OLIVENHAIN

Municipal Water District

2005 Urban Water Management Plan

2005 Urban Water Management Plan

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Summary

The Olivenhain Municipal Water District (District) prepared this 2005 Urban Water Management Plan (Plan) to guide its conservation and water resource management programs and to comply with State law.

The Olivenhain Municipal Water District is a public agency organized under the laws of the State of California Municipal Water Code Sections 71,000 et seq. and is comprised of a five member, publicly elected Board of Directors and appointed staff committed to its customers. Consistent with this commitment, the District has established the following policy relative to conservation and water management:

"The District strives to balance the needs of its customers, water resources management and conservation, a reliable water supply, local storage, and water quality issues in the most economically feasible manner."

The District has made significant progress towards many of the goals that were identified in the 1995 and 2000 Urban Water Management Plans. In 2002, the District constructed an immersed membrane water treatment filtration plant that has a current capacity of 34 MGD and in 2003 it completed construction of a 318 foot roller-compacted concrete dam of which the District owns 1/7th. These two projects allow the District to be aqueduct independent in a crisis.

Much of the progress towards achieving its goals since the 2000 Plan has been related to the development of alternative sources of water for non potable use, mainly the development of recycled water sources and uses. A map depicting the District's recycled water service quadrants is included on the following page as **Figure 1**. In 1998 the District acquired control of the 4S Ranch and Rancho Cielo Sanitation Districts from the County of San Diego. The primary purpose of these acquisitions was to achieve total water management and facilitate the development of a source of recycled water. To that end, the District has proceeded with the funding, design, and construction of an extensive recycled water system throughout its Southeast service area. The Southeast Quadrant includes 4S Ranch, Santa Fe Valley, Rancho Santa Fe, Fairbanks Ranch, and the San Dieguito Valley.

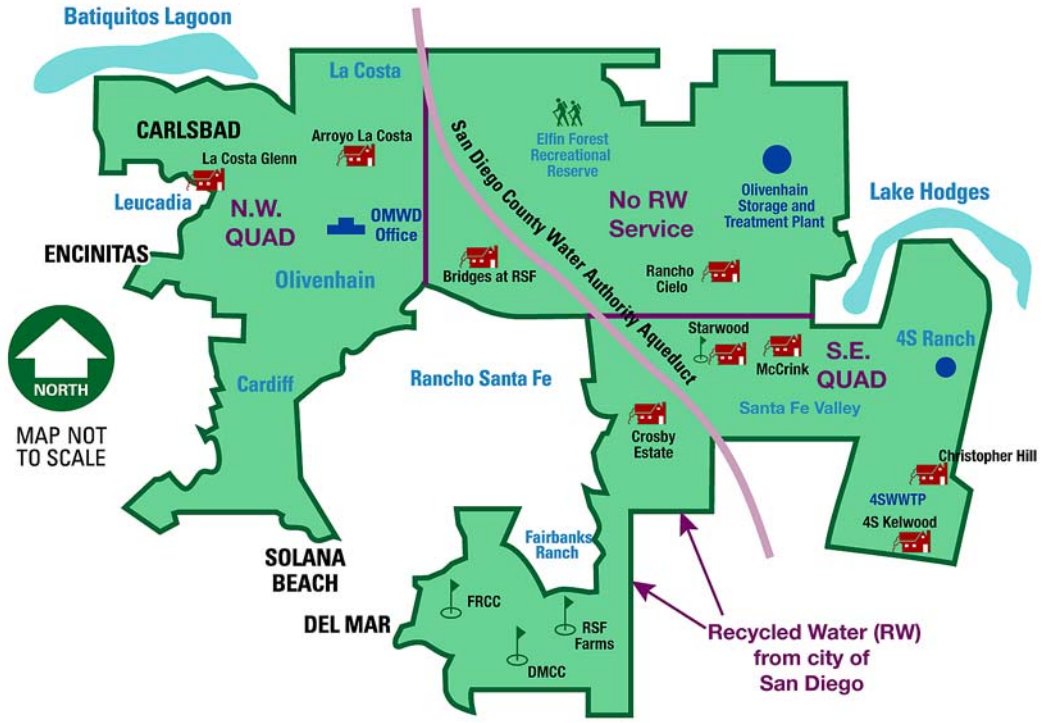
The 4S Ranch Water Reclamation Facility can ultimately treat 2 million gallons per day (MGD) with a 1 million gallon (MG) reservoir and various other support facilities such as pump stations and 3 MG blending tank. These facilities provide Title 22 tertiary treated effluent for irrigation of golf courses, parkways, schools, and other large public irrigation users. Multiple sources of funding were used for the project including grants from the US Bureau of Reclamation, Metropolitan Water District of Southern California, and the San Diego County Water Authority. The District received a grant in September of 2005 for the Northwest Recycled Water Project in the amount of $500,000 from the U.S. Department of the Interior.

The District has also entered into agreements to purchase recycled water from the City of San Diego and the Rancho Santa Fe Community Services District in the Southeast Quadrant, and the Vallecitos Water District in the Northwest Quadrant. In addition to the development of recycled water, the District is also investigating the potential for utilizing groundwater storage within the San Dieguito Groundwater Basin. This project, singly and/or in conjunction with the San Diego

County Water Authority (CWA), would be utilized for the storage of recycled or untreated water to help meet dry year demands and reduce seasonal peaks on the CWA's aqueduct system.

This Urban Water Management Plan has been prepared to demonstrate the full extent of the District's commitment to water conservation, water resource management, and reducing the need to import potable water.

Figure 1 – District Recycled Water System



Chapter 1
Introduction and Background

The California Urban Water Management Planning Act

The California Water Code requires all urban water suppliers in the state to prepare urban water management plans and update them every five years. These plans satisfy the requirements of the Urban Water Management Planning Act (Act) of 1983, including amendments that have been made to the Act. Sections 10610 through 10657 of the California Water Code details the information that must be included in these plans, as well as who must file them.

Major amendments made to the Act since the District's 2000 Plan was prepared include:

- Description of specific water supply projects and implementation schedules to meet projected demands over the planning horizon;
- Description of the opportunities for the development of desalinated water;
- Additional information on groundwater, where groundwater is identified as an existing or planned water source;
- Description of water quality over the planning horizon; and
- Description of water management tools that maximize local resources and minimize imported water supplies.

In addition, the California Department of Water Resources (DWR) will consider whether the urban water supplier has submitted an updated plan when determining eligibility for funds made available pursuant to any program administered by the department.

According to the Act: "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." The Act requires that each urban water supplier that provides water for municipal purposes either directly or indirectly to more than 3,000 customers or supplies more than 3,000 AF of water annually, shall prepare, update, and adopt its urban water management plan at least once every five years or before December 31, in years ending in five and zero. In accordance with the Act, the District is required to update and adopt its plan for submittal to the DWR by December 31, 2005. **Appendix A** contains the text of the Act.

Water Code Sections 10910 through 10914 and Government Code Sections 65867.5, 66455.3, and 66473.7 (commonly referred to as SB 610 and SB 221) amended state law to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 requires that the water purveyor of the public water system prepare a water supply assessment to be included in the environmental documentation of certain large proposed projects. SB 221 requires affirmative written verification from the water purveyor of the public water system that sufficient water supplies are available for certain large residential subdivisions of property prior to approval of a tentative map. **Section 4 of the San Diego County Water Authority (CWA) 2005 Urban Water Management Plan contains documentation on the existing and planned water supplies being developed by CWA. This documentation may be used by CWA's member agencies in preparing the water supply assessments and written verifications required under state law.**

Coordination with Appropriate Agencies

This is the 2005 Urban Water Management Plan (Plan) for the Olivenhain Municipal Water District (District). The Plan has been prepared in compliance with the California Urban Water

Management Planning Act (Act), a California statute. The District coordinated its efforts with the San Diego County Water Authority (CWA), the Department of Water Resources (DWR), the Metropolitan Water District of Southern California (MWD) and the California Urban Water Conservation Council (CUWCC) to ensure data and issues are presented accurately. Pursuant to Water Code 10621 (b) all cities and counties within the District's service area were notified of the Plan and able to provide comments. **Table 1** lists the agencies and their participation levels.

Table 1
Coordination with Appropriate Agencies

Check at least one box on each row	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Draft Plan offered in 3 forms	Was sent a notice of intention to adopt
City of Encinitas					x	x
San Dieguito Water District					x -used web	x
City of Escondido					x	x
Santa Fe Irrigation District					x	x
City of Carlsbad					x	x
City of San Diego					x	x
County of San Diego					x	x
City of Solana Beach					x	x
Vallecitos Water District					x	x
City of San Marcos					x	x
Encina Wastewater Department				x		
Cardiff Sanitation District				x		
Leucadia Wastewater District				x		
Fairbanks Ranch CSD				x		
Rancho Santa Fe CSD				x		
Whispering Palms CSD				x		
SDCWA (Wholesaler)	x			x		
DWR		x		x		
State Clearing House		x			x	x
Business Industry Association					x	x

Purpose and Outline

The purpose of the Plan is to adequately demonstrate the District's reliability over the next 25 years in conjunction with regional plans being developed by CWA and MWD. The Plan also ensures that details on the District's reliability of imported water supplies are provided to the San Diego region. The District participated in the development of CWA's regional plan as well.

The Plan evaluates the District's water conservation and water reclamation programs, and recommends a course of water conservation action for the future considering the District's water demand and water sources. In addition, the Plan examines the effects on the District of various levels of emergency water shortage, and identifies measures the District has implemented to deal with these shortages. Water conservation and efficient use of California's water resources is becoming increasingly important, and the District is dedicated to the continuing development and implementation of water conservation measures appropriate for its service area. The District is committed to monitoring and adjusting its operations to meet goals of the Plan and prudent water management standards. **This Plan is beneficial in identifying goals and developing management standards.**

In 2004, the District completed a Comprehensive Water Master Plan (Master Plan) which was adopted by its Board of Directors. In January 2005 the District completed a Program Environmental Impact Report (EIR). **The Master Plan and EIR are water management tools that the District uses to plan future facilities, budget accordingly and maximize resources and reduce the need to import water**. By planning for the future, the District can maximize the use of its resources. The District also conducted a 2020 Vision Workshop with the Board of Directors in 2005 that outlined a path as to what the District would look like in twenty years. Finally, a significant effort the District undertook in 2005 was the implementation of the Cooperative Interagency Resources Coalition website which is a coalition that develops relationships in order to share services/products/resources with other San Diego County water agencies.

With regard to water quality, the District meets and exceeds all state and federal water quality standards for drinking water. The District's Olivenhain Water Treatment Plant utilizes membrane technology that provides more certain removal of waterborne health threats while also benefiting the environment through less chemical usage. By 2007, all District customers are expected to receive water treated by the Olivenhain Water Treatment Plant. The District publishes an annual water quality report, the Consumer Confidence Report, and the report is mailed to all its constituents, posted on its web page and displayed in its lobby. **Water quality is a major factor in any District endeavor; however, the District does not anticipate any shortage or impacts to availability of supply due to water quality issues.** CWA, the District's wholesaler does not expect any shortages due to water quality and the reader is referenced to Section 7 of the CWA 2005 Urban Water Management Plan attached as **Appendix B** for more information on the quality of water provided to the District and measures that can be taken if water quality issues arise. The District has plans to pre-treat any water quality impacts from receiving water from Lake Hodges Reservoir so as to avoid any supply reliability problems.

In accordance with the Act, the District Board of Directors held a public hearing on November 16, 2005 at 8:30 A.M. and adopted the District's 2005 Plan at the December 7, 2005 Board Meeting. A copy of the Resolution is included in **Appendix C**. Prior to adoption, the 2005 Plan was available for review by the public and other agencies at the District office. Notification was sent out to all agencies, cities in the Districts service area, the County of San Diego as well as the Business Industry Association and the State Clearing House and the Plan was available on the District's website, on CD, and in hard copy form. Within 30 days of the adoption of the Plan, copies of the adopted Plan will be sent to DWR, the California State Library, and all cities within the District's service area and the County of San Diego.

DWR has prepared a checklist that lists items based on the Act, to be addressed in agencies' plans. The checklist allows agencies to identify where in the plan they have addressed each item. The District has completed the checklist, and it is included in **Appendix I**.

The following sections of this chapter present background information relative to the Plan including a description of the District and a discussion of economic and other criteria for

evaluating the feasibility of conservation measures. The chapters following the Introduction and Background are:

- **Water Use and Supply**: includes sections on historical and current water use, projected water use, and historical and projected water supply;
- **Drought and Emergency Measures**: covers the District's preparedness to manage water use and supply during periods of water shortage;
- **Financial Considerations**: discusses the District's preparedness to manage its finances during periods when water sales to customers are reduced by drought conservation measures;
- **Existing Water Conservation Measures**: covers the conservation measures being implemented or planned;
- **Alternative Water Supply Measures**: evaluates alternative water supply measures for implementation;

The District

The Olivenhain Municipal Water District (District) was originally incorporated on April 9, 1959 for the purpose of developing an adequate water supply to the landowners and residents of the District service area. On June 14, 1960 the District voted to become a member of the San Diego County Water Authority (CWA) and the Metropolitan Water District of Southern California (MWD), thus becoming eligible to purchase imported water from CWA aqueducts and distribute this water throughout its service area.

The District strives to provide a high level of service and to maintain close communication with its customers, and is proud of its reputation as an accessible, productive and progressive public agency. The District is governed by a five member board of directors, who are publicly elected by division. All board meetings are noticed to the public and are open for public comment and participation.

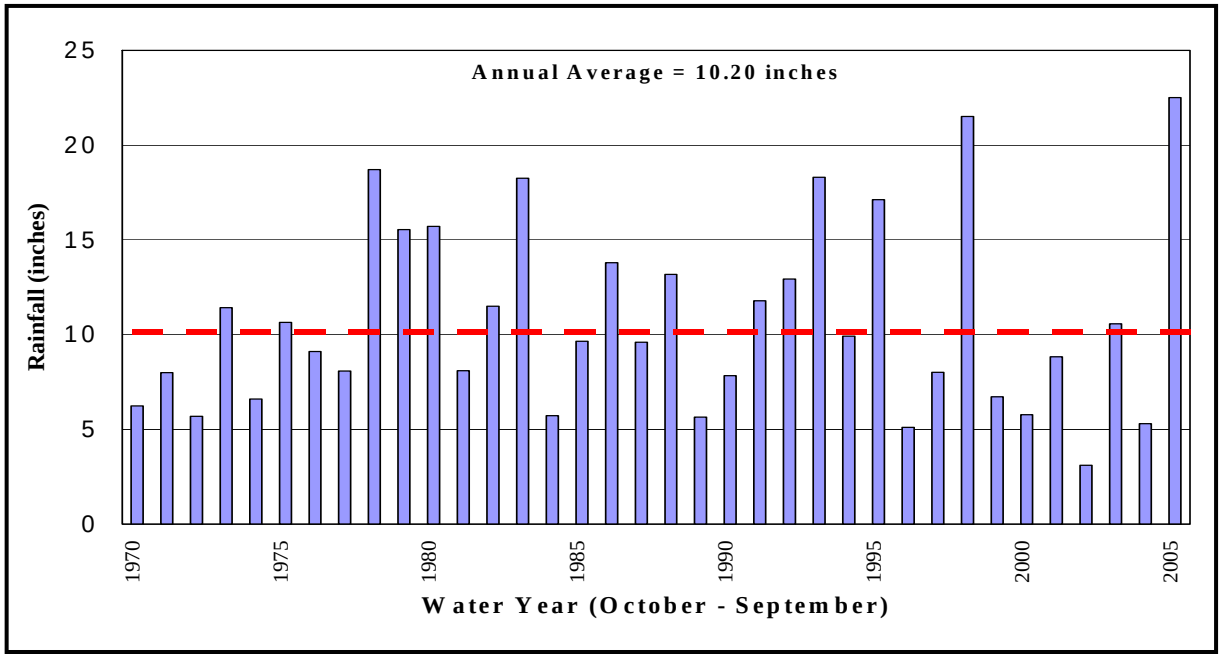
The District is one of 23 member agencies of CWA. Member agency status entitles the District to directly purchase water for its needs on a wholesale basis, and the District relies on CWA to plan for and provide a reliable water supply to the entire County.

Service Area

The District includes portions of the cities of Encinitas, Carlsbad, San Diego, Solana Beach, and San Marcos as well as the unincorporated communities of Olivenhain, Leucadia, Elfin Forest, Rancho Santa Fe, Fairbanks Ranch and 4S Ranch. **Figure 2** on the following page is a map of the District service area.

Many of the areas served by the District feature a mild coastal climate, varied topography, and convenient location to major urban areas. Because of these reasons, the District has experienced rapid urbanization, although rural, undeveloped area still remains. Inland areas are both hotter in summer and cooler in winter. More than 80 percent of the region's rainfall occurs in the period between December and March. Variations in weather affect short-term water requirements, causing demand spikes during hot, dry periods and reductions in use during wet weather. Average annual rainfall is approximately 10.20 inches per year on the coast and in excess of 14 inches per year inland. **Figure 3** on the following page shows the Annual Rainfall as recorded by Lindbergh Field Station in San Diego

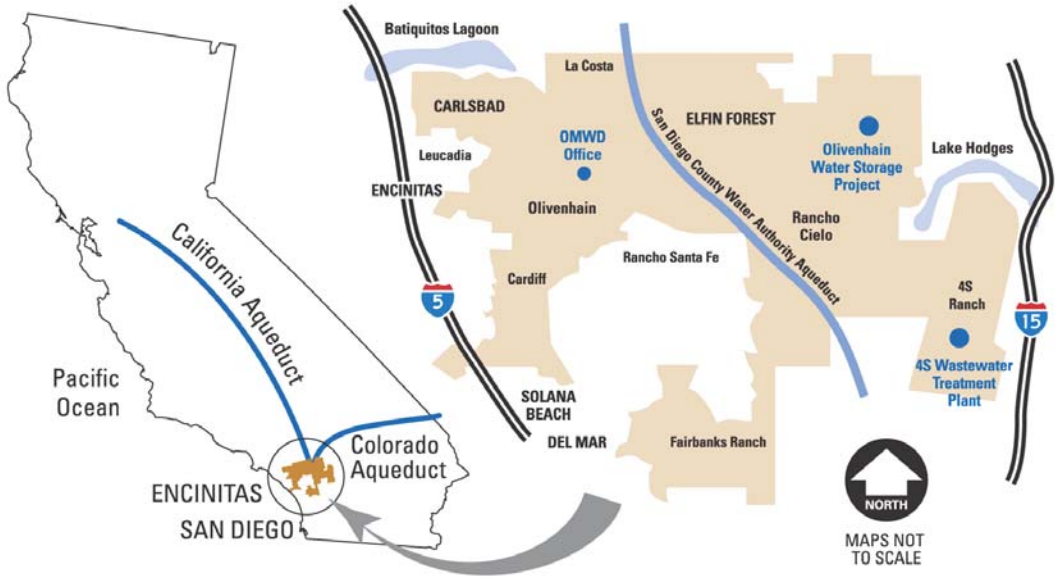
FIGURE 3 - ANNUAL RAINFALL (LINDBERGH FIELD STATION)



The booming market for new home sales throughout San Diego County has resulted in a substantial increase for new water meters set in the District's service area. During the last two fiscal years, the District has added approximately 2,158 new meters. Analysis of growth in the District indicated that over the past five years, the District has been growing at an average rate of 9% per year.

Despite several increases in federal interest borrowing rates, the building industry in San Diego has not slowed down. Several development projects, primarily residential, as well as a mix of

Figure 2 – District Service Area



commercial and light industrial are currently underway. New housing developments involving over 6,900 housing units are either under construction or at various planning stages, and are expected to reach completion within the next five years. If the economy continues to be strong, the District may add as many as 3,000 meters within the next five years.

The District currently covers an area of approximately 30,542 acres (over 48 square miles), and currently serves a population of approximately 50,000 persons through over 23, 797 metered service connections. The San Diego Association of Governments (SANDAG) projects that District population will increase to 55,596 in 2010, 63238 in 2015, 67,780 in 2020, 72,664 in 2025 and by 2030, District will have a population in excess of 73,800. Please note that the District believes that these SANDAG estimates are conservative as our own extrapolation based on the last census places our population at 58,000 in 2005.

