duncan [mailto:RonD@soquelcreekwater.org]  
Sent: Thursday, December 01, 2005 12:07 PM  
To: John Ricker  
Subject: RE: UWMP-SqCWD

Hi John,

Thanks for making the effort to review the Draft UWMP. You are absolutely correct that the County's efforts involve more than just the Planning Dept. The contributions of County Environment Health have been significant and valuable. We apologize for the oversight and have made your suggested change. We look forward to any other comments your department might provide.

Respectfully -

Ron Duncan  
Water Conservation Coordinator  
Soquel Creek Water District  
831 475-8500

-----Original Message-----

From: John Ricker [mailto:ENV012@co.santa-cruz.ca.us]  
Sent: Tuesday, November 22, 2005 4:00 PM  
To: Ron Duncan  
Cc: Mike Cloud  
Subject: UWMP

Ron, Thank you for the opportunity to review the SCWD Draft UWMP. Mike Cloud and I commend you on putting together a very comprehensive document. Unfortunately

I have not had time to provide as thorough a review as I would like. I will be providing additional review over the next several days. In the meantime, the only comment I would offer is a suggestion on page 8 to list the "County of Santa Cruz" instead of the "Santa Cruz County Planning Dept." We in Environmental Health are also collaborating closely with the District on various efforts. Thanks again, John

John Ricker  
Water Resources Program Coordinator  
Santa Cruz County Environmental Health Services  
831-454-2750  
Fax: 831-454-3128



Dr. Bruce Daniels and Board of Directors  
Soquel Creek Water District  
P.O. Box 158  
Soquel, California 95073

November 18, 2005

Re: UWMP/Intake and Discharge Subsystems for Candidate SWRO at New Brighton Beach

Dear Dr. Daniels and Board Members,

In reviewing the Districts Draft Urban Water Management Plan 2005 (UWMP, Local Desalination, Page 37), Oases would like to suggest consideration of alternative desalination sites to complement the Districts joint venture efforts with the City of Santa Cruz, California. Our comments are based on possible consideration by the Soquel Creek Water District (SCWD) desires to utilize the existing County's New Brighton Beach wastewater pumping facilities and convert it to a seawater desalination plant. Thus, we would like to offer the following approach.

In agreement with the Beach Intake Feasibility Reconnaissance Study, prepared by Martin Feeney, it is our opinion that conventional beach wells will probably not be feasible at this site without additionally drilling to determine geotechnical characteristics of the underlying geological formations including permeability, soil porosity and infiltration rates. However, after reviewing local topography and ocean conditions, alternative intake systems which make use of advanced geotechnical practices such as micro tunneling and directional drilling in combination with our synthetic sea well technology would be feasible at this site. This approach was discussed in a presentation by Oases International to the SCWD on May 10, 2005 (see attached presentation - Soquel Prese5-10-05.ppt).

Other California agencies are exploring the use of under sea intake and discharge systems including Long Beach Water (R. Cheng, pers. comm. 2005) and Metropolitan Water District of Orange County (R. Bell, pers. comm., 2005). City of Long Beach Program May be Review at: <http://www.lbwater.org/desalination/Under.html>.

Should you or your staff require additional information, I can be reached by phone (415 781 5400) or e-mail ([tjones@oases.ws](mailto:tjones@oases.ws)).

Regards,  
Anthony T. Jones, Ph.D.  
Chief Technology Officer

Cc: Ellen Pirier, County Supervisor ([ellen.pirier@co.santa-cruz.ca.us](mailto:ellen.pirier@co.santa-cruz.ca.us))  
David Vincent, State Parks Superintendent ([dvinc@parks.ca.gov](mailto:dvinc@parks.ca.gov))  
Attachment: PowerPoint: Soquel Prese5-10-05.ppt

December 14, 2005

Anthony T. Jones, Ph.D., Chief Technology Officer  
Oases Global Systems  
4800 Golden Foothill Parkway, Suite 220  
El Dorado Hills, CA 95762

Subject: Response to Comments on Urban Water Management Plan Update 2005

Dear Dr. Jones:

Thank you for taking the time to review and comment on Soquel Creek Water District's Draft Urban Water Management Plan Update. Your letter was provided to the District's Board of Directors for consideration before adopting the Final Urban Water Management Plan Update.