Water use in the District was 20,684 AF/YR in 2005, and is projected that the District will need 20,602 AF/YR in 2010, 22,009 AF/YR in 2015, 23,641 AF/YR in 2020, 26,068 AF/YR in 2025 and 27,407 AF/YR in 2030.

Water Supply Facilities

The District purchases 100% of its potable water from CWA, through six service connections to CWA's Second San Diego Aqueduct. Four are filtered water and raw water. This water is then distributed to customers through a system that currently includes approximately 375 miles of pipe, 18 closed storage reservoirs, one covered in-ground reservoir, four pump stations, and a 450 KW hydroelectric generation station. The District treats most of the water it distributes at its 34 MGD ultrafiltration membrane plant which serves 70% of its customers. It is expected that by 2007, 100% of District customers will be served water from the Olivenhain Water Treatment Plant.

In 1979, the District purchased 245 acres of land for the purpose of constructing a dam, reservoir, and potable water treatment plant, together known as the Olivenhain Water Storage Project (OWSP). Additional lands were obtained by the District from the Bureau of Land Management in 1983, in exchange for the development of a public recreation area on the property. In all, the OWSP consists of approximately 750 acres, 550 of which have been preserved in their natural condition. The Olivenhain dam, reservoir and treatment plant provide seasonal and emergency storage and treatment to meet the District's projected needs.

The District has exchange agreements with surrounding agencies with principal supplies coming from CWA via MWD. An Emergency Exchange Interconnections Matrix is included as **Appendix H**. The District is a member agency of CWA and CWA in turn is a member of MWD. The District provided its wholesaler, CWA, with its projections through the year 2030. Agencies included in the exchange figures below in **Table 3** include Vallecitos Water District, Santa Fe Irrigation District and San Dieguito Water District. As noted, the District does not project the need to utilize exchanges with these agencies in the future.

Table 3- Current and Planned Water Supplies - AFY

Water Supply Sources	2005	2010	2015	2020	2025	2030 - opt
Water purchased from:						
San Diego County Water Authority	20,684	22,522	24,309	26,641	28,568	29,907
Exchanges In	1,996.2	0	0	0	0	0
Exchanges out	(55.8)	0	0	0	0	0
Recycled Water	475.6	3,320	3,750	3,700	3,700	3,700
Desalination (Poseidon/Carlsbad)	0	0	5,000	5,000	5,000	5,000
Total	**23,096.4**	**25,842**	**33,059**	**35,341**	**38,268**	**38,607**

In addition to the development of a potable water treatment system, the District is also involved in wastewater collection and treatment and is actively constructing a number of recycled water projects throughout its service area, as described in the chapter on Alternative Water Supply Measures. The District, many years ago, adopted Ordinance 173 which requires all new golf courses, parks, highway landscaped areas, and green belts to take recycled water if it is available or when it becomes available in their area.

Due to significant technological advances in the development and manufacturing of membranes, desalination is now a potential supply for meeting future demands. The planned regional seawater desalination project at the Encina Power station in Carlsbad includes a 50 MGD seawater desalination facility and a conveyance system consisting of pipelines, pumping station(s), storage tanks and other appurtenances necessary to deliver and integrate the desalinated water into the San Diego County Water Authority aqueduct system. Once the project is complete, the District could purchase up to 5,000 AF annually directly from the private developers of the Carlsbad Desalinization Project. It is currently anticipated that some discussions with Poseidon Industries, a private company engaged in desalinated water development, will take place between this project proponent and the District during 2005 and 2006.

The San Diego County Water Authority

The San Diego County Water Authority (CWA) was established on June 9, 1944 under the County Water Authority Act for the express purpose of importing Colorado River water into San Diego County.

Today's imported water, a combination of Colorado River water and State Project water, is sold wholesale to the 23 member agencies of CWA. The member agencies are autonomous and their city councils or boards of directors set local policies and water pricing structures. Each member agency may appoint at least one representative (based on assessed valuation) to the CWA Board of Directors.

Most water distributed by CWA is purchased from the Metropolitan Water District of Southern California (MWD) or the Imperial Irrigation District (IID) and is delivered from MWD's Lake Skinner complex into five pipelines that extend into San Diego County, and which collectively are known as the first and second San Diego Aqueducts as shown in **Figure 4**. CWA ownership of these pipelines begins approximately six miles south of the San Diego County line. CWA annexed to MWD in 1946 and is now represented on the MWD Board by six Directors. The District relies on the regional water management planning of CWA which does not anticipate regional supply shortages due to water quality or supply challenges. The reader is referred to CWA's 2005 Urban Water Management Plan Section 8-1 through 8-7 for more information on regional supplies, demands and reliability and the following text and tables are taken directly from its plan on their dry year assessments for the region.

8.3 DRY WATER YEAR ASSESSMENT

In addition to a normal water year assessment, the Act requires an assessment to compare supply and demands under single dry and multiple dry water years over the next 20 years, in five-year increments. **Section 2** describes the derivation of the dry water year demands. **Table 8-2** shows the single dry-year assessment. The projected groundwater and surface water yields shown in the table are based on historic 1991 supplies during the 1987-1992 drought years. The supplies available from projected recycling and groundwater recovery projects are assumed to experience little, if any, reduction in a dry-year. The Water Authority's existing and planned supplies from the IID transfer, canal lining projects, and seawater desalination are also considered "droughtproof" supplies as discussed in **Section 4**. Therefore, estimated normal yields from these supplies are also included in the analysis.

In accordance with the Act, **Tables 8-3, 8-4, 8-5, 8-6,** and **8-7** show the multiple dry water year assessments in five-year increments. The member agencies' surface and groundwater yields shown in these tables are reflective of supplies available during the 1987-92 drought in years 1990, 1991 and 1992.

TABLE 8-2
SINGLE DRY WATER YEAR SUPPLY AND DEMAND ASSESSMENT
FIVE YEAR INCREMENTS (AF/YR)

Water Authority Supplies	2010	2015	2020	2025	2030
Regional Seawater Desalination at Encina 0 56,000 56,000 56,000 56,000	0	56,000	56,000	56,000	56,000
IID Water Transfer	70,000	100,000	190,000	200,000	200,000
ACC and CC Lining Projects	77,700	77,700	77,700	77,700	77,700
Sub-Total	147,700	233,700	323,700	333,700	333,700
Member Agency Supplies					
Surface Water	22,284	22,284	22,284	22,284	22,284
Water Recycling	33,644	40,598	45,459	46,368	47,430
Groundwater	10,838	10,838	10,838	10,838	10,838
Groundwater Recovery	11,400	11,400	11,400	11,400	11,400
Sub-Total	78,166	85,120	89,981	90,890	91,952
Metropolitan Water District Supplies	541,784	477,150	411,879	424,020	457,378
TOTAL PROJECTED SUPPLIES	767,650	795,970	825,560	848,610	883,030
TOTAL ESTIMATED DEMANDS w/Conservation	767,650	795,970	825,560	848,610	883,030

TABLE 8-3
MULTIPLE DRY WATER YEAR SUPPLY AND DEMAND ASSESSMENT
FIVE-YEAR INCREMENTS (AF/YR)

	2006	2007	2008
Water Authority Supplies	40,000	71,500	71,500
Member Agencies	58,730	61,770	81,920
Metropolitan Supplies	645,790	616,510	601,610
Total Estimated Supplies	744,520	749,780	755,030
Total Estimated Demands	744,520	749,780	755,030

TABLE 8-4

	2011	2012	2013
Water Authority Supplies	213,700	223,700	233,700
Member Agencies	81,550	80,620	86,810
Metropolitan Supplies	476,160	472,960	452,640
Total Estimated Supplies	771,410	777,280	783,150
Total Estimated Demands	771,410	777,280	793,150

TABLE 8-5

	2016	2017	2018
Water Authority Supplies	233,700	233,700	263,700
Member Agencies	88,080	86,740	102,510
Metropolitan Supplies	479,250	486,710	447,060
Total Estimated Supplies	801,030	807,150	813,270
Total Estimated Demands	801,303	807,150	813,270

TABLE 8-6

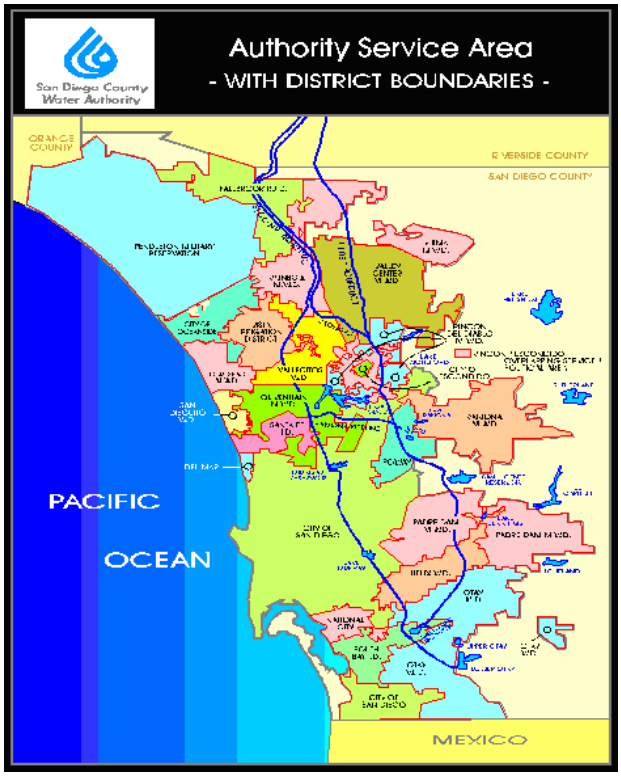
	2021	2022	2023
Water Authority Supplies	333,700	33,700	333,700
Member Agencies	92,150	90,020	105,000
Metropolitan Supplies	404,830	412,120	402,310
Total Estimated Supplies	830,680	835,840	841,010
Total Estimated Demands	830,680	835,840	841,010

TABLE 8-7

	2026	2027	2028
Water Authority Supplies	333,700	333,700	333,700
Member Agencies	93,090	90,990	106,000
Metropolitan Supplies	431,690	440,940	433,070
Total Estimated Supplies	858,480	865,630	872,770
Total Estimated Demands	858,480	865,630	872,770

As shown in the above tables, if the projected Water Authority and member agency supplies are developed as planned, along with implementation of Metropolitan's IRP, no shortages are anticipated within the Water Authority's service area under single dry-year or multiple dry water years through 2030. However, the Water Authority is at risk for shortages should the supplies identified in Metropolitan's IRP not be developed as planned or a Metropolitan member agency such as the City of Los Angeles invoke its Section 135, Preferential Right to Water (discussed in **Section 6.1.1**). To alleviate this risk, the Water Authority is pursuing the following options: 1) the development of storage; and 2) development of additional seawater desalination. Storage opportunities include local carryover storage facilities to accumulate and store water during periods of availability, as well as the acquisition of out-of-the-region conjunctive-use facilities to develop additional groundwater storage. A combination of storage and new supply appears to provide the most reliable solution to alleviating risks during a dry-period.

Figure 4 – San Diego County Water Authority Service Area



Water Conservation Role

In addition to wholesaling water, CWA coordinates countywide water supply planning efforts and provides technical and administrative assistance to its member agencies on a range of issues, including water conservation planning and implementation. Many conservation programs can most efficiently be operated at a Countywide level, rather than having 23 individual member agencies all trying to run their own programs. CWA therefore takes lead roles in implementing a number of measures including public information and education programs, and the implementation of conservation Best Management Practices as directed by the California Urban Water Conservation Council.

The Olivenhain Municipal Water District relies, and will continue to rely, on CWA for assistance and regional implementation of a number of conservation programs. For consistency purposes and to maximize economies of scale, these are best implemented at a larger scale than the District service area. The District's Urban Water Management Plan (Plan) focuses on existing and planned conservation activities of the District, and references existing and planned activities of CWA where appropriate. CWA conservation and water management measures that affect the District service area are discussed throughout the Plan. The reader is also referred to CWA's and Urban Water Management Plan for more complete information on CWA conservation and water management activities.

The Metropolitan Water District of Southern California

The Metropolitan Water District of Southern California (MWD) was created in 1928 for the purpose of providing supplemental water to cities and communities on the south coastal plain of California.

Since its formation, MWD has grown to include 26 member agencies (including the San Diego County Water Authority), as shown on the following page in **Figure 5,** and currently covers an

area which includes portions or all of Ventura, Los Angeles, Orange, Riverside, San Bernardino and San Diego Counties. It acts as a water importer and wholesaler, providing waters from both the Colorado River and the State Water Project.

In addition to wholesaling water, MWD coordinates Southern California regional water supply and water management planning efforts, and provides technical and administrative assistance to its member agencies. MWD provides water conservation assistance to its 26 member agencies in the areas of research, development of public information and school education materials, and financial assistance.

MWD conservation and water management measures that affect the District service area are briefly described in this report. The reader is referred to the 2005 MWD Urban Water Management Plan for more complete information on MWD conservation and water management activities.

Figure 5 – Metropolitan Water District Service Area

Chapter 2
Water Use and Supply

This chapter describes the water use and supply in the District. It includes sections on historical and current water use, projected water use, and historical and projected water supply, including information on water rates.

Historical and Current Water Use

Total annual water use in the District has grown from the District's inception in 1959 from approximately 1,900 acre-feet (AF) in fiscal year (FY) 1969-70, to 5,300 AF in FY 1979-80, to 12,556 AF in FY 1994-95, to 18,170 AF FY 1999-2000, and to 20,684 AF FY 2004-2005.

Sales to Other Agencies
In 2005, the District treated raw water and sold 4,000 AF back to CWA as treated water and anticipates treating and re-selling 10,500 AF in 2010. By 2015, CWA will have its new water treatment plant and will no longer purchase treated water back from the District. The District is a retail agency and not a wholesaler.

The District had a 1.84% estimated unknown water loss for FY 2005. The historical ten-year average of unaccounted water loss has been 3.2% and the District projects this to remain constant in future years. This is significantly lower than the AWWA standard and the average of the surrounding agencies.

Although water use has grown significantly since 1959, the six-year drought of 1987-92 had significant impacts on how water is used and how water will be used in the future. During the drought, the population of the District grew, and the water use declined. The reduction has two general categories, habit change and hardware. Habit change is the change in the manner in which water is used, such as not letting the water run while doing the dishes. This change may or may not be permanent. Hardware change is using a fixture to change the amount of water used, such as a low flow showerhead. This change is for the most part considered permanent.

District water use is broken down into domestic, multi-family, commercial, landscape and agricultural classes. As recently as FY 1969-70, agriculture accounted for over 70 percent of the District's total water use. This percentage has decreased over the years as total agricultural use has declined, and as domestic use has grown. Agriculture today represents only 11 percent of the total water demand in the District, using 1938 AF of water in FY 2004-2005. The current per capita use is approximately 369 gal/person/day. This is higher than most other water districts in San Diego County, due primarily to landscape irrigation demands and an abundance of large single family residences with large landscaped lots. **Table 4** below shows the past, current and projected water deliveries through 2015. All customers in the District service area are metered. The growth in number of installed meters has paralleled the District's growth in water use, with the number of installed meters increasing from 1,250 in 1972 to 23,797 at present. The number of service connections for customer meters vary in size from 5/8-inch to 8-inch. Approximately 70 percent of customer meters are 3/4-inch and smaller, and these are mostly residential customers which account for approximately 76 percent of the District's total water use. The remaining 24 percent of water use is by the 30 percent of customers having 1-inch and larger meters.

Table 4 - Past, Current and Projected Water Deliveries								
	2000		2005		2010		2015	
	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY
Water Use Sectors								
Single family (SF)	14034	10887.1	18,187	13,332	20,950	15,100	21,950	16,200
Multi-family (MF)	245	608.9	282	569	400	700	450	800
Commercial (C)	209	617.4	260	522	310	600	400	600
Landscape (Irg)	481	3368.5	521	3643	540	2900	550	2,900
Agriculture (Ag)	348	2215.1	353	1873	350	1,890	350	1,800
Other (District Use & Temporary Meters)	429		223	459	100	1,250	100	1,200
Raw	2	472.1	2	286	0	0	0	0
Total	15,746	18169.1	19,8280	20,684	22,650	22,350	23,800	23,500
The District expects to be built out in 2015 so the future water deliveries would remain constant beyond 2015.								

Projected Water Use

If local supplies are developed as indicated, no shortages are anticipated within the Districts service area in an average year through 2030. Though the District does not have any supply projects scheduled itself, the District may participate in a regional desalinization plant that will allow the District to purchase up to 5,000 AF per year.

The District relies on CWA to meet its water needs and the reader is referred to the CWA 2005 Urban Water Management Plan for more details on demand management during dry years. CWA developed a regional multiple dry year scenarios which utilized a 7% average increase in demands from the single dry year modeling effort. This factor was applied to the normal year demand estimates to generate the multiple dry-year demand projections. According to the CWA 2005 Urban Water Management Plan, the demands of the District will be met through 2030 with the potential of desalinated water supply. The reader is referenced to Section 8.1 through 8.7 and Figure 8-1 of the CWA plan as well as Section 1.3 that states, “This report constitutes the 2005 update to the Water Authority’s 2000 Plan. To adequately demonstrate how the region will be reliable over the next 25 years, the 2005 Plan quantifies the regional mix of existing and projected local and imported supplies necessary to meet future retail demands within the Water Authority’s service area. While the 2005 Plan includes specific documentation on development of the Water Authority’s supplies, the plans submitted by the member agencies and Metropolitan will provide details on their supplies that contribute to the diversification and reliability of supplies for the San Diego region.”

The CWA and MWD are working on shortage allocation plans and the District will adopt its own plan when the shortage allocation plans become available from these water suppliers

Water Supply

Both MWD and CWA are continually working on increasing the reliability of their water supply. MWD developed a water supply reliability goal of "providing 100 percent of full service wholesale water demands 90 percent of the time, and never providing less than 80 percent of full service wholesale demands." Along with MWD's goal, CWA developed a water supply reliability goal of its own, which is to "meet 100 percent of the annual water supply requests of the Authority's member agencies 90 percent of the time, 90 percent of the requests 98 percent of the time, and never less than 80 percent of the requests."

While 100 percent of the District's water supply is purchased from CWA as either treated or raw water, the District provides its own treatment and provides treated water to 70% of its customers. The remainder of the District is provided treated water from connections to the CWA treated water pipeline. However, the District expects to provide 90% of its customers with treated water from its own treatment plant by 2007. CWA water is delivered to the District through four treated water connections, to CWA's Second San Diego Aqueduct, and two raw water connections, to CWA's Second San Diego Aqueduct. A temporary fifth connection provides raw water for distribution to several large irrigation customers which will ultimately be converted to recycled wastewater.

Water supply in the District service area has historically been very reliable, and the District prides itself on operating a well maintained and high-quality water system. The District's water distribution system is sized to meet peak demand conditions. Peak demands are additionally managed and reduced through the use of an extensive conservation program which encourages customers to water lawns and landscaping between the hours of 6:00 p.m. and 9:00 a.m. The District's conservation program will be detailed in the annual Best Management Practices reports provided as part of the Demand Management portion of this Plan There are no existing or anticipated capacity restrictions that affect service to any District customers.

CWA's current CIP identifies development of up to 89,600 AF/YR of desalinated seawater within the San Diego region by 2030. CWA is currently focusing its efforts on implementing a 50-mgd seawater desalination facility at the Encina Power Station. The additional increment of seawater desalination supply may be developed through potential projects at San Onofre, South County or expansion of the 50-mgd planned at Encina Power Station. The 89,600 AF/YR serves as the CWA's 2030 seawater desalination goal.

Long-term water supply reliability is provided by CWA and MWD, as discussed above. Currently, the District is operating under "Stage 1" of its Water Conservation Ordinance, as will be discussed in Chapter 3. The District relies on CWA for delivery of a reliable water supply and for meeting the future water needs of the San Diego region. CWA and MWD are the agencies responsible for planning for the long-term water supply needs of the San Diego and Southern California regions, and the reader is referred to the Urban Water Management Plans of those agencies for information on regional water supply planning. The District is currently working on a desalinated water purchase from Poseidon Industries and developing an agreement to meet that end. Additionally, the District is working with CWA on a Drought Management Plan.

While the District looks towards MWD and CWA for a reliable water supply, it is also looking at itself. During periods of emergency outage of the District's water supply from CWA, such as may occur in a major earthquake, the District can draw on the 3,443 A/F of water storage available to the District from the Olivenhain Water Storage Project, interconnections with its neighboring retail water agencies, and its Emergency Water Conservation Ordinance to attempt to manage water

supply and demand conditions. Additional storage facilities are needed to provide the District with a reliable emergency water supply.

A core element of the Olivenhain Water Storage Project is the 24,000 acre-foot, 318 foot tall, roller-compacted concrete Olivenhain Dam and Reservoir. The dam and reservoir are a joint collaboration between the District and CWA. The joint project agreement between both agencies has resulted in cost savings to the District by allowing it to cap costs on its 3,443 acre-feet of capacity in the reservoir at $22.5 million. CWA realizes cost savings as well by sharing expenses while concurrently achieving their regional emergency storage goal of 18,000 acre-feet in the reservoir.

In order to fill the reservoir, construction of the 72" water pipeline from the dam to CWA's second aqueduct, referred to as the "Pipelines East Project", was completed. A separate contract was for the construction of 13,000 feet of pipeline, called the "Pipelines West Project" which connects the 48"treated water pipeline into the District's distribution system.

Located at the base of the Olivenhain Dam and Reservoir, the Olivenhain Treatment Plant was the largest of its kind in the world upon its completion and incorporates the latest membrane ultrafiltration technology, providing more certain removal of waterborne health threats in a cost-effective, environmentally safe manner. The 25 Million Gallons per Day (MGD) Membrane Treatment Plant, a state-of-the-science water treatment facility came on line April 2001. Grants from the Environmental Protection Agency (EPA) in the approximate amount of $12 million dollars were procured for this project. The Water Treatment Plant was expanded by 9 MGD in 2004-05 to its present capability of 34 MGD.

The mechanisms supporting the Olivenhain Water Treatment Plant result in significant savings to the District in terms of operating costs and increased reliability. The available hydraulic gradient from the 72" raw water pipeline and/or the dam are converted to energy via the use of turbines. This energy helps run the Treatment Plant and saves the District $600,000 dollars per year. Ancillary facilities including an electrical sub-station, pump station, and flow control facility, work in the Olivenhain Water Storage Project to form a world class water facility, serving as a model for new treatment plants across the nation and around the world.

Upgrades to the plant to prepare for the receiving of water with Lake Hodges in 2008 will be needed. An expansion to the plant may also take place in 2-5 years, expanding the plant up to as much as 50 MGD. The District is currently in preliminary design review for the expansion potential of the plant as well as treatment options for future taste and odor issues surrounding Lake Hodges water being received by the plant.

Chapter 3
Drought and Emergency Measures

This chapter describes the District's preparedness to manage water use and supply during periods of water shortage. Two types of shortage are addressed: drought and emergency. A drought is a long-term water shortage that can result in up to a 50 percent reduction in water supply. An emergency is an acute situation with the potential of a complete interruption of the District's supplies.

Drought Measures

The District has prepared itself to deal with periods of drought induced water shortage by adopting a Drought Response Ordinance, which may be considered a water shortage contingency ordinance. The ordinance provides for progressively severe stages of water use restrictions as necessary to accomplish District-wide water use reductions of up to 50 percent. The ordinance is described below and a copy of the ordinance can be found in **Appendix D**. The District plans to update the procedures outlined in Ordinance 204 in 2006 and incorporate the Regional Drought Response Plan under development by a cooperative effort between the San Diego County water agencies general managers and the San Diego County Water Authority.

District Drought Response Ordinance 204

On April 18, 1990, the District adopted its drought Ordinance No. 204. The ordinance describes the effects a drought may have on the District's water supply, its water conservation stages, and the implementation, violation, and penalties of the stages.

Section 2 of the ordinance lists the events and conditions leading to its adoption. As a result of the events, the District considered it critical to develop and impose mandatory restrictions (water conservation stages) on water use.

Section 7 of the ordinance describes the District's seven mandatory water conservation stages. These stages were developed such that they can be implemented as needed to provide the necessary reductions in demands to meet the desired drought condition or water emergency. The seven stages are listed as follows:

Stage 1. Normal Supply Level Available. Stage 1 applies during periods when a normal supply and distribution capacity is available, while at the same time demand levels are not expected to significantly increase in the immediate future. Elements of Stage 1 include:

(1) Implementation of the District's adopted Urban Water Management Plan and Conservation Program.

(2) Adoption of a District policy which is an action plan for implementation of water conservation techniques. (All elements shall apply as in Stage 2, but voluntary basis only.)

(3) The failure to repair a controllable leak is defined as "waste of water" and is prohibited at all times.

(4) All new indoor meter applicants must provide a plan indicating installation of 2.5 gpm showerheads and 1.6 gallon flush toilets.

(5) All new meters that will be used wholly or partially for landscape irrigation shall not be issued without the submittal of appropriate plans incorporating principles of low water use landscaping and irrigation systems.

(6) Changes to existing landscaping and turf areas or the addition of new landscaping or turf areas shall utilize principles of low water use landscaping and irrigation systems.

(B) Stage 2. Mandatory Compliance - Water Alert. Stage 2 applies during periods when the probability exists that the District will not be able to meet all of the water demands of its customers. Implementation of Stage 2 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 10%. During Stage 2, the following water conservation measures shall apply except when reclaimed water is used:

(1) Lawn watering and landscape irrigation is permitted only on designated irrigation days and only between the evening hours of 6:00 p.m. and 9:00 a.m. the following morning. Watering is permitted at any time if a hand-held hose equipped with a positive shut-off nozzle is used, a hand-held, faucet-filled bucket of five (5) gallons or less is used, or a drip irrigation system is used. Properties with addresses ending in an even number may use water on Monday, Thursday, and Saturday evenings until the following morning. Addresses ending in an odd number may use water on Tuesday, Friday, and Sunday evenings until the following morning.

(2) Agricultural users and commercial nurseries as defined in the Metropolitan Water District Code are exempt from Stage 2 irrigation restrictions, but will be required to curtail all non-essential water use. The watering of livestock and irrigation of propagation beds are permitted at any time.

(3) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited except on designated irrigation days. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shut-off nozzle for quick rinses. Washing is permitted at any time on the immediate premises of a commercial car wash. Further, such washing is exempted from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables.

(4) Filling or refilling swimming pools, spas, ponds, and artificial lakes is permitted only on designated irrigation days.

(5) Watering golf courses, parks, school grounds, and recreational fields is permitted only between the hours of 6:00 p.m. and 9:00 a.m. the following morning, except golf course greens and propagation beds.

(6) The use of water from fire hydrants shall be limited to fire fighting and related activities, for construction activities, or other activities necessary to maintain the health, safety, and welfare of the public.

(7) Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire, safety, or sanitation hazard.

(8) Restaurants shall serve water to their customers only when specifically requested.

(9) The operation of any non-recirculating ornamental fountain or similar structure is prohibited.

(C) Stage 3. Mandatory Compliance - Watering Warning. Stage 3 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 3 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 15%. During Stage 3, the following water conservation measures shall apply except when reclaimed water is used:

(1) Lawn watering and landscape irrigation is permitted only on designated irrigation days and only between the evening hours of 4:00 p.m. to 9:00 a.m. the following morning. Watering is permitted at any time if a hand-held hose equipped with a positive shut-off nozzle is used, a hand-held, faucet-filled bucket of five (5) gallons or less is used, or a micro-irrigation system/equipment is used. A "designated irrigation day" is determined by the last digit in the street address. Properties with addresses ending in an even number may use water on Tuesday and Saturday evenings until the following morning and addresses ending in an odd number may use water on Sunday and Thursday evenings until the following morning.

(2) Agricultural users and commercial nurseries shall reduce water use by an amount to be determined at the time of declaration. The watering of livestock and irrigation of propagation beds are permitted at any time.

(3) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited except on designated irrigation days. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shut-off nozzle for quick rinses. Washing is permitted at any time on the immediate premises of a commercial car wash. The use of water by all types of commercial car washes not using partially reclaimed or recycled water shall be reduced in volume by an amount to be determined at the time of declaration. Further, such washing is exempted from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables.

(4) Filling or refilling of swimming pools and spas is permitted only on designated irrigation days between the hours of 4:00 p.m. and 9:00 a.m. the following morning. The filling or refilling of ornamental lakes and ponds is prohibited. Irrigation reservoirs may be exempted when specifically requested.

(5) Watering golf courses, parks, school grounds, and recreational fields is permitted only between the hours of 4:00 p.m. and 9:00 a.m. the following morning, except golf course greens.

(6) The use of water from fire hydrants shall be limited to fire fighting and related activities, for construction activities, or other activities necessary to maintain the health, safety, and welfare of the public.

(7) Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire or sanitation hazards.

(8) Restaurants shall serve water to their customers only when specifically requested.

(9) The operation of any ornamental, non-recirculating fountain or similar structure is prohibited.

(10) New construction meters or permits for unmetered service shall not exceed the existing number of currently authorized meters. A new meter shall be issued only when an old meter is returned. Construction projects requiring water from a construction meter or a water truck

shall not use water unnecessarily for any purposes other than those required by regulatory agencies.

(D) Stage 4. Mandatory Compliance Water Warning. Stage 4 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 4 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 20%. During Stage 4, the following water conservation measures shall apply, including all provisions and conditions of Stage 3, except when reclaimed water is used:

(1) All water users shall minimize water use.

(2) Shower and sink warm up water shall be captured with a bucket and used outdoors or to flush toilets.

(3) All golf courses, parks, school grounds, and recreational fields must reduce from their base 1989-1990 usage by a volume of not less than 20% at the time of declaration, or for new projects a base allocation to be determined by the General Manager.

(4) Agricultural users and commercial nurseries shall reduce water use by an amount not less than 20%.

(5) The use of potable water for commercial, industrial, manufacturing, processing purposes, resorts, hotels, motels and restaurants may be reduced in volume by an amount to be determined by the General Manager.

(E) Stage 5. Mandatory Compliance Water Warning. Stage 5 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 5 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 30%. During Stage 5, the following water conservation measures shall apply, including all provisions and conditions of Stage 4, except when reclaimed water is used:

(1) All lawn and turf watering, other than golf courses, shall be limited to one day per week between the hours 6:00 p.m. and 9:00 a.m. the following morning. Properties with addresses ending in an even number may use water on Saturday evenings until the following morning and addresses ending in an odd number may use water on Sunday evenings until the following morning. All Homeowners Associations may use water on Wednesday evenings until the following morning.

(2) All construction water must be reclaimed or from a non- imported source unless the District determines in its sole discretion that those sources are not reasonably available.

(3) Washing at home of autos, trucks, trailers, boats, airplanes and other types of mobile equipment is prohibited except with water captured from sink and bath warm-up water or other recovered water in a handheld bucket.

(4) All new meter applicants must mitigate their specific impact upon the water supply by participating in a toilet/showerhead retrofit program or contributing to a reclaimed water project such that an off-setting supply of "new" water capacity is created, prior to the District's issuing a new water meter(s).

(5) All golf courses, hotels, motels, and resorts must reduce a minimum of 30% from their 1989-1990 base usage or for new projects a base allocation to be determined by the General Manager.

(F) Stage 6. Mandatory Compliance. Stage 6 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 6 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 40%. During Stage 6, the following water conservation measures shall apply, including all provisions and conditions of Stage 5, except when reclaimed water is used:

(1) No outdoor watering shall occur between 9:00 a.m. and 4:00 p.m. except when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations) or private well water. Anyone using such water at other than a private residence shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet along public rights-of-way where such water is being used noticing such usage.

(2) Washing of personal vehicles other than in commercial carwashes or commercial vehicles for reasons of public health and safety is prohibited except when water used has been salvaged from indoor use, i.e., warmup water from showers, sinks, and/or lavatories.

(3) There shall be no filling of new pools, new spas, or new fountains from imported sources.

(4) Golf courses shall reduce water use by 40%.

(G) Mandatory Compliance - Water Emergency. A Water Emergency applies when a major failure of any supply or distribution facility, whether temporary or permanent, occurs in the water distribution system of the State Water Project, Metropolitan Water District, San Diego County Water Authority, or District facilities, when the District determines that a water shortage exists for any reason, requiring use reductions of 50% or more. It is anticipated that these measures will result in a reduction of water use from a base allocation to be determined at the time of declaration by a volume of not less than 50%. During a Water Emergency, the following potable water use prohibitions shall apply, including all provisions and conditions of Stage 6, except when reclaimed water or well water is used.

(1) General Requirement

(a) All water users are expected to minimize water use for the duration of the drought emergency. All classes of water, including agricultural use, are expected to achieve a fifty percent reduction in use from the base allocation, as determined by the General Manager, except where specifically relieved of such reduction by the Board of Directors. Indoor uses will, in general, be reduced by such practices as fewer and shorter showers and baths, no running water while brushing teeth and shaving, full loads in dish and clothes washers, avoidance of unnecessary toilet flushing, frequent checking and repairing of leaks, and other conservation practices.

(2) Potable Water Use Prohibitions.

(a) Irrigation of Turf. Irrigation of turf with potable water is prohibited except under the following circumstances:

1. for active public park and school ground areas no more than twice weekly;

2. at day care centers where required by license no more than twice weekly;

3. for purposes of maintaining public safety (such as fire protection); and

4. when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations), or private well water.

5. at public parks, where trees and shrubs are interspersed amidst turf supported by the same irrigation system, provided the area of irrigation is within the drip line of each tree or shrub and irrigation is no more than once every two weeks.

(b) Irrigation of Ground Cover. Irrigation of ground cover with potable water is prohibited except under the following circumstances:

1. for fire protection;

2. where trees and shrubs are interspersed amidst ground cover supported by the same irrigation system; and

3. for preservation of existing ground cover which is designed to stabilize slopes.

Irrigation of ground cover under this Section is restricted to once every 14 days.

(c) Irrigation of Trees, Shrubs, Including Certified Agricultural Production Outside irrigation of trees, shrubs, and other plants which are not turf or ground cover, is allowed only by hand-held hose with positive shut-off nozzle, bucket, or micro irrigation systems/equipment. Sprinkler systems may only be used for certified agricultural production, watering active public park and school ground areas, maintenance of ground cover in accordance with this Ordinance and for purposes of maintaining public safety such as, fire protection.

(d) Irrigation Water Hours. No outdoor irrigation shall occur between 9:00 a.m. and 4:00 p.m., except when using a micro irrigation system/equipment, or for certified agricultural production, or when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations), or private well water. Anyone using reclaimed water at other than a private residence shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet along public rights-of-way where such water is being used noticing such usage.

(e) Hosing or Spraying of Paved or Hard Surfaces. Hosing paved or hard surfaces including, but not limited to, sidewalks, driveways, patios, streets and parking areas is prohibited except for compelling public health and safety reasons. Allowed hosing activities shall be done only with a hose equipped with a positive shut-off nozzle.

Spraying hard surfaces during irrigation activities is prohibited.

(f) Runoff and Repairing of Leaks. All runoff from outside water usage from property is prohibited. Leaks to irrigation and plumbing systems shall be immediately repaired.

(g) Filling of Pools and Spas. Filling of new pools and spas is prohibited except under the following circumstances:

1. where the owner can produce and demonstrate a conservation offset; or,

2. where the owner can produce evidence that private well water meeting public health standards will be utilized.

Draining of existing pools is prohibited except under orders of the appropriate local health or building official.

(h) Recreational and Ornamental Lakes and Ponds. Recreational and ornamental lakes and ponds may not be filled or refilled except with reclaimed water or private well water. Lakes and ponds utilizing reclaimed water at other than a private residence shall post signs around the lakes and ponds of where such water is being used noticing such usage.

(i) Golf Course Irrigation. Golf courses may use potable water supplied by the District only to irrigate tees and greens. Irrigation of fairways and roughs with potable water or any blend thereof is prohibited. Golf courses irrigating with reclaimed water shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet where such water is being used noticing such usage.

(j) Restaurants. Restaurants shall serve water only upon request.

(k) Ornamental Fountains. Operation of ornamental fountains is prohibited except when private well water or reclaimed water is used. Ornamental fountains utilizing reclaimed water at other than a private residence, shall post signs around the ornamental fountain of where such water is being used, noticing such usage.

(l) Washing of Vehicles. Washing of vehicles is prohibited except:

1. in commercial car washes;

2. commercial vehicles for reasons of public health and safety;

3. where water has been salvaged from indoor use, e.g. warmup water from showers, sinks, and/or lavatories; or

4. by a mobile high-pressure/low volume service.

(m) New Services. Except as to property for which a building permit has been heretofore issued, no new potable water shall be provided, no new temporary meters or permanent meters shall be provided and no commitments (such as, will serve letters, certificates or letters of availability) to provide potable water service shall be issued, except for the following circumstances:

1. the commitment includes a notice that a water shortage emergency prevails, resulting in a water moratorium and no water service is currently available;

2. for projects necessary to protect the public's health, safety, and welfare;

3. when it can be demonstrated that no net increase in potable water use will occur; or

4. when a conservation offset is provided.

(n) Certified agricultural irrigation shall reduce 50% from the 1989-1990 base year. Certified agricultural irrigation may be discontinued for varying durations, as determined necessary by the District's General Manager depending upon the circumstances of the water emergency.

(o)	The use of potable water for commercial, industrial, manufacturing, processing purposes, resorts, hotels, motels, and restaurants shall be reduced in volume by 50% from the base allocation for that user. These users shall be monitored by the District to ensure compliance with the 50% reduction. Any such user who exceeds their 50% reduction by 10% or more during any period monitored by the District shall have a flow restrictor installed at the user's expense until the user's total use for the year no longer exceeds a 50% reduction from that users base allocation. All fees and charges for the removal of the restrictor shall be paid by the user.

Section 9 of Ordinance 204 (Attached as Exhibit D) describes the procedure for implementation of the stages, from monitoring and stage selection to public announcement. Sections 10 through 12 describe the violation and the corresponding penalties issued to offenders. **These penalties can range from a warning letter, to hundreds of dollars in fines, to water service termination, depending on the violation(s).**

During a drought or emergency shortage, the District monitors production and distribution records daily and will increase public outreach.

Recent Experience

The drought of 1987 - 92 had significant impacts on the use (at the time) and future use of water.

In FY 1989-90, the District had reached its height of water use, with a total per capita water use of 326.6 gal/cap/day (gallons per capita per day). The effects of a long-term drought were just being realized and conservation measures were on the verge of being implemented. By FY 1991-92, the drought had peaked and through aggressive water conservation measures, including the District's implementation of stage 4 of its Waste Water Ordinance, the water use had dropped to approximately 230.4 gal/cap/day. This was over a 25 percent reduction of water use from FY 1989-90, and exceeded CWA's request for a 20 percent reduction.

The drought of 1987-92 changed the way water managers look at drought situations. Both MWD and CWA have developed elaborate drought management plans to fairly deliver reduced water to its member agencies (the reader is referred to the Urban Water Management Plans of MWD and CWA); and both MWD and CWA are heavily involved in water supply reliability planning.

Supply Reliability and Consistency of Supply

The reader is referenced to Table 8-1 and Section 8-2 of the CWA plan for normal year projections for the region that include the District's supply. Table 8-3 and Section 8-2 show a single dry year assessment and Section 8-3, Table 8-3 shows multiple dry year assessments that the District is relying on. The Tables from CWA were also included earlier in this Plan.

Worst Case Drought

While MWD and CWA both have similar water reliability goals of never providing less than 80 percent of full service demands, recent drought history, as described in the previous chapter, encourages the District to look at the possibility of an event of an extreme drought causing a reduction in water supply of up to 50 percent from normal. In this situation, the District's neighboring water agencies will most likely not be able to provide any supplemental water supply to the District, and the District will need to manage with only half of its normal supply.