As your letter notes, the Board Committee for Conjunctive Use Supplemental Supply Alternatives heard a presentation from Oases on May 10, 2005. You may recall that the Committee concluded that the project as proposed would be infeasible as a conjunctive use alternative for a number of reasons. As a result, the District did not give additional consideration to the concept, and Oases has not pursued the matter further until now. A feasibility study was never completed to confirm that the project is viable, nor has Oases ever provided a project description with enough detail for the District to conduct sufficient analysis to seriously consider the concept. It would, therefore, be inappropriate to include Oases' concept of a desalination facility at New Brighton Beach in the Urban Water Management Plan

As a matter of practice, the District is open to new technology and opportunities to assure reliable water supply for our customers. At some point, a local desalination project may be considered, but given the information currently available, it would be premature to cite such a project in the current Urban Water Management Plan. The plan must be updated every five years and may be amended at any time. If the District decides in the future to consider water supply alternatives beyond those identified in this plan update, they can be added.

Sincerely,

SOQUEL CREEK WATER DISTRICT

Laura D. Brown  
General Manager

Copy of email comment from Mr. Beran

Dear Ron Duncan:

I'm chairman of the PAR 3 OVERSIGHT COMMITTEE representing 148 home owners next to the proposed PAR 3 DEVELOPMENT. At present 230 units are planned.

The developer has advised us that the development will provide water saving measures to the surrounding community in the ratio of 2 1/2 gallons for every 2 gallons the development will use.

In your estimation is there anything in the 2005 plan that this development will effect? If so direct us to the page numbers in the report. What is the forecasted increased water hook up allowance forecasted and for what period? Is there a number of increased hook ups at which the the Soquel Water District will not be able to service and would this number stop additional development beyond that number? e.g. moratorium on new building.

Is the 2 1/2 gallon to 2 gallon ratio realistic? What measures are they talking about?

The residents of Seacliff Mobile Home park are experiencing low water pressure.

Will this worsen the problem or are their mitigating measures that will correct this?

On a personal level does current/future plans of Soquel Water include desalinization.

Thanks,

John Beran, Chairman      phone 684.1007

## Email Response – Soquel Creek Water District

To: Mr. Beran, Chairman of Par 3 Oversight

Email: [stumblingbuffalo@gmail.com](mailto:stumblingbuffalo@gmail.com)

Cc: T.J. Fabriszeski at: [dziadz@sbcglobal.net](mailto:dziadz@sbcglobal.net)

From: Ron Duncan, Water Conservation Coordinator, Soquel Creek Water District

Date: November 29, 2005

### **Subject: Response to Comments on Urban Water Management Plan Update 2005**

Dear Mr. Beran:

The purpose of this email is to respond to your email dated November 12, 2005, concerning Soquel Creek Water District's (SCWD) Draft Urban Water Management Plan (UWMP) 2005 Update and development at the old Par 3 Golf Course in Aptos, CA. Below are the questions presented in your email and the District's responses.

*Question 1 – In your estimation is there anything in the 2005 plan that this development will affect?*

The water supply related impacts of the proposed Par 3 development have been accounted for in the Draft UWMP as well as other anticipated development. Although the UWMP does not indicate specific development projects, the District has estimated future water needs based on estimated build out of the existing County General Plan and the Association of Monterey Bay Governments (AMBAG) growth projections for the District's service area. These projections were reviewed by County Planning Staff and confirmed to be accurate.

The UWMP describes the interim and long-term measures the District is taking to assure reliable water supply to support current and future needs. Until SCWD secures a new water supply to supplement existing groundwater resources (e.g., joint desalination project with the City of Santa Cruz), all new development must adhere to the Water Demand Offset (WDO) policy as a condition for receiving water service. The WDO policy requires the developer to save (or offset) 1.2 times the predicted water use of the proposed development somewhere else in the District's service area by retrofitting existing fixtures (e.g. toilets and urinals) with low-flow models. The intent is that new development will have a net zero impact on the water supply.

Based on the 234 units proposed in 2004 at the old Par 3 site, the projected water consumption is 49 acre-feet per year. The SCWD would therefore require the developer to offset 59 acre-feet of water (49 acre-feet x 1.2 = 59 acre-feet). (Note that an acre-foot of water is equal to 325,851 gallons or an acre covered one foot deep in water.) The WDO requirement may be adjusted

if the final County-approved project has a different number of units, but regardless of the final project size, the developer would still need to complete the required number of retrofits before water service would be granted.

If the Par 3 project is not developed until after a supplemental water supply is available, then sufficient water supply would be available. As a point of information, all new development must pay a connection fee to the District that is adjusted annually to reflect the proportionate system-wide costs to supply water to the development.

*Question 2 – What is the forecasted increased water hook up allowance forecasted and for what period?*

Table 11 (p. 29) shows the historical and forecasted new water connections from 1995 to 2030. Note that in Table 11, one multi-family connection can translate into a connection that serves numerous people (i.e., the proposed Par 3 development).