In this worst case situation, the District would implement progressively severe water conservation stages of its ordinance as necessary to reduce District-wide water use by 50 percent. The District would look for significant public information and educational assistance from CWA and MWD. This would be an extreme situation and would likely put a severe social and economic burden on the District's customers. The landscape industry could be particularly hard hit. However, with the

addition of the Olivenhain Water Storage Project, the District has the ability to be self-reliant for periods of over 60 days.

Emergency Measures

The District has prepared itself to deal with emergency interruptions in water supply by developing an Emergency Response Plan and an Emergency Management Committee. The Plan, currently being revised, is described below.

Emergency Response Plan

In January 1988, the District produced, in conjunction with CWA, an *Emergency Disaster Manual*. The manual covered various types of disasters and the steps to take in the event one occurs. It addresses types of disasters that might occur, problems that may occur, communication, resource contacts, and an emergency plan.

The District has begun revising its Emergency Response Plan. The new plan will cover the needs and concerns to be handled within the District, as well as procedures and agreements in relation to adjacent water districts. Some of the procedures addressed in the plan will include:

- ❑ Assessing the status of water service needs within the District and in relation to adjacent water districts.
- ❑ The establishment of liaison with other agencies.
- ❑ The coordination with other agencies in initiating mutual aid.
- ❑ Determining how much water can be available to other districts, and when.
- ❑ The transfer of water to or from adjacent water districts as necessary.
- ❑ The transfer of other resources, personnel, equipment, or supplies, to or from adjacent public works, emergency agencies, or districts.

The District has established cooperative agreements with its adjacent water agencies for the emergency exchange and transportation of water. The District borders six other water districts: City of San Diego, San Dieguito WD, Santa Fe ID, Carlsbad MWD, Vallecitos WD, and Rincon Del Diablo MWD. Of these six, the District has emergency connections and agreements with four: San Dieguito WD, Santa Fe ID, Carlsbad MWD, and Vallecitos WD. The agreements describe the number, location, type of connection, and the agreed rate of flow.

In addition, the District completed a Vulnerability Assessment in 2003 and a Local Hazard Mitigation Plan in 2005.

Major Facility Failure

An earthquake, regional power outage or other emergency situation could result in an emergency interruption of the District's water supply from CWA. In this event, the District would manage the situation utilizing Standardized Emergency Management System (SEMS) procedures as called out in its Emergency Response Plan. The projected duration and severity of the outage would be assessed and an appropriate response developed and communicated to the public and governmental agencies as called out in the plan. **The Olivenhain Water Storage Project has back-up generators near the dam and water treatment plant.**

The District's storage facilities would provide some level of emergency supply. The duration of supply available from storage would depend upon the elapsed time between the emergency and the full implementation of the rationing, the availability of water transfers from adjacent districts,

and the percent of reduction in water use by District customers. The District's current total tank usable storage capacity is 76 million gallons (MG) and typically operates between 50 and 55 MG. In an average year at current development levels the District has an average daily demand of 17.5 million gallons per day (MGD). In addition, the Olivenhain Water Storage Project provides the District with the ability to be self-reliant for periods of over 60 days with 3,442 AF in the Olivenhain Reservoir.

Chapter 4
Financial Consideration

This chapter discusses the District's preparedness to manage its finances during periods when water sales to customers are reduced by drought conservation measures. This is a potential problem for many water agencies because reductions in water sales can produce reductions in revenues and result in budget shortfalls. Advance financial planning can address such problems before they arise.

The District's financial goal as a public agency is to be revenue positive, that is, to maintain revenues equal to costs and budgeted expenses, and maintaining adequate reserves for economic uncertainties of changes in water sales and costs. The District's normal water rates are established using normal expected water use and supply, and are set such that revenues slightly exceed costs.

To deal with drought situations, the District maintains reserve funds to mitigate the risk of large unexpected arte increases that are more difficult for its customers to manage, plan, and budget for. Water sales generate over 70% of the revenues needed to cover the District's expenses. Changes in water sales can dramatically impact the District's financial stability.

District Water Rates

The District charges its customers for water under an increasing block rate structure, in which the unit price of water increases as the volume used by each customer goes up. The lowest tier for residential users is a lifeline type allocation, and the highest tier is typically consumed for irrigation.

The District implemented a tiered water rate structure based on volume use. Meter sizes are rated in terms of equivalent dwelling units (EDU), where one EDU represents a single-family residence with a typical 3/4-inch meter and a maximum flow capacity of 27 gallons per minute. These 800 gallons of water per day is an average use developed from analysis of historical water use in the District.

Water revenues are collected from commodity rates and monthly system access fees. About 78% of the District's water sales are collected from commodity revenue. The District adopted an inclining block structure for collecting water user fees based on monthly consumption.

The Districts' rate structure was designed to ensure users pay a proportionate share of costs. Residential/Domestic users have a rate structure based on volume use in each block are priced at a rate ranging from $1.32 to $2.34 per 748 gallons. For commercial and irrigation users, the District implemented a two-tiered water rate structure that relates water consumption to the amount of water capacity each particular meter size was intended to provide. Tier break points for Commercial/Irrigation customers were established based on meter size and set in both winter and summer seasons, based on water use during each season because commercial/irrigation customers are on a seasonal schedule. It is anticipated that greater conservation efforts will also enhance revenue stability. For agricultural users, the District implemented a uniform rate for simplicity.

A system access charge is a cost recovery mechanism that is generally included in the rate structure to pay for customer and meter costs. Because of seasonal fluctuations, and changing weather patterns, a monthly system access charge provides a stable source of revenue independent of on-going water consumption.

Following are the District's current water rates as of May 2005.

Water Rates Per Unit

(1 unit = 748 gallons)
The rates include costs from San Diego County Water Authority (CWA) from which the District must purchase 100% of its potable water supply.

Domestic
0 - 8 Units $1.32
9 - 70 Units $1.95
Over 70 Units $2.34

Agricultural $1.93
Ag. Credit (0.27)

Recycled $1.73

Raw Water $1.73

Construction $2.62

Commercial /Irrigation
"B" Base $2.03
"C" Over Base $2.36

Combined Agricultural / Domestic
First 26 Units per month: Follow Domestic Rate Structure.
Over 26 Units per Month: Follow Agricultural Rate Structure.

Commercial /Irrigation Unit Allotments
"B" Base Allotment
Based upon water use by meter size.

Meter Size	Winter (Dec-May)	Summer (Jun-Nov)
5/8"	12	22
3/4"	23	47
1"	78	140
11/2"	170	360
2"	240	550
3"	750	1,600
4"	1,475	5,600

"C" Over Base Allotment

Response to Water Shortages

Effects on Overall Sales

The District's annual revenue requirement to be collected from rates and charges was developed based on historical average of water sales with staff projected growth. If drought conditions occur, the District's ability to recover its costs of service from water sales would be impacted depending upon the severity of water reductions as a result of the drought. In order to mitigate this risk, the District adopted the Revenue Policy in which the Board of Directors set the goal to collect at least 50% of the District's revenue requirement from low to medium users and utilize the District's Rate Stabilization Fund when water sales are lower than expected due to drought and revenues are not sufficient to pay for expenditures.

When water sales are lower than expected, due to prolonged dry weather conditions or a wet winter, and revenues are not sufficient to pay for the expenditures, these reserve funds are used to offset the need to a higher rate increase due to the drop in sales. However, if the reserves fall below the Board minimum goal of 25% of net estimated water sales, a rate increase beyond the planned increases of 3-5% per year may be necessary. The Board has also developed several guidelines for the user rate and setting process to minimize the potential rate impacts due to variation in weather conditions, thus avoiding revenue fluctuations.

Chapter 5
Existing Water Conservation Measures

The Olivenhain Municipal Water District (District) has been active in the development and implementation of water conservation measures, including those programs administered by CWA and MWD. The District has also demonstrated its commitment to water conservation through its participation as a Signatory to the California Urban Water Conservation Council (Council) Memorandum of Understanding. A description of the Council's "Best Management Practices" and the California Water Ethic follow.

"Best Management Practices" and the California Water Ethic

During the course of the State Water Resources Control Board's "Bay-Delta Proceedings" in the late 1980's and early 1990's, major urban and environmental interests worked cooperatively to develop a mutually accepted approach to the evaluation and implementation of urban water conservation measures. The result of this work was the statewide Memorandum of Understanding (MOU) on water conservation "Best Management Practices (BMP)," and the creation of the California Urban Water Conservation Council (Council) to monitor and administer implementation of BMP throughout the State.

As a signatory to the MOU, the District demonstrates generally accepted, cost effective, environmentally and socially acceptable water conservation planning and implementation. Through the cooperative efforts of the District, CWA, and MWD, all of the BMP measures are now being implemented within the District's service area. The complete BMP MOU is included in **Appendix E**.

See **Appendix F** for the District's 2001 to 2004 BMP reports. The online report to complete the annual BMP report for 2005 is not available from the Council. Once completed, the District will amend the report into the Plan.

The BMP, per the MOU, originally described 16 measures of water conservation that were encouraged to be implemented by water agencies / districts. The MOU was amended in September 1997 and reduced to 14 measures of water conservation. These measures include:

- ❑ Interior and Exterior Residential Water Audits
- ❑ Plumbing, New and Retrofit
- ❑ Distribution System Water Audits, Leak Detection and Repair
- ❑ Customer Metering
- ❑ Large Landscape (Turf) Water Audits and Incentives
- ❑ High-Efficiency Clothes Washers
- ❑ Public Information Programs
- ❑ School Education Programs
- ❑ Commercial and Industrial Water Conservation
- ❑ Conservation Pricing Programs
- ❑ Water Waste Ordinance
- ❑ Water Conservation Coordinator
- ❑ Ultra-Low Volume Toilet Replacement Programs

The California Water Ethic

The development of the water conservation BMP and the State Conservation Council assisted urban water agencies by streamlining the evaluation of water conservation measures. Perhaps more important, however, is the contribution that the BMP agreement has made to the development of a California water ethic.

The California water ethic recognizes the responsibility of water users to make the reasonable and best use of their existing water supplies before developing new ones. In the case of urban water users, this has meant the more aggressive implementation of water conservation, water reclamation, and groundwater management programs.

By demonstrating on a statewide basis their commitment to efficient use and careful management of existing supplies, urban water agencies have had increased success in their ability to gain political and regulatory approvals for the development of water transfers and other water supply projects. In this sense, the continued aggressive development of water conservation and water management measures by urban water agencies can be considered a prerequisite to new water transfers from Central Valley agriculture and to new solutions to the continuing water supply and environmental problems in the Sacramento-San Joaquin Delta.

Criteria for Evaluating Conservation Measures

For a water conservation measure to be practical for the District, it must meet four criteria:

- Technically feasible
- Environmentally acceptable
- Socially and politically acceptable
- Cost-effective to the District

A water conservation measure is determined to be cost-effective to the District if implementation of the measure reduces the District's reliance on purchasing water and reducing the costs by more than the cost of the conservation measure. This determination is made by comparing the District’s costs of implementing the conservation measure with the costs that the District avoids by not having to purchase treated or raw water, and deliver the water that is now being conserved.

The incremental cost to the District of purchasing raw or treated water, and distributing an additional acre-foot of water is known as the District’s marginal cost of supply.

Marginal Cost of Supply

The District currently purchases all of its treated potable water, both potable and raw, from the San Diego County Water Authority (CWA) via Metropolitan Water District of Southern California (MWD). Even as water recycling, groundwater, seawater desalination, and other local projects come on line in future years, the District’s purchases of CWA water will continue to increase. The District’s marginal *cost* of supply is its cost of purchasing an additional unit of CWA water.

The treated water the District buys is purchased at a commodity cost of $571 per acre-foot (AF). This is the District’s marginal cost of supply for treated water. Raw water is purchased for $459/AF. Water treated at the Olivenhain Water Treatment Plant costs the District $141/AF if debt service is included.

The marginal cost of supply is significant to an evaluation of water conservation and alternative supply sources because it provides a useful economic benchmark. If the District can implement a conservation or alternative supply measure for less than its marginal cost of supply, then it reduces its overall costs of meeting its customers' water needs, and from a broad economic perspective the measure can be said to be cost-effective. Specifically, when faced with a new increment of growing water demand, the District can bring supplies into balance with demands either by purchasing more supply from CWA (at $571/AF), or by implementing further conservation measures to reduce demands. If the later approach can be done for a unit cost of less than $571/AF, then the District has reduced its total costs and reliance upon purchasing water from CWA.

In looking at the economic and financial implications to the District of implementing water conservation programs, it is important to recognize that the ledger sheet has two sides: 1) costs, and 2) revenues. Although conservation is properly labeled as cost-effective when it reduces a district's costs, the implementing district must also grapple with a potential reduction in revenues that results if conservation-induced reductions in water sales are not offset by rate adjustments. This effect is illustrated in the following discussion.

Effects on Water Bills

The economics of water conservation sometimes become contentious when the focus is placed on water rates instead of on water bills. Because water conservation measures are designed to reduce water sales, some increase in rates may be necessary to balance revenues with costs. However, water conservation measures are by definition cost-effective when they reduce the District's total cost of meeting the water needs of its customers, and thereby **reduce the average customer's water bill.**

A hypothetical example of the effect of cost-effective conservation on an average water bill is shown in the box on the next page. In the example, water conservation measures have reduced average customer water use by 10 percent. In order to fund these measures and to balance revenues with costs, the District has implemented a 7 percent rate increase. The net effect is to reduce the average water bill by approximately 5 percent.

EFFECT OF CONSERVATION ON MONTHLY WATER BILL

	Water Use (100 cu. ft.)	Water Rate	Total Bill*
Without Conservation	20	$1.32 (0-8units) $1.95 (9-70 units)	$33.96
With Conservation	18	$1.41 (0-8 units) $2.09 (9-70 units)	$32.18
Percent Change	-10%	+7%	**-5%**

* Commodity Charge only; excludes fixed meter charges.

An outside observer could conclude that this 7 percent rate increase is an undesirable and possibly unacceptable result of water conservation. When in fact, what is occurring is that the

customer is now paying 5 percent **less** in total, while continuing to use showers, clothes washers, toilets, and landscapes just as before. But now, as a result of conservation measures, each of these uses is consuming less water. The customer gets the same **utility** benefits from his/her water use, but does so with less water and at a lower monthly cost.

Wastewater and Energy Cost Savings

Utilities other than the District may also benefit from cost-effective water conservation measures. Local wastewater districts may benefit from reduced hydraulic loading on their facilities, and the local electric and gas utilities may benefit from reduced energy demand for hot water heating and less pumping of water to the region. Because these potential cost savings do not accrue directly to the District, cooperative arrangements are necessary in order to allow these benefits to be factored into the economic evaluation of conservation programs.

In the case of wastewater service throughout the District, wastewater collection and disposal is managed by 5 individual special districts and two Districts owned and operated systems. The individual special districts include: Leucadia Wastewater District, Fairbanks Ranch Community Services District, Rancho Santa Fe Community Service District, Cardiff Sanitation District, and Whispering Palms Community Services District. The District owns and operates the 4S Ranch Sanitation Plant and the Rancho Cielo Sanitation District. The District's 4S Ranch Water Reclamation Facility treats 4S and Rancho Cielo Sanitation District wastewater for 100% beneficial reuse.

A water conservation-induced reduction in hydraulic loading could benefit some of these wastewater plants by relieving stress on existing hydraulically overloaded outfalls and treatment plants, or by allowing for the deferment of capacity expansion projects. All the wastewater plants should benefit from reduced operating costs and energy savings from smaller volumes of wastewater requiring treatment. The value of these potential benefits is currently unknown, although they do figure into District planning efforts described in the Water Recycling section of Chapter 6.

Cost Savings by Wholesale Water Suppliers

As explained previously, the District purchases imported water from CWA, which in turn purchases its water from MWD. Both CWA and MWD also benefit from water conservation in the District. CWA benefits from water conservation by being able to delay or reduce the size of large new water delivery facilities necessary to meet the needs of the County’s growing population. MWD likewise benefits by not having to develop as much new water supply, and by being able to delay or reduce the size of large new water delivery facilities.

MWD passes its cost savings on to its member agencies through financial assistance to its members. CWA has worked closely with its member agencies to utilize MWD funds as efficiently as possible, through its Cooperative Communications Program. This program splits the costs of approved conservation programs between MWD, CWA, and CWA member agencies.

CWA assists member agencies by providing for a joint participation in the following conservation programs: water budgets, artificial turf, landscape audits, public information and education, school education, and residential, commercial, industrial, and institutional water saving-devices.

Water Conservation Activities

The following list contains the water conservation measures being implemented, planned, or studied, including the BMP as well as additional measures.

General Measures

- Interior and Exterior Water Audits and Incentive Programs for Single Family Residential, Multi-Family Residential, and Government / Institutional Customers.
- School Education Programs.
- Metering with Commodity Rates for all new Connections and Retrofit of Existing Connections.
- Conservation Pricing.
- Water Conservation Coordinator.
- Water Waste Prohibition.

Residential Measures

- Plumbing, New and Retrofit.
- Residential Water Audits.

Commercial/Industrial Measures

- Commercial and Industrial Water Conservation: Continuing program. CWA implemented an industrial water audit program.

The commercial / industrial audit program was discontinued by CWA after 240 audits. The water savings was not realized and the customers did not find the surveys helpful. The program was designed to provide a complimentary water use survey of facilities to identify and evaluate water usage. The District now offers point-of-purchase vouchers for specific water saving devices to commercial / industrial accounts. The vouchers are for such devices as urinals, cooling tower conductivity controllers and pre-rinse spray heads. Conservation advice and other outdoor programs are available to accounts that request help in lowering their water usage, but the audit program is no longer advertised.

- Vouchers for the purchase of Cooling Tower Conductivity Controllers, waterbrooms, X-ray machines, pre-rinse spray nozzles, dishwashers, and Water Efficient Urinals.

Landscape Measures

- Landscape Water Conservation for New and Existing Single Family Homes.
- Large Landscape Water Audits (Turf Audits) and Incentives.

System Maintenance Measures

- Distribution System Water Audits, Leak Detection and Repair.

Since the District is meeting or exceeding its requirements, it plans to continue to pursue conservation measures especially those related to water recycling and groundwater use alternatives.

Financial Incentives

The District does not provide its customers with direct financial incentives for implementing conservation measures. The District does provide incentives for customers to conserve water

through its water rate structure. The existing water rates, as shown in the District Water Rates section of Chapter 4, are in three (3) tiers for promoting revenue stability, simplicity and conservation objectives. The District's rate structure was designed to encourage conservation through efficient usage and send the proper "price signal" to the customers about commodity use.

Chapter 6
Alternative Water Supply Measures

This Chapter evaluates alternative water supply measures for implementation within the Olivenhain Municipal Water District. Where applicable, the unit cost of an alternative water supply measure is compared to the District's marginal cost of conventional supplies. Other relevant considerations are also discussed.

The alternative water supply measures considered are the following:

- Water Recycling
- Desalination
- Local Runoff
- Exchanges and Transfers
- Groundwater Recharge

Water Recycling

Water recycling is the treatment and reuse of municipal wastewater or groundwater for irrigation and other non-potable uses. Recycled water benefits the region's water supply by reducing imported water demands and by providing a drought resistant local water supply. The District is aggressively pursuing the use of recycled water within both the Northwest and Southeast quadrants of the District. The production and distribution of recycled water within the District service area is accomplished through cooperative interagency agreements between the District, the City of San Diego, the City of Carlsbad, Rancho Santa Fe Community Services District and Vallecitos Water District. The District developed its Wastewater Reclamation Master Plan in coordination with these participating agencies with the result of developing recycled water use programs that have a regional benefit and assist other agencies with meeting their water reclamation goals.

In the Southeast quadrant, expansion of the 4S Ranch Water Reclamation Facility (Facility) was completed in 2004 to provide up to two million gallons per day (MGD) of recycled water (2,200 acre feet per year) for various irrigation uses. The Regional Water Quality Control Board determined effluent limits for the Facility based on local groundwater basin plan objectives. The State Department of Health Services approved the Facility for producing tertiary treated recycled water and authorized the District to distribute recycled water. The County of San Diego Environmental Health Department was involved in the approval of recycled water users. The District also purchases recycled water from the Rancho Santa Fe Community Services District for the Southeast Quadrant.

In the Northwest quadrant, another recycled water system is currently under construction with coordination and recycled water purchases from the Vallecitos Water District. Anticipated ultimate demands within this quadrant which could be served by recycled water average between 1,200 and 1,800 acre feet per year.

In 2005, the Facility collected and treated 750 AF of wastewater. It is projected that the Facility will treat 2,000 AF of wastewater each year through 2030, starting in 2008. The District originally believed the Facility would be treating 2,000 AF in 2005; however, construction of the facility was delayed while negotiating with DHS for certification of the UV disinfection system. Recycled water production was limited to 1 MGD during this period. The facility is currently capable of producing up to 2.0 MGD of tertiary treated recycled water.

Wastewater Collection and Treatment

The Olivenhain Municipal Water District boundary covers portions of five individual cities and the County of San Diego. Within this area, eight (8) Special Districts including the District provide wastewater collection and treatment to individual portions of the District. These Special Districts include the following:

- Olivenhain Municipal Water District
- Leucadia Wastewater District
- Rancho Santa Fe Community Services District
- Fairbanks Ranch Community Services District
- Whispering Palms Community Services District
- Cardiff Sanitation District (City of Encinitas/ San Elijo Joint Powers Authority (JPA))
- City of San Diego

Each of these Special Districts collects and treats the wastewater from their service area to either secondary or tertiary levels depending upon their individual permit requirements and their disposal method. Some agencies such as the San Elijo JPA and City of San Diego only treat the effluent to secondary levels because they use an ocean outfall or percolation pond for disposal. Other agencies such as OMWD treat to full Title 22 tertiary levels for beneficial reuse of the recycled water.

The boundaries of each of the special districts and cities which provide wastewater collection and treatment span outside of the boundary of the Olivenhain Municipal Water District. Due to the overlapping nature of the boundaries of the special districts, the cities and county in which they are located and other factors, it is very difficult to quantify how much of the wastewater collected and treated by each of the above agencies is solely from within OMWD. No agency maintains flow records delineated by other jurisdictional boundaries and consequently accurate data is unavailable. An estimate of the amount of wastewater collected from within the OMWD boundaries could be calculated by utilizing the amount of treated potable water purchased by customers with the OMWD boundaries. Based on historical averages, approximately 60 to 70 percent of all water used by customers is for landscape irrigation. Of the 30 - 40 percent of the water used for other than irrigation, approximately 80 percent is discharged as wastewater requiring collection and treatment via showers, toilets, washing machines, sinks, etc. This number is variable each year as population increases within the District's boundaries.

The District anticipates using 3,320 AF Tertiary Title 22 water for landscaping in 2010, 3,750 in 2015, and 3,700 in 2020 through 2030. Currently, the District is the only agency serving recycled water within its service area.

<u>4S Ranch Wastewater Treatment Plant Expansion</u>

On July 1, 1998, the District assumed ownership of the 4S Ranch Sanitation District and Rancho Cielo Sanitation District from the County of San Diego to provide wastewater collection and treatment services for these areas. These two areas encompass a total of approximately 4,000 acres and will ultimately contain over 6,000 single family dwelling units in addition to a variety of other commercial and public uses. In conjunction with the development of these areas, the District is constructing a recycled water system which will provide irrigation water for most of the

major irrigation water users in the southern portion of the District, including parkways, schools, greenbelts, and as many as six golf courses.

Within the 4S Ranch development area, the District owns and operates a wastewater treatment plant with an existing capacity of up to 2.0 MGD to accommodate the buildout of the 4S Ranch and Rancho Cielo specific planning areas.
This expansion project included the addition of filters and other treatment facilities necessary for treatment of the wastewater to Title 22 tertiary levels. This tertiary treated effluent is utilized throughout the District as recycled water to provide an uninterruptible source of irrigation water for the District's existing and proposed golf courses, greenbelts, and other large public irrigation uses.

Southeast Quadrant Regional Recycled Water Project
The District has completed construction of a comprehensive recycled water system in the Southeast Quadrant of the District. This recycled water system, combined with the 4S Ranch Water Reclamation Facility and the existing pipelines provides the ability to accommodate the recycled water needs of current and future customers. The recycled water system facilities include a 3 million gallons (MG) recycled water blending reservoir, several pump stations, a 1 MG recycled water tank, a supplemental water connection to the CWA raw water aqueduct, and over 5 miles of recycled water pipeline ranging in size from 12 inches to 20 inches. All golf courses and a large number of parks, schools, and greenbelt areas within the southern and eastern portions of the District, will ultimately be irrigated using recycled water.

Northwest Quadrant Recycled Water Project
The District proposes to construct approximately 2.9 miles of 8 and 12-inch diameter recycled water pipelines within existing streets in the northern portion of the City of Encinitas and the southern portion of the City of Carlsbad. The District will source the recycled water from the Vallecitos Water District's Mahr Reservoir once the current expansion is completed. This project is known as the "Northwest Quadrant (NWQ) Recycled Water Pipelines Project". The area the project will service was identified by the 1996 recycled water master plan as having a significant number of landscape irrigation users and close proximity to a source of recycled water as the District does not have the facilities to service the area with recycled water from the 4S Ranch WWTP. In anticipation of future recycled water service, the District has previously installed, or required developers to install, pipelines in the NWQ that will eventually become dedicated recycled water services. Construction of the remaining pipelines to connect the system is anticipated to take place in 2006.

Technical and Economic Feasibility

To reduce both the need for imported water and the cost of obtaining this imported water, the District constructed its water reclamation facility and secured the ongoing purchase of recycled water from participating agencies. The construction cost of the District recycled water projects are funded through the use of federal grants, contributions from the 4S Ranch and Rancho Cielo developers and water sales revenues. The District also participates in MWD's Local Resources (LRP) and the CWA Recycled Water Development Fund Program. These programs provide regional funding to offset the initial cost of recycled water production. The District most recently received a grant for the Northwest Recycled Water Project in the amount of $500,000 from the U.S. Department of the Interior.

To promote the use of recycled water by District customers, the District has adopted a mandatory use Ordinance 173 that requires new irrigation and other qualifying customers to use recycled water when and where available. Conditions of the ordinance are incorporated into detailed "conditions of service" agreements that the District signs with new customers. A copy of the District's reclamation ordinance is included in **Appendix G.**

The District encourages and mandates the use of recycled and other non-potable water sources through the execution of binding agreements with the golf courses and other users. The agreements stipulate that when recycled water is available, the users shall retrofit their facilities to utilize the water. The District also requires the installation of purple pipe and irrigation facilities to facilitate conversion to recycled water use when the water is available. The cost of recycled water is 90% of the cost of treated water and customers pay reduced capacity fees.

In addition to the District's efforts, the entire San Diego county area is presently in an intensive phase of water recycling planning and construction. The District is coordinating its recycling planning activities with the CWA. Reference is made to CWA's Urban Water Management Plan for additional information on area wide recycling planning.

Desalination

The Olivenhain Municipal Water District sits adjacent to the world's largest water supply: the Pacific Ocean. With a dissolved mineral content of roughly 35,000 parts per million (ppm), however, ocean water is unfit for either drinking or irrigation.

The technology exists for desalting ocean water to a high level of purity. Leading desalination technologies include distillation methods and membrane treatment such as reverse osmosis. Distillation methods involve heating salt water to produce steam, which is then collected and condensed as freshwater. Reverse osmosis involves forcing salt water at very high pressures through specially designed semipermeable membranes that act as a filter to salt and other dissolved minerals.

Once prohibitively expensive, seawater desalination is now a practical, cost-competitive source of new water for residents and businesses throughout our semiarid region. CWA's first regional seawater desalination project, on the site of the Encina Power Station in the City of Carlsbad, is expected to be up and running by 2011. If successful, the District would purchase desalinated water from the City of Carlsbad. The District anticipates purchasing up to 5,000 AF per year.

Environmental studies for the project are under way now. The Water Authority has identified a preferred route for a new underground pipeline that will deliver the desalinated seawater to the agency's regional aqueduct 10 miles inland. CWA is also looking at the feasibility of building a regional seawater desalination facility in the San Onofre area of Camp Pendleton.

Seawater desalination figures prominently in San Diego County's future. By 2020, the San Diego County Water Authority expects 6-15 percent of the county's water supply will come from seawater desalination facilities now on the drawing boards. Additional information on desalination can be found in the Urban Water Management Plans of CWA and MWD.

Improved Use of Local Surface and Groundwater

Improved use of local surface and groundwater benefits the region's water supply by reducing the need for imported water. As discussed in the Water Supply section of Chapter 2, the District purchases all of its water from CWA and has limited rights of its own to any local water supplies. The District is however currently involved in a project which could increase water quality and utilization of local groundwater by injecting raw or recycled water into the San Dieguito Groundwater Basin. By improving the water quality of the basins, the projects would make available for beneficial use, local water that currently recharges to the basin but is unusable because of poor water quality. The District could use 100 AF per year for groundwater recharge in years 2015 through 2030 and 100 AF per year for wetlands.

The District could utilize up to 250 AF/YR if a groundwater project was implemented. An Environmental Impact Report & Study and injection/recovery study have been completed for a potential future project in the San Dieguito Groundwater Basin which is not currently adjudicated. **Figure 6** on the next page shows the San Dieguito Groundwater Basin. The District currently has no basin management plan. If a groundwater injection project is implemented, a basin management plan will be completed and District rights for pumping from the groundwater basin will be negotiated from current rights holders. The District currently has no pumping rights within the basin.

Exchanges and Transfers

Exchanges and transfers are projects that allow for surplus water of one agency to be used or stored for future use by another agency. Both the San Diego County Water Authority (CWA) and the Metropolitan Water District of Southern California (MWD) are actively engaged in exchanges and transfers designed to increase the storage of wet year surplus water for use in dry years. The reader is referred to the Urban Water Management Plans of CWA and MWD for additional information on the exchange and transfer activities of these agencies.

In the future there may be the possibility of purchasing water from other wholesalers. Currently, the Metropolitan Water District owns the infrastructure that delivers water to the San Diego County Water Authority who wholesales the water to local water agencies. The costs of maintaining the infrastructure are a large factor in water expenses.

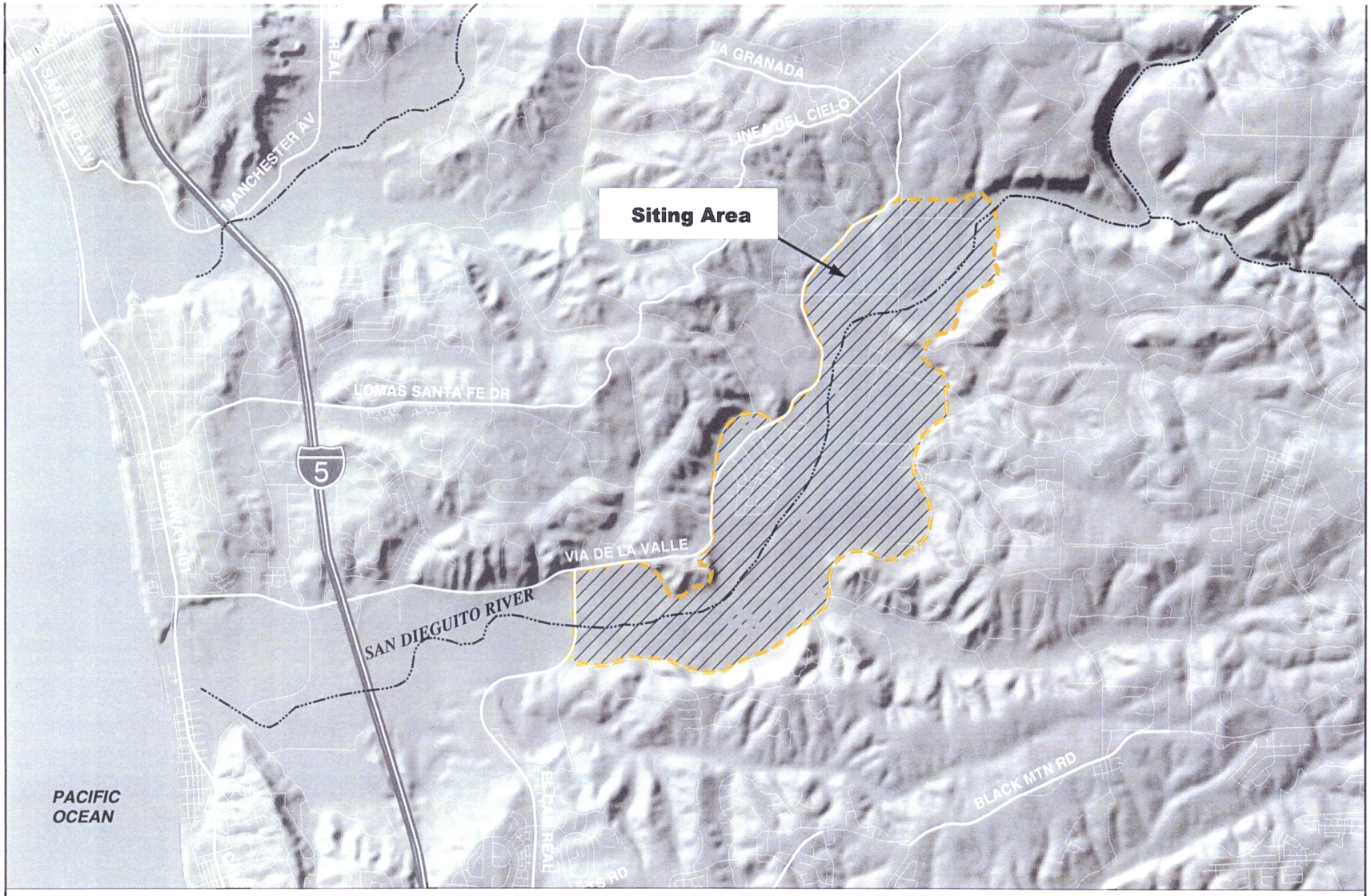
The District entered into an agreement with Western Water in July 1999 to purchase 7,500 acre feet of water if a fair wheeling rate could be negotiated with MWD. The water from Western Water was supposed to be deliverable at a savings over the current rates. Recently, however, the 2nd District Court of Appeals ruled that MWD could charge any customers a fixed rate for using their distribution system. At this time, the District is not able to save money by buying water from other suppliers that had hoped to use MWD's pipelines for a low wheeling rate.

The District does not currently control any water resources or major storage facilities of its own, and therefore is not now in a position to engage in significant exchanges and transfers. The Olivenhain Reservoir is available for emergency and seasonal storage of up to 24,000 acre-feet of water, of which, the District will have 3,443 AF of its own storage capacity. This storage availability will allow the District to store winter and other surplus water during times of abundance, for use during the summer or times of shortage.

As mentioned in the Water Recycling section, the District is currently evaluating the feasibility of using recycled water to rehabilitate the San Dieguito groundwater basin. Implementation of these projects will allow the groundwater basin to be used as a storage reservoir, where winter and other surplus recycled water can be stored for use during the summer or other periods of shortage.

As a member agency of CWA, which in turn is a member agency of MWD, the District shares its imported water supply with all the rest of the Southern California south coastal plain, using only what it needs when it needs it. The District also maintains emergency system interconnections with its neighboring retail water agencies. These interconnections allow for the transfer of limited amounts of water between agencies during emergencies and other short-term supply outages. See **Appendix H** for a copy of the District's "Emergency Exchange Interconnections" matrix. This chapter presents the Olivenhain Municipal Water District's plan for water conservation and alternative water supply management activities over the next five years.

GIS\2002\2K035\GIS\sandieguito basin site.mxd SP83:F6 (C.Lill) 4/1/04



Source: SANDAG, USGS

4500 2250 0 4500 Feet

Scale: 1 : 54,000; 1 inch = 4500 feet

NORTH

San Dieguito Basin Siting Area

Alternative Water Supply Management Activities

Alternative water supply management activities will consist of the following:

- **Water Recycling:** District to continue Southeast and Northwest Quadrant Recycled Projects as well as conduct feasibility, planning and permit studies for Recycled Water Distribution; for San Dieguito Groundwater Basin Recharge project.

- **Desalination:** CWA and the District to study and monitor developing technologies. Possible purchase of desalinated water from City of Carlsbad.

- **Local Runoff and Groundwater:** District to continue with planning for San Dieguito Groundwater Recharge project.

- **Exchanges and Transfers:** CWA and MWD to coordinate for region.

Figures

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3. Map of San Diego County Water Authority Service Area

4. Map of Metropolitan Water District Service Area

5. Map of Metropolitan Water District Service Area

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3. Current and Planned Water Supplies

4. Current and Planned Water Deliveries

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B. San Diego County Water Authority 2005 Urban Water Management Plan

C. Resolution Adopting the 2005 Urban Water Management Plan

D. Olivenhain Municipal Water Drought Response Ordinance 204

E. List of the MOU Best Management Practices

F. District's Best Management Practices Annual Reports for FY 2001-2004

G. Olivenhain Municipal Water Recycled and Non-Potable Water Ordinance 173

H. Department of Water Resources Checklist

APPENDIX A

Text of the 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 recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

(c) 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.

(d) 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.

(e) 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.

(f) 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.

(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.

APPENDIX B

San Diego County Water Authority
2005 Urban Water Management Plan

San Diego County Water Authority

2005 Urban Water Management Plan

www.sdcwa.org

Prepared by:
San Diego County Water Authority
Water Resources Department

With assistance provided by the following Departments:
General Counsel
Imported Water
Public Affairs
Engineering
Finance

November 2005

San Diego County Water Authority
4677 Overland Avenue
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2005 URBAN WATER MANAGEMENT PLAN
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ABBREVIATIONS

2000 Plan	2000 Urban Water Management Plan
2005 Plan	2005 Urban Water Management Plan
AAC	All-American Canal
Act	Urban Water Management Planning Act
AF	acre-feet
AF/YR	acre-feet per year
Bay-Delta	San Francisco Bay/Sacramento-San Joaquin River Delta
BMPs	Best Management Practices (Water Conservation)
CC	Coachella Canal
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CII	Commercial, Industrial and Institutional
CIMIS	California Irrigation Management Information System
CIP	Capital Improvement Program
CRA	Colorado River Aqueduct
CSP	Carryover Storage Project
CUWA	California Urban Water Agencies
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project (Federal)
CVWD	Coachella Valley Water District
CWA-MAIN	County Water Authority - Municipal and Industrial Needs
Delta	Sacramento - San Joaquin River Delta
DHS	Department of Health Services (State of California)
DIP	Delta Improvement Package
DMP	Drought Management Plan
DWR	Department of Water Resources (State of California)
EIR/EIS	Environmental Impact Report/Environmental Impact Statement
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
ERP	Emergency Response Plan
ESA	Endangered Species Act (Federal)
ESP	Emergency Storage Project

EWA	Environmental Water Account
EWDP	Emergency Water Delivery Plans
EWMPs	Efficient Water Management Practices
FAP	Financial Assistance Program
FFY	Federal Fiscal Year
Forum	Colorado River Basin Salinity Control Forum
FY	Fiscal Year
GRP	Groundwater Recovery Program
HEWs	high-efficiency clothes washers
IAWP	Interim Agricultural Water Program
IID	Imperial Irrigation District
IRP	Integrated Resources Plan
IRWMP	Integrated Regional Water Management Plan
lb/day	pounds per day
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
LRP	Local Resource Program
M&I	municipal & industrial
MAF	million acre-feet
MAF/YR	million acre-feet per year
MAIN	Institute for Water Resources – Municipal and Industrial Needs
MCB Camp Pendleton	Marine Corps Base Camp Pendleton
mg/l	milligrams per liter
mgd	million gallons per day
Metropolitan	Metropolitan Water District of Southern California
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding Regarding Urban Water Conservation in California
MTBE	Methyl Tertiary Butyl Ether
MWDOC	Municipal Water District of Orange County
NEPA	National Environmental Policy Act
OAEP	Operational Area Emergency Plan
Omnibus Act	Omnibus Appropriations Act
OM&R	Operation, Maintenance, and Repair
O&M	Operations and Maintenance

PEIR	Programmatic Environmental Impact Report
ppb	parts per billion
ppm	parts per million
QSA	Quantification Settlement Agreement
Regional Board	California Regional Water Quality Control Board
RO	reverse osmosis
ROD	Record of Decision
RUWMP	Regional Urban Water Management Plan
RWDF	Reclaimed Water Development Fund
RWFMP	Regional Water Facilities Master Plan
SANDAG	San Diego Association of Governments
SDP	Metropolitan Water District of Southern California's Seawater Desalination Program
SDWA	Safe Drinking Water Act
SEMS	Standardized Emergency Management System
Skinner TP	Lake Skinner Water Treatment Plant
SONGS	San Onofre Nuclear Generating Station
SRF	State Revolving Fund
SSOA	Surface Storage Operating Agreement
SWA	Source Water Assessment
SWP	State Water Project
SWRCB	State Water Resources Control Board
TAC	Technical Advisory Committee
Transfer Agreement	Water Authority-Imperial Irrigation District Transfer Agreement
TOC	total organic carbon
TDS	total dissolved solids
ULFTs	ultra-low flush toilets
USBR	U.S. Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
VIP	Voucher Incentive Program
Water Authority	San Diego County Water Authority
Water Use Plan	California's Colorado Water Use Plan
WRLP	Water Reclamation Loan Program
WSDM Plan	Water Surplus and Drought Management Plan

SECTION 1 – INTRODUCTION

The mission of the San Diego County Water Authority (Water Authority) is to provide a safe and reliable supply of water to its member agencies serving the San Diego region. This 2005 Urban Water Management Plan (2005 Plan) identifies a diverse mix of water resources projected to be developed over the next 25 years to ensure long-term water supply reliability for the region.