*Question 3 – Is there a number of increased hook ups at which the Soquel Water District will not be able to service and would this number stop additional development beyond that number? E.g. moratorium on new building.*

No, there is not a defined number of water connections at which the District will stop new connections; however, if sufficient retrofits are not available to meet the Water Demand Offset requirements of the proposed development, then the District's Board of Directors may declare a temporary moratorium on new connections until the supplemental water supply is available. The limiting factors for new connections are based first on available water (either from conservation or a new source) and fulfilling the District's legal mandate to supply water to the meet projected growth. The District is prohibited by the California Water Code from establishing a permanent moratorium on new connections.

*Question 4 – Is the 2 ½ gallon to 2 gallon ration realistic. What measures are they talking about?*

We believe the developer is talking about the Water Demand Offset (WDO) program that the District has instituted. As mentioned above, the WDO program requires anyone who develops a property in the District service area to retrofit high-flow fixtures in existing development at a ratio of 1.2 gallons for every 1 gallon projected to be used in the new development. Yes, the offset is realistic, but may be more difficult to achieve as time passes. Water demand offset is usually accomplished by the developer retrofitting higher flow toilets with ultra-low flow toilets in existing homes and commercial venues.

*Question 5 – The residents of Seacliff Mobile Home Park are experiencing low water pressure. Will this worsen the problem or are their mitigation measure that will correct this?*

The proposed Par 3 development is not anticipated to impact the water pressure at the Seacliff Mobile Home Park.

*Question 6 – Does the current/future plans of Soquel Water include desalinization?*

The District's future plans do include pursuing a potential partnership with the City of Santa Cruz to build and operate a desalination plant. This project is described in the UWMP. The District has considered numerous water supply options over several years, and it appears that a regional desalination project is the most viable alternative to meet long-term needs.

## Acronyms and Abbreviations

AB3030	–	Assembly Bill 3030 (Section 10750, et seq. of the California Water Code)
AL	–	Action Level
AJC	–	Anna Jeans Cummings Park (a County park)
AMBAG	–	Association of Monterey Bay Area Governments
AP	–	Action Plans
AWWA	–	American Water Works Association
BMP	–	Best Management Practice
CCR	–	California Code of Regulations
CDHS	–	California Department of Health Services
Cal EPA	–	California Environmental Protection Agency
CDS	–	Coastal Distribution System
cfs	–	cubic feet per second
CII	–	Commercial, Industrial, and Institutional
CUWCC	–	California Urban Water Conservation Council
District	–	Soquel Creek Water District
DMM	–	Demand Management Measures
DWR	–	California Department of Water Resources
ERP	–	Emergency Response Plan
Eto	–	Evapotranspiration (accounts for evaporation and transpiration)
gpcd	–	gallons per capita per day
gpm	–	gallons per minute
IRP	–	Integrated Resources Plan
IRWMP	–	Integrated Regional Water Management Plan
MBR	–	Membrane bioreactor
MCL	–	Maximum Contaminant Level
MCLG	–	Maximum Contaminant Level Goal
mgd	–	million gallons per day
mg/L	–	milligrams per liter
N/A	–	Not Applicable
NMWD	–	North Marine Water District
NWS	–	National Weather Service
OEHHA	–	Office of Environmental Health Hazard Assessment (a State agency)
OCR	–	Operating Contingency Reserve
PAC	–	Public Advisory Committee
PHG	–	Public Health Goal
ppb	–	parts per billion
PVWMA	–	Pajaro Valley Water Management Agency
SAGMA	–	Soquel-Aptos Groundwater Management Alliance
SB	–	Senate Bill
SCADA	–	Supervisory Control and Data Acquisition
SqCWD	–	Soquel Creek Water District
SDWA	–	Safe Drinking Water Act
SRP	–	Satellite reclamation plant
TM2	–	Technical Memorandum 2
UAW	–	Unaccounted for water
ULF toilet	–	Ultra-low flush (type of toilet that uses 1.6 gallons per flush)
USEPA	–	United States Environmental Protection Agency
UWMP	–	Urban Water Management Plan
WARN	–	Water/Wastewater Agency Response Network
WET	–	Water Education for Teachers
WDO	–	Water Demand Offset

## Acronyms and Abbreviations – continued

Additional Notes:

Acre-foot/year – this refers to the amount of water that covers one acre one foot deep in water, which equates to 325,851 gallons.

Overdraft – the condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years

Sustainable yield – the amount of groundwater that can be removed from an aquifer on a long-term /sustained basis without negative impacts to the groundwater quality or creating an undesirable effect.