Since adopting the 2000 Urban Water Management Plan (2000 Plan), the Water Authority and its member agencies have made great strides in conserving and diversifying its supplies. With an aggressive conservation program, the region has conserved an average of 40,500 acre-feet per year (AF/YR) over the last five years. In 2003, conserved agricultural transfer water from the Imperial Valley began flowing to the region, which will provide 200,000 AF/YR by 2021. In 2003, the Water Authority was assigned rights to 77,700 AF/YR of conserved water from projects that will line the All-American and Coachella Canals. Deliveries of this conserved water will reach the region by year 2007. Since the 2000 Plan, the Water Authority has also completed a number of actions towards developing a 50-million gallon per day (mgd) seawater desalination facility at the Encina Power Station in the City of Carlsbad.

Developing these supplies is key to diversifying the region's supply sources, but other factors are also important, such as member agencies implementing and managing local resources. Indeed, local surface water, groundwater, and recycled water are all important elements of a diverse water supply portfolio. Likewise, it is critical that the Metropolitan Water District of Southern California (Metropolitan) continue to provide a reliable supply of imported water to the region. The Water Authority, its member agencies, and Metropolitan must work together to ensure a diverse and reliable supply for the region.

This section of the 2005 Plan describes the state laws that influence preparation of the plan, including the Urban Water Management Planning Act (Act) and Water Code Sections that were enacted with the passage of Senate Bills 610 and 221 in 2001. It also includes a discussion of the coordination that occurred in preparation of the 2005 Plan as well as a general description of the Water Authority, with its physical water delivery system, service area characteristics, climate, and population projections.

1.1 CALIFORNIA URBAN WATER MANAGEMENT PLANNING ACT

The California Water Code requires all urban water suppliers in the state to prepare urban water management plans and update them every five years. These plans satisfy the requirements of the Act of 1983, including amendments that have been made to the Act. Sections 10610 through 10657 of the California Water Code details the information that must be included in these plans, as well as who must file them.

Major amendments made to the Act since the Water Authority's 2000 Plan was prepared include:

* Description of specific water supply projects and implementation schedules to meet projected demands over the planning horizon;
* Description of the opportunities for the development of desalinated water;
* Additional information on groundwater, where groundwater is identified as an existing or planned water source;
* Description of water quality over the planning horizon; and
* Description of water management tools that maximize local resources and minimize imported water supplies.

In addition, the California Department of Water Resources (DWR) will consider whether the urban water supplier has submitted an updated plan when determining eligibility for funds made available pursuant to any program administered by the department.

According to the Act: "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." The Act requires that each urban water supplier that provides water for municipal purposes either directly or indirectly to more than 3,000 customers or supplies more than 3,000 AF of water annually, shall prepare, update, and adopt its urban water management plan at least once every five years or before December 31, in years ending in five and zero. In accordance with the Act, the Water Authority is required to update and adopt its plan for submittal to the DWR by December 31, 2005. **Appendix A** contains the text of the Act.

1.2 SENATE BILLS 610 AND 221

Water Code Sections 10910 through 10914 and Government Code Sections 65867.5, 66455.3, and 66473.7 (commonly referred to as SB 610 and SB 221) amended state law to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 requires that the water purveyor of the public water system prepare a water supply assessment to be included in the environmental documentation of certain large proposed projects. SB 221 requires affirmative written verification from the water purveyor of the public water system that sufficient water supplies are available for certain large residential subdivisions of property prior to approval of a tentative map.

Section 4 of the 2005 Plan contains documentation on the existing and planned water supplies being developed by the Water Authority. This documentation may be used by the Water Authority's member agencies in preparing the water supply assessments and written verifications required under state law. Specific documentation on member agency supplies and Metropolitan supplies may be found in their respective plans.

1.3 WATER AUTHORITY'S 2005 URBAN WATER MANAGEMENT PLAN

This report constitutes the 2005 update to the Water Authority's 2000 Plan. To adequately demonstrate how the region will be reliable over the next 25 years, the 2005 Plan quantifies the regional mix of existing and projected local and imported supplies necessary to meet future retail demands within the Water Authority's service area. While the 2005 Plan includes specific

documentation on development of the Water Authority's supplies, the plans submitted by the member agencies and Metropolitan will provide details on their supplies that contribute to the diversification and reliability of supplies for the San Diego region.

Striving for consistency among the plans of Metropolitan, the Water Authority, and its member agencies is important to accurately reflect the projected supplies available to meet regional demands. In order to facilitate coordination within the Water Authority's service area, the Water Authority formed an Urban Water Management Plan Working Group made up of staff from the Water Authority and its member agencies. This group provided a forum for exchanging demand and supply information. In addition, DWR and the California Urban Water Conservation Council (CUWCC) hosted a special workshop to review the requirements of the Act. At a separate workshop, the Working Group received a briefing from Metropolitan on its regional plan, and participants discussed strategies for coordination between the supply agencies.

The Water Authority further coordinated its efforts by working with the appropriate wastewater agencies. These agencies helped prepare the water recycling element of the 2005 Plan, which describes the wastewater treatment requirements and water recycling potential. The Water Authority also coordinated with Metropolitan regarding projected needs for imported water deliveries. A member agency draft 2005 Plan was distributed for technical review by the Water Authority's member agencies and their comments incorporated.

In accordance with the Act, the Water Authority notified the land use jurisdictions within its service area that it was preparing the 2005 Plan. Prior to adoption, the Water Authority mailed the 2005 Plan to interested parties that included the Water Authority's member agencies, the San Diego Regional Chamber of Commerce, Sierra Club, County of San Diego, and cities within Water Authority's service area. The 2005 Plan was also available for public review at the Water Authority and on the Water Authority's Internet homepage.

The Water Authority reviewed all of the comments received and revised the plan accordingly. The Water Authority Board of Directors held a public hearing on October 27, 2005, and adopted the Water Authority's 2005 Plan on November 17, 2005. **Appendix B** contains a copy of the resolution adopting the 2005 Plan.

DWR has prepared a checklist based on the Act of items that must be addressed in an agency's plan. This checklist allows an agency to identify where in its plan it has addressed each item. The Water Authority has completed the checklist, referencing the sections and page numbers included in the 2005 Plan. The completed checklist is included in **Appendix C**.

1.4 HISTORY AND DESCRIPTION OF THE WATER AUTHORITY

1.4.1 History

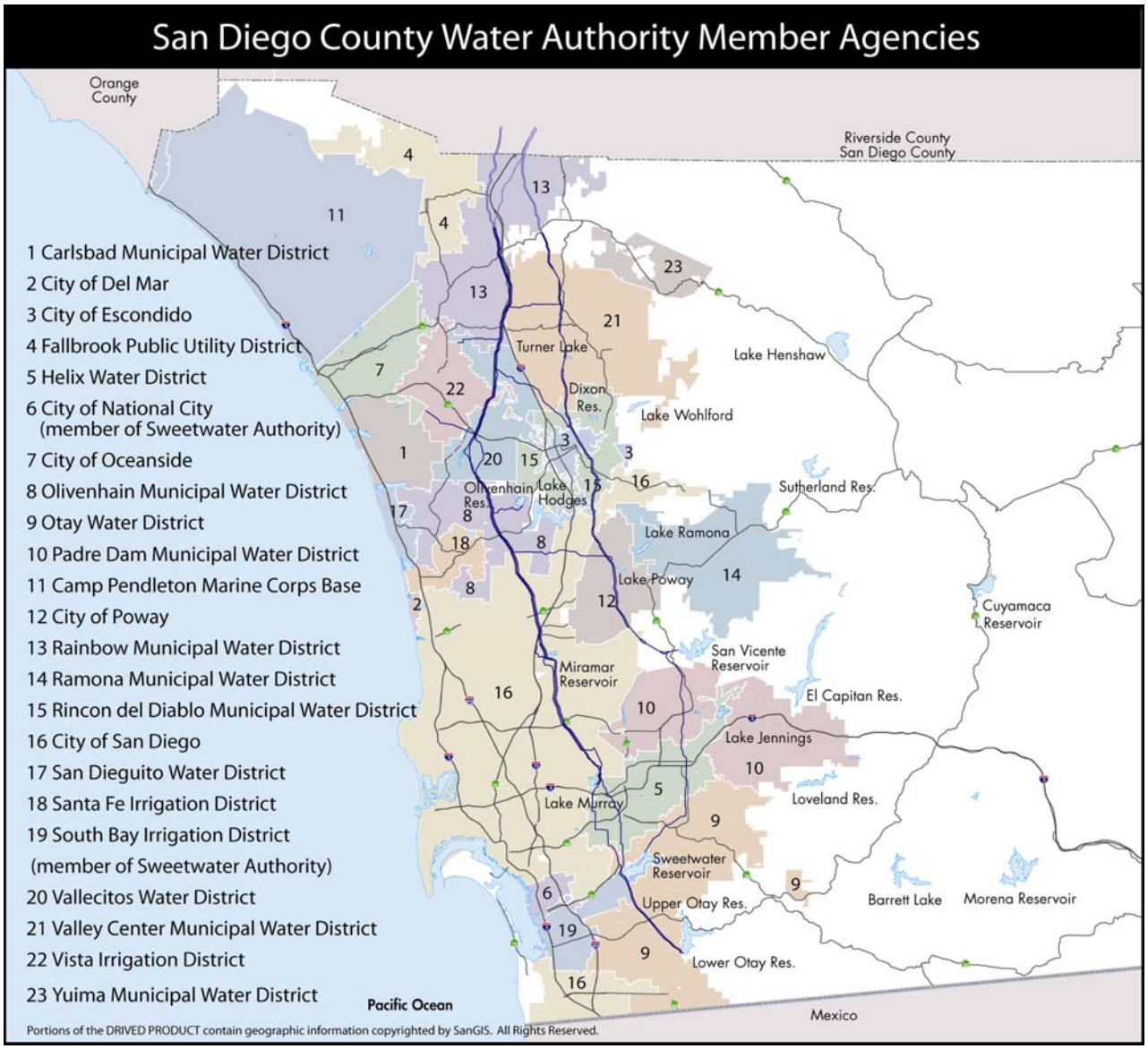
The Water Authority was established pursuant to legislation adopted by the California State Legislature in 1943 to provide a supplemental supply of water as the San Diego region's civilian and military population expanded to meet wartime activities. Due to the strong military presence, the federal government arranged for supplemental supplies from the Colorado River in the 1940s. In 1947, water began to be imported from the Colorado River via a single pipeline that connected to Metropolitan's Colorado River Aqueduct (CRA) located in Riverside County. To meet the water

demand for a growing population and economy, the Water Authority constructed four additional pipelines between the 1950s and early 1980s that are all connected to Metropolitan's distribution system and deliver water to San Diego County. The Water Authority is now the county's predominant source of water, supplying from 75 to 95 percent of the region's needs depending upon weather conditions and yield from surface, recycled, and groundwater projects.

1.4.2 Service Area

The Water Authority's boundaries extend from the border with Mexico in the south, to Orange and Riverside counties in the north, and from the Pacific Ocean to the foothills that terminate the coastal plain in the east. With a total of 920,463 acres (1,438 square miles), the Water Authority's service area encompasses the western third of San Diego County. **Figure 1-1** shows the Water Authority's service area, its member agencies, and aqueducts.

FIGURE 1-1
WATER AUTHORITY SERVICE AREA



1.4.3 Member Agencies

The Water Authority's 23 member agencies purchase water from the Water Authority for retail distribution within their service territories. A 34 member Board of Directors comprised of member agency representatives governs the Water Authority. The member agencies six cities, four water districts, eight municipal water districts, three irrigation districts, a public utility district, and a federal military reservation have diverse and varying water needs.

In terms of land area, the city of San Diego is the largest member agency with 210,726 acres. The smallest is the City of Del Mar, with 1,159 acres. Some member agencies, such as the cities of National City and Del Mar, use water almost entirely for municipal and industrial purposes. Others, including Valley Center, Rainbow, and Yuima Municipal Water Districts, deliver water that is used mostly for agricultural production.

1.5 WATER AUTHORITY PHYSICAL WATER DELIVERY SYSTEM

The Water Authority currently purchases water from Metropolitan and transferred water from the Imperial Irrigation District (IID). These supplies are delivered to its member agencies through two aqueducts containing five large-diameter pipelines. The aqueducts follow general north-to-south alignments, and the water is delivered largely by gravity. The Water Authority has an exchange agreement with Metropolitan, which allows delivery of the IID transfer water through Metropolitan's system. Delivery points from Metropolitan are located about six miles south of the Riverside/San Diego county line. The largest single-year of sales of imported water ever recorded by the Water Authority was 644,000 acre-feet (AF) in fiscal year (FY) 2004.

The First Aqueduct includes Pipelines 1 and 2, located in a common right-of-way. They share five common tunnels and are operated as a unit. They have a combined capacity of 180 cubic feet per second (cfs). Pipelines 3, 4, and 5 form the Second Aqueduct. These pipelines are operated independent of the First Aqueduct and are located in separate rights-of-way. Pipeline 3 has a capacity of 280 cfs; Pipeline 4 carries 470 cfs, and Pipeline 5 carries 500 cfs. **Figure 1-1** shows the locations of the Water Authority's aqueducts within San Diego County.

1.5.1 Capital Improvement Program (CIP)

The Water Authority completed a Regional Water Facilities Master Plan (RWFMP) process in 2004. The RWFMP defines the regional facilities needed to meet water demands within the Water Authority's service area through the year 2030. The Water Authority examined the changing water supply and demand forecast patterns using a probabilistic approach to facilities planning. A computer model analyzed various facility options under a range of supply and demand scenarios. This modeling resulted in an assessment of the reliability of the system measured in terms of the probability, frequency, and magnitude of water shortages for each facility option.

In June 2004, the Water Authority Board of Directors voted unanimously to select seawater desalination as the preferred RWFMP alternative and added it and 21 other major water facilities projects to the CIP. This action, the largest investment in water supply reliability and system infrastructure in the Water Authority's 60-year history, more than doubled the agency's CIP,

from $1.3 billion to more than $3.19 billion (**Table 1-1**). The water supply and capital improvements currently under way and planned for the future are designed to serve the region's needs through 2030. Besides seawater desalination, they include new pipelines and pump stations to convey the water, a water treatment facility, improvements to the existing water delivery system, the All-American and Coachella Canal Lining Projects, and projects to increase storage capacity throughout the county.

The timing for implementation of the CIP projects will be evaluated based on the reliability analysis prepared for the 2005 Plan. If necessary, project schedules will be adjusted to accurately reflect when the project is needed for reliability purposes.

TABLE 1-1
CIP COST SUMMARY BY CATEGORY
(IN $ MILLIONS)

PROJECT CATEGORY	PROJECT COST [2]
Pipeline Projects	$1,214.5
System-wide Improvements	$297.6
Emergency Storage Projects	$858.7
Water Supply Projects	$834.9
Flow Control & Pumping Facilities	$100.1
Reimbursable Projects - Total Cost	$9.2
Total Costs of Active & Future Projects	$3,315.0
Less All Reimbursable Costs [1]	$123.3
Net Water Authority Costs	$3,191.7

[1] There are project costs within the CIP that are considered reimbursable.
[2] Project costs are included in the FY 06/07 Water Authority CIP Budget

Water Authority Regional Treatment Facility

The treated water that serves the San Diego region is presently produced at local water treatment plants owned by several Water Authority member agencies, and is also imported from Metropolitan's Skinner Water Treatment Plant (Skinner TP) in Riverside County. The member agency treatment plants and capacity are shown in **Table 1-2**. A rapid increase in treated water demand over the last five years has produced significant strains on these treated water supply sources. During peak periods, local plants in the San Diego region typically operate at maximum capacity, and imported water from the Skinner TP meets the remaining demand.

TABLE 1-2
MEMBER AGENCY TREATMENT PLANT CAPACITY

MEMBER AGENCY	WATER TREATMENT PLANT	CAPACITY (MILLION GALLONS PER DAY)
Escondido, City of/Vista Irrigation District	Escondido/Vista	65
Helix Water District	Levy	106
Olivenhain Municipal Water District	Olivenhain	34
Oceanside, City of	Weese	25
Poway, City of	Berglund	24
Ramona Municipal Water District	Bargar	4
San Diego, City of	Alvarado	150
San Diego, City of	Miramar	140
San Diego, City of	Lower Otay	40
San Dieguito Water District/Santa Fe Irrigation District	Badger	40
Sweetwater Authority	Perdue	30

To maintain an adequate level of capacity to meet increased retail customer demands throughout the San Diego region, in September 2005, the Water Authority's Board of Directors certified an environmental impact report for the Twin Oaks Valley Water Treatment Plant and awarded a design-build-operate contact to begin final design and construction of the plant. The plant will be the Water Authority's first water treatment plant and will produce 100-million gallons of drinking water per day beginning in 2008. The plant will help address the growing demand for additional treated water supplies in the region, especially during hot summer days.

Emergency Storage Project

Also part of the CIP, the Emergency Storage Project (ESP) is an $939 million system of reservoirs, pipelines, pump stations, and other facilities that will work together to store and move water around the county in case of a prolonged interruption of the region's imported water supply. The facilities that make up the ESP are located throughout San Diego County and are being constructed in phases. The initial phase includes the recently completed 318-foot-high Olivenhain Dam and accompanying 24,364 AF Olivenhain Reservoir. **Section 9.1.2** contains additional information on the ESP.

Carryover Storage Project

The CIP also includes budget for the Carryover Storage Project (CSP). The Water Authority's RWFMP identifies the need for additional water storage capacity to improve water supply reliability for the region. The Water Authority is currently conducting environmental reviews of project alternatives, including a possible expansion of the San Vicente Reservoir.

The Water Authority has identified three main needs for carryover storage:

Enhance water supply reliability - Carryover storage provides a reliable and readily available source of water during periods of potential shortage, such as during dry years.

Increase system efficiency - Carryover storage provides operational flexibility to serve above-normal demands, such as those occurring in dry years, from storage rather than by the over-sizing of the Water Authority's imported water transmission facilities.

Better management of water supplies - Carryover storage allows the Water Authority to accept additional imported deliveries during periods of availability, such as during wet years, to ensure water availability during dry years. As described in **Section 6**, the Water Authority receives delivery of State Water Project (SWP) supplies from Metropolitan, which can be significantly influenced by the need to protect environmental resources in the Sacramento-San Joaquin Bay-Delta region. This protection requires that the SWP reduce deliveries in dry years, but similarly allows for increased deliveries during wet years. Efficient management of this system therefore requires carryover storage to absorb the annual fluctuations in supply.

1.6 SERVICE AREA CHARACTERISTICS

The Water Authority's service area characteristics have undergone dramatic changes over the last several decades. The region's population grew on average by 50,000 people per year resulting in a shifting of large amounts of rural land to urban uses. This shift in land use has resulted in the region's prominent urban and suburban character. San Diego County also has a rich history of agriculture, beginning with the large cattle ranches established in the 18th century and continuing through the diverse range of crops and products grown today. Although the total number of agricultural acres under production has declined, the region maintains a significant number of high value crops, such as flowers, vegetables, nursery plants, turf grass, avocados, and citrus. Based on the last survey conducted by DWR, irrigated agricultural land in the Water Authority's service area totaled 73,769 acres. San Diego County agriculture is a $1.3 billion dollar per year industry, eighth in farm production value in the state. Shifting market forces, including the increasing cost of water, may cause a change in agricultural practices and ultimately result in the retirement of some economically marginal lands.

1.6.1 Regional Economy and Demographics

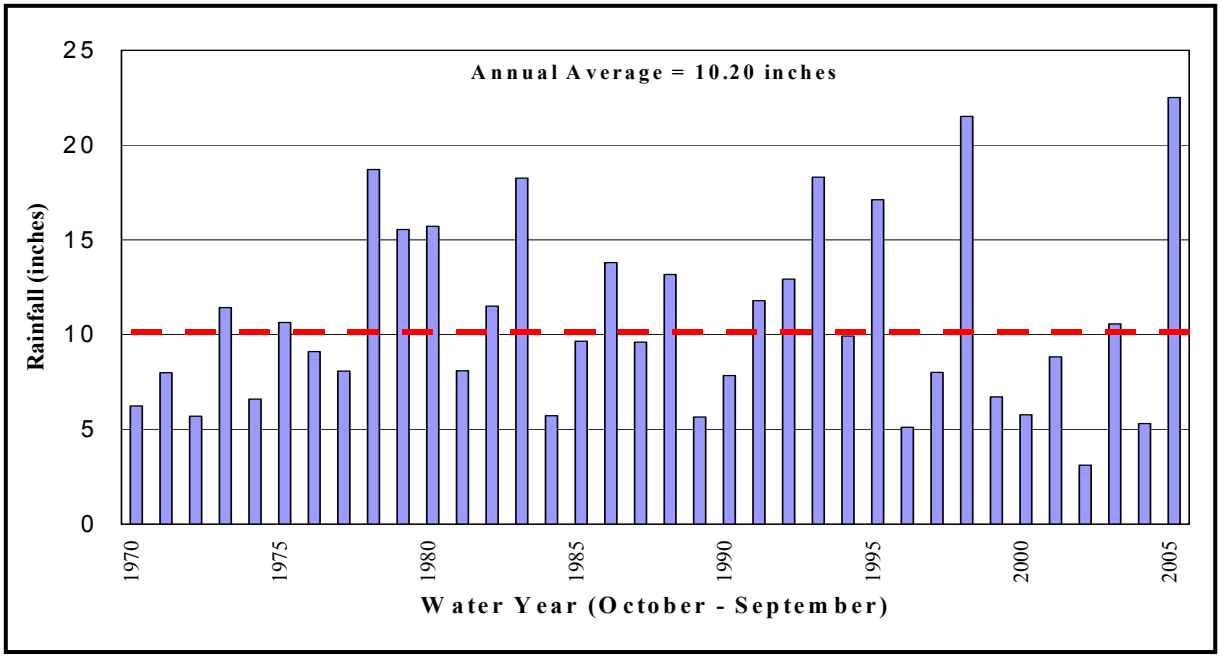
Historically, defense-related contracting and manufacturing, particularly the aerospace industry, drove the local economy. This pattern peaked in the 1980s as federal spending fueled economic growth, and local defense-related expenditures surged to $9.6 billion in 1987. When this level of federal spending experienced sharp cuts in the early 1990s, widespread layoffs resulted and triggered a recession that lasted until 1995.

San Diego County has since rebounded, due in part to the emergence a diversified employment base that includes telecommunications, electronics, computers, software, and biotechnology. High technology and bioscience related employment now exceeds 160,000 jobs. San Diego's gross regional product is forecast to reach $151.1 billion in 2005, a 6.6 percent increase over 2004's $141.7 billion estimate. The number of people actively working averaged 1.42 million in 2004, and that number is forecast to rise by 2.1 percent in 2005, to 1.45 million. Compared to the pace of expansion recorded in the 1980s, the current growth is more moderate, and perhaps more healthy and sustainable.

1.6.2 Climate

Climatic conditions within the county area are characteristically Mediterranean along the coast, with mild temperatures year-round. Inland area weather patterns are more extreme, with summer temperatures often exceeding 90 degrees Fahrenheit and winter temperatures occasionally dipping below freezing. Average annual rainfall is approximately 10 inches per year on the coast and in excess of 33 inches per year in the inland mountains. More than 80 percent of the region's rainfall occurs between December and March.

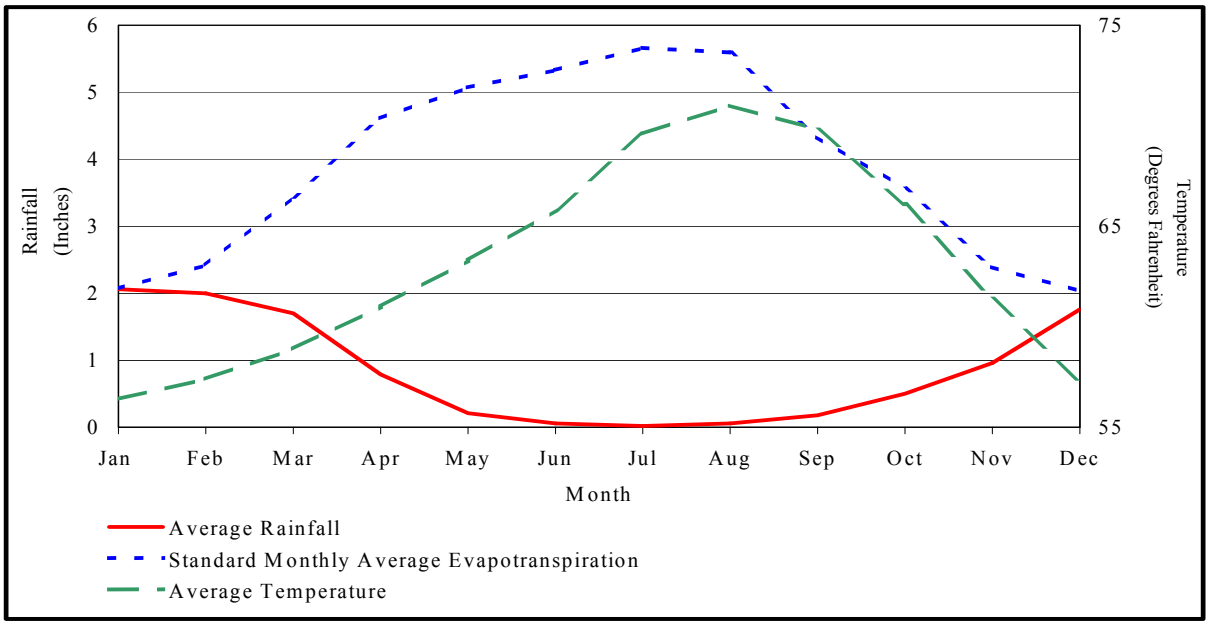
FIGURE 1-2
ANNUAL RAINFALL
(LINDBERGH FIELD STATION)



Variations in weather patterns affect regional short-term water requirements, causing reductions in water use during wet cycles and demand spikes during hot, dry periods. Over the last seven years, San Diego has experienced the latter event. Since 1999, local rainfall exceeded the historic annual average only twice (**Figure 1-2**). These conditions resulted in record level demands during FY

2004, with total local and imported water use surpassing 715,700 AF. With record rainfall in FY 2005, total demands decreased to 642,152 AF. On a monthly basis, water requirements tend to increase during the summer months when a decrease in rainfall combines with an increase in temperatures and an increase in evapotranspiration levels (**Figure 1-3**).

FIGURE 1-3
COMPARISON OF AVERAGE RAINFALL (Lindbergh Field), STANDARD MONTHLY AVERAGE EVAPOTRANSPIRATION (Balboa Park CIMIS Station #184), AND AVERAGE TEMPERATURE (Lindbergh Field)



1.6.3 Population

When the Water Authority was formed in 1944, the population of San Diego County totaled roughly 260,000 people. In 2004, total population within the service area reached 2.8 million. The City of San Diego represents the largest population of any member agency, with approximately 1.3 million people. The Yuima Municipal Water District has the smallest population, at just under 2,000 people. The average population density in 2004 was 3.43 people per acre, with National City having the highest density (9.32/acre) and Yuima Municipal Water District the lowest (0.15/acre).

The population of San Diego County is projected to increase by 842,300 people between 2005 and 2030, for a total county population in excess of 3.8 million. This change represents an average annual increase of about 33,700 people, for an annual growth rate of roughly 1.1 percent. These regional growth projections are based on the San Diego Association of Governments (SANDAG) 2030 Cities/County Forecast.

The Water Authority's service area population projections are also based on SANDAG's 2030 Cities/County Forecast and appear in **Table 1-3**. Water Authority member agencies are projected to have varying future growth. Some, such as the Santa Fe Irrigation District and the City of Del Mar,

are expected to experience relatively little growth. Others, including the Otay and Vallecitos water districts, anticipate large increases in both population and water demand.

TABLE 1-3
POPULATION FORECAST WITHIN WATER AUTHORITY SERVICE AREA (2005-2030)

YEAR	POPULATION
2005	2,947,262
2010	3,113,498
2015	3,261,691
2020	3,414,068
2025	3,554,815
2030	3,703,243
Average Annual Growth	30,239

Source: SANDAG 2030 Cities/County Forecast

SECTION 2 – WATER DEMANDS

Demand for water in the Water Authority's service area falls into two basic categories: municipal and industrial (M&I), and agricultural. M&I uses currently constitute about 80 to 85 percent of regional water consumption. Agricultural water, used mostly for irrigating groves and crops, accounts for the remaining 15 to 20 percent of demand. This section describes these use categories along with the total historic, current, and projected water demands. By 2030, total normal water demands are projected to reach 829,030 AF (includes projected near-term annexation demands), which represents about a 29 percent increase from the 642,152 AF of demand that occurred in FY 2005.

2.1 MUNICIPAL AND INDUSTRIAL WATER DEMAND

M&I demand can be subdivided into residential demand (water used for human consumption in the home, domestic purposes, and residential landscaping) and water used for commercial and industrial purposes.

2.1.1 Residential Demand

Residential water consumption covers both indoor and outdoor uses. Indoor water uses include sanitation, bathing, laundry, cooking, and drinking. Most outdoor water entails landscaping irrigation requirements. Other minor outdoor uses include car washing, surface cleaning, and similar activities. For single-family homes and rural areas, outdoor demands may be as high as 60 percent of total residential use.

Based on SANDAG data, the 2004 composition of San Diego regional housing stock was approximately 61 percent single-family homes, 35 percent multi-family homes, and 4 percent mobile homes. Single-family residences generally contain larger landscaped areas, predominantly planted in turf, and require more water for outdoor application in comparison to other types of housing. The general characteristics of multi-family and mobile homes limit outdoor landscaping and water use, although some condominium and apartment developments do contain green belt areas.

2.1.2 Commercial and Industrial Demand

Commercial water demands generally consist of incidental uses but are necessary for the operation of a business or institution, such as drinking, sanitation, and landscape irrigation. Major commercial water users include service industries, such as restaurants, car washes, laundries, hotels, and golf courses. Economic statistics developed by the San Diego Regional Chamber of Commerce indicate that almost half of San Diego's residents are employed in commercial (trade and service) industries.

Industrial water consumption consists of a wide range of uses, including product processing and small-scale equipment cooling, sanitation, and air conditioning. Water-intensive industrial uses in the City of San Diego, such as electronics manufacturing and aerospace manufacturing, typically require smaller amounts of water when compared to other water-intensive industries found elsewhere in Southern California, such as petroleum refineries, smelters, chemical processors, and canneries.

The tourism industry in San Diego County affects water usage within the Water Authority's service area not only by the number of visitors, but also through expansion of service industries and attractions, which tend to be larger outdoor water users. Tourism is primarily concentrated in the summer months and affects seasonal demands and peaking. SANDAG regional population forecasts do not specifically account for tourism, but tourism is reflected in the economic forecasts, and it causes per capita use to increase.

2.2 AGRICULTURAL WATER DEMAND

The coastal and inland valley areas of the county possess a moderate and virtually frost-free climate able to support a variety of sub-tropical crops, making the San Diego area a unique agricultural region. The primary crops grown for the national and international markets are avocados, citrus, cut flowers, and nursery products. To a lesser extent, local fresh market crops and livestock are produced in the Water Authority's service area. In recent years, agriculture has accounted for 10 to 20 percent of the Water Authority's total water demand depending on weather conditions.

The Water Authority is the largest consumer of agricultural water within Metropolitan's service area, accounting for over 65 percent of Metropolitan's total agricultural water demands in FY 2004. Agricultural water use within the Water Authority's service area is concentrated mainly in the north county, and includes member agencies such as the Rainbow, Valley Center, Ramona, and Yuima Municipal Water Districts, the Fallbrook Public Utility District, and the City of Escondido.

2.3 TOTAL CURRENT AND HISTORIC WATER USE

Water use in the San Diego area is closely linked to the local economy, population, and weather. Over the last half-century a prosperous local economy has stimulated population growth, which in turn produced a relatively steady increase in water demand. By 1999, a new combination of natural population increases and job creation surfaced as the primary drivers of long-term water consumption increases. In FY 2004, water demand in the Water Authority's service area reached a record level of 715,763 AF, only to drop to 642,152 AF in FY 2005 due to above average rainfall. **Table 2-1** shows the historic water demand within the Water Authority's service area.

TABLE 2-1
HISTORIC WATER DEMAND WITHIN WATER AUTHORITY SERVICE AREA
(1995-2005)

FISCAL YEAR	WATER USE (AF)
1995	526,053
1996	615,900
1997	621,739
1998	562,225
1999	619,409
2000	694,995
2001	646,387
2002	686,530
2003	649,622
2004	715,763
2005	642,152

Source: Water Authority Annual Reports

Figures 2-1 and 2-2 show the estimated and projected relative percentages of various categories of water demand within the Water Authority's service area for FY 2005 and FY 2030. In these figures, residential demand includes single-family residential and multi-family residential.

FIGURE 2-1
ESTIMATED TYPE OF WATER USE
FY 2005

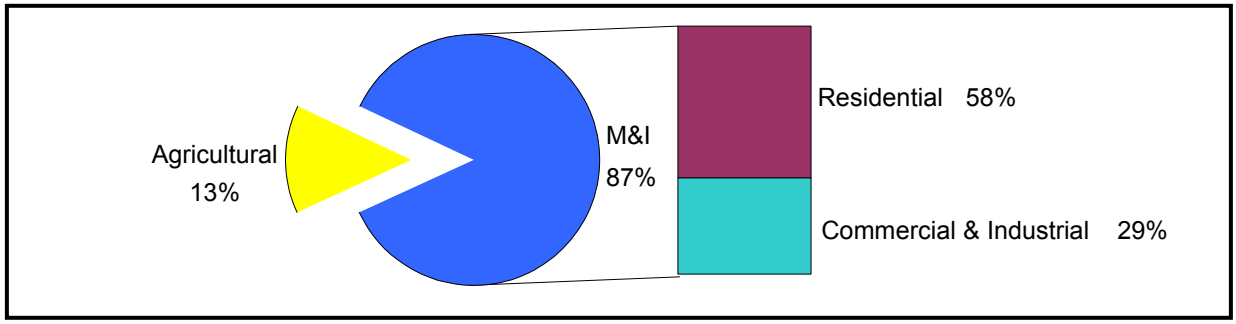
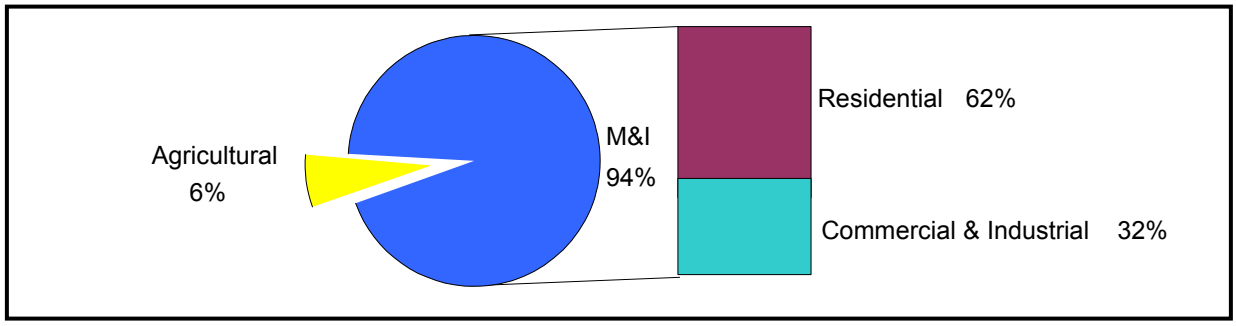


FIGURE 2-2
PROJECTED TYPE OF WATER USE
FY 2030



2.4 PROJECTED WATER DEMANDS

In 1994, the Water Authority selected the Institute for Water Resources - Municipal And Industrial Needs (MAIN) computer model to forecast M&I water use for the San Diego region. The MAIN model uses demographic and economic data to project sector-level water demands (i.e. residential and non-residential demands). This econometric model has over a quarter of a century of practical application and is used by many cities and water agencies throughout the United States. The Water Authority's version of the MAIN model was modified to reflect the San Diego region's unique parameters and is known as CWA-MAIN.

As stated, the foundation of the water demand forecast is the underlying demographic and economic projections. This was a primary reason, why, in 1992, the Water Authority and SANDAG entered into a Memorandum of Agreement (MOA), in which the Water Authority agreed to use SANDAG's current regional growth forecast for water supply planning purposes. In addition, the MOA recognizes that water supply reliability must be a component of San Diego County's regional growth management strategy as required in Proposition C (passed by San Diego County voters in 1988). The MOA ensures a strong linkage between local general plan land use forecasts and water demand projections for the San Diego region.

Consistent with previous CWA-MAIN modeling efforts, the 2005 water demand forecast update utilized the latest official SANDAG demographic projections. The new SANDAG 2030 Forecast, released in December 2003, extended the projection horizon an additional ten years to 2030. Member agency-level demographic and economic projections were compiled from this SANDAG forecast and incorporated into the MAIN model. Demand projections for the Marine Corps Base Camp Pendleton (MCB Camp Pendleton) were forecast outside of the MAIN model due to uncertainty regarding future land use development. Water-use projections for the various developments within the MCB Camp Pendleton area were based on historic demand trends, which were then added to the baseline forecast.

The M&I forecast also included an updated accounting of projected conservation savings based on projected regional implementation of the CUWCC Best Management Practices and SANDAG demographic information for the period 2005 through 2030. These savings estimates were then factored into the baseline M&I forecast. **Section 3.3** discusses the derivation of the estimated savings.

A separate agricultural model, also used in prior modeling efforts, was used to forecast water demands within the Water Authority service area. This model estimates agricultural demand met by the Water Authority's member agencies based on agricultural acreage projections provided by SANDAG, crop distribution data derived from the DWR and the California Avocado Commission, and average crop-type watering requirements based on California Irrigation Management Information System (CIMIS) data.

Utilizing SANDAG's most recent growth forecast to project future water demands is an important link to the land use plans of the cities and the county. This process ensures supplies are being planned to meet future growth. Any revisions to the land use plans are captured in SANDAG's updated forecasts. The Water Authority will update its demand forecast based on SANDAG's most recent forecast approximately every five years to coincide with preparation of

the urban water management plan. Prior to the next forecast update, local jurisdictions may require water supply availability reports under Senate Bills 610 and 221 for proposed land use developments that have a higher density than reflected in the existing growth forecast. The increased density could result in a higher demand for the parcel than originally anticipated. In evaluating the availability of supply, the Water Authority member agency can determine if "offset" supplies are available as a result of other land use decisions, which lowered water use within their service area. In addition, Metropolitan's draft 2005 Regional Urban Water Management Plan identified potential reserve supplies in the supply capability analysis (Tables II-7, II-8, II-9), which could be available to meet the unanticipated demands. The Water Authority's next forecast and other supply planning documents would then capture this increase in demands.

2.4.1 Projected Normal Water Demands

Table 2-2 shows projected normal water demand for the Water Authority through 2030. The baseline M&I demand forecast reflects an adjustment for estimated water conservation, MCB Camp Pendleton area demands, and forecasted agricultural water use, to produce total projected demand. Water conservation measures are expected to reduce total M&I demands by approximately 12 percent in 2030, with an estimated savings of 108,400 AF. Agricultural water use is projected to decrease by approximately 42 percent between 2010 and 2030, to an estimated 51,630 AF, primarily due to the conversion of agricultural land to residential use.

To fully quantify probable demands served by the Water Authority, lands with impending applications for annexation to the Water Authority's service area were identified. Working with its member agencies, the Water Authority identified potential near-term annexations as being parcels that may be annexed to the Water Authority within the next five years. Estimated water demands for those parcels were provided to the Water Authority by the member agency or project proponent and then added to the forecast. Including the demands provides no assurance of annexation; approval by the Water Authority Board would be required before water service is provided to these lands. It is difficult to know exactly which parcels will be annexed and when, but including this additional demand will provide for more comprehensive supply planning and assist member agencies in complying with Senate Bills 610 and 221.

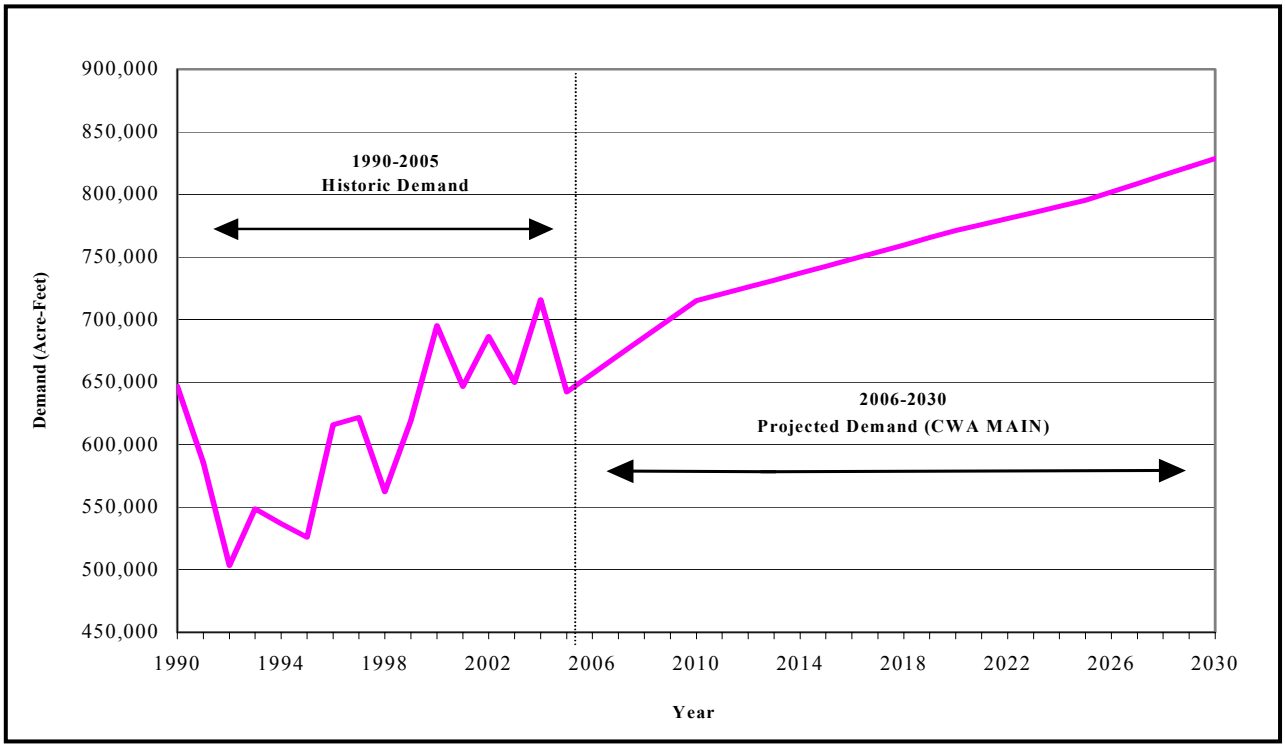
TABLE 2-2
NORMAL YEAR WATER DEMAND FORECAST
ADJUSTED FOR WATER CONSERVATION
(2010-2030)

YEAR	M&I BASELINE FORECAST (AF)	ESTIMATED CONSERVATION SAVINGS (AF)	M&I FORECAST REDUCED BY CONSERVATION [1] (AF)	AGRICULTURAL FORECAST (AF) [2]	TOTAL PROJECTED DEMAND (AF)	TOTAL PROJECTED DEMAND WITH PENDING ANNEXATIONS [3]
2010	699,250	79,960	619,290	89,700	708,990	715,450
2015	739,020	87,310	651,710	83,130	734,840	742,900
2020	780,350	94,170	686,180	77,270	763,450	771,510
2025	830,550	101,950	728,600	58,980	787,580	795,640
2030	877,740	108,400	769,340	51,630	820,970	829,030

Source: CWA-MAIN Forecast (August 2005)
[1] Includes M&I demands for Camp Pendleton area customers.
[2] Includes certified IAWP agricultural water and non-credited agricultural water.
[3] Estimated near-term annexation demands are 6,455AF/YR in 2010, and 8,060 AF/YR in years 2015, 2020, 2025, and 2030. The potential near-term annexations used to calculate the estimate include Otay Ranch Village 3 (1,961AF), Peaceful Valley Ranch (51AF), Sycuan Reservation (392AF), San Luis Rey MWD (includes the Meadowood development) (4,217AF), and four potential annexations to Yuima MWD (1,435AF). Including the demands for these parcels does not limit the Board's discretion to deny or approve these or other annexations not contemplated at this time.

Figure 2-3 illustrates the projected trend in water demands over the 2005 to 2030 time frame. This figure combines historic water use and forecasted CWA-MAIN model demands based on SANDAG 2030 demographic and economic projections.

FIGURE 2-3
REGIONAL HISTORIC AND PROJECTED NORMAL WATER DEMANDS



2.4.2 Projected Dry-Year Water Demands

To assess water service reliability during dry-year events, the Act requires single dry-year and multiple dry-year demand projections, in five-year increments. Based on observed historic demand impacts associated with each of these events, separate approaches were taken to project single and multiple dry-year conditions.

Since the CWA-MAIN model was constructed to project water demands over discrete twelve-month periods and utilizes weather as a predictive variable; it was utilized to forecast single dry-year demands for the region. By inserting annual dry-year weather data into the model and holding all non-weather related predictive variables constant for a given year, the model produces an annual forecast of weather-driven demand. An analysis of historic dry-year events was performed to select a representative year. This analysis evaluated the relative impact of weather (e.g. high temperature and low rainfall) to resulting total water demand, and also the availability of local supplies. Using this criterion, 1989 was selected as the representative single dry-year event. Weather data for 1989 was then run through the model for each five year increment. Projected single dry-year demands are shown in **Table 2-3**.

TABLE 2-3
SINGLE DRY-YEAR TOTAL WATER DEMAND FORECAST
FIVE-YEAR INCREMENTS
(AF/YR)

	2010	2015	2020	2025	2030
Single Dry-Year Demands	767,650	795,970	825,560	848,610	883,030

The Act requires agencies to prepare multiple dry-year demand scenarios every five years for at least 20 years. An analysis of historic water demands reveals that multiple dry-year events may have a compounding effect on demands that is not captured through the modeling of discrete yearly weather patterns. For this reason, the CWA-MAIN model was not directly used to project multiple dry-year demands. Instead, an alternative method which utilized a 7% annual increase in demands was used to develop the multiple dry-year scenarios. This value is supported by the projected yearly increase in demands generated from the CWA-MAIN model single dry-year forecast. The annual 7% factor was applied to the normal year demand estimates to generate the multiple dry-year demand projections shown in **Tables 2-4, 2-5, 2-6, 2-7,** and **2-8**.

MULTIPLE DRY-YEAR TOTAL WATER DEMAND FORECAST
FIVE-YEAR INCREMENTS
(AF/YR)

TABLE 2-4

	2006	2007	2008
Total Estimated Demands	744,520	749,780	755,030

TABLE 2-5

	2011	2012	2013
Total Estimated Demands	771,410	777,280	783,150

TABLE 2-6

	2016	2017	2018
Total Estimated Demands	801,030	807,150	813,270

TABLE 2-7

	2021	2022	2023
Total Estimated Demands	830,680	835,840	841,010

TABLE 2-8

	2026	2027	2028
Total Estimated Demands	858,480	865,630	872,770

SECTION 3 - DEMAND MANAGEMENT

3.1 DESCRIPTION

Demand management, or water conservation, is frequently the lowest-cost resource available to the Water Authority and its member agencies. Water conservation is a critical part of the Water Authority's 2005 Plan and long-term strategy for meeting water supply needs of the San Diego region. The goals of the Water Authority's water conservation program are to (1) reduce demand for more expensive, imported water; (2) demonstrate continued commitment to the Best Management Practices (BMPs) and Agricultural Efficient Water Management Practices (EWMPs); (3) ensure a reliable future water supply; and (4) reduce consumption during periods of high treated-water demand.

3.2 BEST MANAGEMENT PRACTICES

The California Urban Water Conservation Council (CUWCC) was formed in 1991 through a Memorandum of Understanding Regarding Urban Water Conservation in California (MOU). The urban Best Management Practices, or BMPs, for water conservation included in the MOU are intended to reduce California's long-term urban water demands. **Table 3-1** provides an overview of the Water Authority and its member agencies' progress in the implementation of the BMPs. Most member agencies are signatories to the MOU and submit biennial BMP reports to show compliance with the appropriate BMPs. **Appendix D** shows the Water Authority's FY 01, 02, 03, and 04 BMP Reports, as well as the Coverage Reports for FY 04. Major Water Authority activities include actively participating to develop and implement statewide BMPs; participating with member agencies, Metropolitan, the CUWCC, and the American Water Works Association Research Foundation in research and development activities; and implementing public information and education programs.

Implementation of BMPs

The Water Authority began implementing its aggressive conservation program in 1990. Some of the early programs to address the BMPs provided financial incentives for retrofitting high-water-use toilets with ultra-low-flush models and distributed low-flow showerheads to consumers. Since the program's inception, the Water Authority and its member agencies have provided incentives for the installation of over 528,000 ultra-low-flush toilets (ULFTs). In addition, financial incentives have been provided for the installation of more than 45,100 residential high-efficiency clothes washers (HEWs), 7,600 coin-operated HEWs, 355 cooling tower conductivity controllers, and 3,200 pre-rinse spray valves. The Water Authority, its member agencies, and San Diego Gas & Electric have also distributed over half-a-million showerheads to customers. Since 1990, the Water Authority has invested more than $12 million to help implement these and other conservation programs. In addition, the Water Authority's member agencies have invested a similar amount to co-fund these conservation programs.

TABLE 3-1
BEST MANAGEMENT PRACTICES FOR
URBAN WATER CONSERVATION IN CALIFORNIA

BMP	DESCRIPTION	CONSERVATION PROGRAMS	COMPLIANCE [1]	SDCWA Assistance
1	Residential Water Surveys	Residential Survey Program	√ Yes	√ Yes
2	Residential Plumbing Retrofit	Showerhead distribution	√ Yes	√ Yes
3	Distribution System Water Audits	Water Authority and member agencies independently operate separate system audits	√ Yes	
4	Metering with Commodity Rates	Member agencies operate	√ Yes	
5	Large Landscape Programs and Incentives	▪ Commercial Landscape Incentive Program ▪ Landscape Assistance Program for Business and Home ▪ Protector Del Agua	√ Yes	√ Yes
6	High-Efficiency Washing Machine (HEW) Rebate Programs	▪ Residential HEW Voucher Program	√ Yes	√ Yes
7	Public Information Programs	▪ Media Coverage ▪ Xeriscape Awards ▪ WebSite ▪ Water Conservation Literature	√ Yes	
8	School Education Programs	▪ Classroom Presentations ▪ Splash Science Mobile Lab ▪ Youth Merit Badge Program ▪ Magic Show ▪ Teaching Garden ▪ Mini-grants of up to $250	√ Yes	
9	Commercial, Industrial & Institutional (CII) Water Conservation Programs	▪ CII Voucher Program ▪ Industrial Process Improvement Program	√ Yes	√ Yes
10	Wholesale Agency Assistance Programs	Ongoing	√ Yes	
11	Conservation Pricing	Member agencies operate	√ Yes	
12	Water Conservation Coordinator	Water Resources staff	√ Yes	
13	Water Waste Prohibition	Member agencies operate	√ Yes	
14	Residential Ultra-Low-Flush Toilet (ULFT) Replacement Programs	Residential ULFT Voucher Program	√ Yes	√ Yes

[1] The Water Authority and one or more of its member agencies comply with the statewide BMPs listed.
[2] The Water Authority provides financial assistance to its member agencies to implement conservation programs.

The Water Authority's FY 05 budget included $972,000 for conservation programs that are anticipated to save 68,000 acre-feet per year over the useful life of the measures. The Water Authority's member agencies, Metropolitan, and the DWR augment this funding. In FY 05 this additional funding totaled $4.74 million, bringing the total FY 05 amount budgeted for all conservation programs to $5.7 million. The Water Authority provides approximately 20 percent of all conservation funding and manages most of the programs for its member agencies. The Water Authority also administers the Agriculture Water Management Program and CIMIS for agricultural use. **Appendix D**, the CUWCC BMP Reports for FY 01, 02, 03, and 04, contains additional information on implementation of the BMPs by the Water Authority.

Revenue Impacts

Water conservation is a well-established practice in ensuring that there will be a reliable water supply in the future for the increasing population and commerce of our local region. However, conservation occasionally suffers from the perception that it reduces revenues. Over the long-term, conservation measures actually serve to defer or limit rate increases by reducing the region's need for other, more expensive supplies and increased infrastructure. The Water Authority's FY 05 budget included $972,000 for conservation programs, which represents an average cost of $1.74 per acre-foot of projected water sales during FY 05. Conservation programs also reduce imported water demand that in turn allows the Water Authority to purchase less of Metropolitan's more expensive Tier 2 water. Tier 2 water is more expensive since it represents Metropolitan's cost to develop additional supplies.

3.3 FUTURE WATER CONSERVATION SAVINGS

Projected water savings and effectiveness provided in the 2005 Plan are based on industry standard methodologies for calculating savings, as defined by the CUWCC. The Water Authority assists the CUWCC in conducting pilot programs and analyzing ways to increase the accuracy of savings calculation methodologies. Projections show that implementing existing and proposed urban BMPs would produce water savings of approximately 108,396 AF/YR by the year 2030 within the Water Authority's service area (**Table 3-2**).

This conservation target is appropriate to implement the BMPs and fulfill the Water Authority's commitment to the MOU. Additionally, this target coincides with the availability of anticipated funds from member agencies, the Water Authority, and/or Metropolitan. The estimates presented in **Table 3-2** are based on savings projections from implementing various conservation measures and the result of state and national efficiency standards. The table represents a projection of the amount of water that will be conserved based on the best information available at this time.

Future water conservation savings are based on historical activity for Residential Surveys, Residential Retrofits, High-Efficiency Clothes Washer Incentives, and Toilet Incentives. Efficiency Standards include water-saving devices installed in new residential construction as part of state-required codes, as well as toilets replaced through natural replacement outside of the toilet incentive. Updated SANDAG demographic information is utilized to determine savings for new construction through BMP implementation.

TABLE 3-2
POTENTIAL WATER CONSERVATION SAVINGS THROUGH 2030
WITHIN WATER AUTHORITY SERVICE AREA (AF)

Best Management Practices	2005	2010	2015	2020	2025	2030
Existing BMPs						
Residential Surveys	1,620	1,620	1,620	1,620	1,620	1,620
Residential Retrofits	8,100	8,100	8,100	8,100	8,100	8,100
Landscape [1]	3,524	18,848	21,793	24,783	27,744	30,718
Clothes Washer Incentives	495	1,281	1,672	1,672	1,672	1,672
Commercial/Industrial/Institutional	2,260	3,328	5,056	6,801	8,533	10,272
Toilet Incentives	17,553	23,616	23,616	23,616	23,616	23,616
Subtotal	**33,551**	**56,792**	**61,857**	**66,593**	**71,286**	**75,998**
Potential BMPs and Efficiency Standards						
Efficiency Standards [2]	19,837	23,137	25,409	27,526	30,598	32,323
Graywater	0	25	30	40	50	50
On Demand Water Heaters	0	5	10	15	20	25
Subtotal	**19,837**	**23,167**	**25,449**	**27,581**	**30,668**	**32,398**
TOTAL [3]	**53,389**	**79,960**	**87,306**	**94,174**	**101,954**	**108,396**

[1] Includes savings from Audits, Artificial Turf, WBIC (residential & commercial), Water Budget, and CLIP programs.
[2] Code Compliance: new construction, ULFT natural replacement @ 4%, commercial HEWs natural replacement.
[3] Values may not add to exact total due to rounding.

On average, more than 50 percent of the water used in San Diego County goes to outdoor watering, and the savings potential from this irrigation is significant. Landscape savings are based on full implementation of BMP 5, through water budgets, large landscape audits, and irrigation hardware replacements. Some of these measures are labor intensive and may be a challenge to achieve due to the limited resources of member agencies.

Water savings in the Commercial, Industrial, and Institutional (CII) sector are based on both historical activity and anticipated new water-efficient products that will experience expanded use. These products include multi-load commercial HEWs, food steamers, commercial dishwashers, and waterless urinals.

Some of the BMPs that are not quantified in **Table 3-2,** such as public information and school education, do not directly result in water savings. Instead, these BMPs result in a decision by a water user to take an action that will result in savings. For example, a water user may learn about the availability of HEWs through a public information program, but water will not be saved until the user installs a new HEW. To avoid double counting, the projected savings from the machine is reflected only in the high-efficiency washing machine BMP.

The Water Authority is a statewide leader of innovative programs in water conservation. Efforts have been so successful, however, that many of the conservation programs implemented in the early 1990s are maturing. Additional measures are now being taken to achieve further water savings, particularly in the CII and landscape sectors.

3.3.1 Landscape

Additional landscape water savings can potentially be achieved through incentives, regulations, and rates. In 2004, new programs included financial incentives for purchasing and installing self-adjusting, weather-based irrigation controllers, financial incentives to purchase improved efficiency irrigation devices, additional conservation literature, expanded water user efficient irrigation training programs, an artificial turf incentive program, and support for the Water Conservation Garden.

As a result of the passage of the Water Authority sponsored Assembly Bill 2717, the Landscape Water Conservation Task Force has convened a stakeholders workgroup to evaluate and recommend proposals for improving the efficiency of water use in new and existing urban irrigated landscapes. Potential regulations include the requirement that residential sites have a dedicated water meter for outdoor use and a dedicated water meter for indoor use. Another potential regulation would require homeowners associations to allow water-efficient landscape if desired by the homeowner.

3.3.2 Commercial, Industrial, & Institutional

For the past decade, the Water Authority has used its extensive relationships with manufacturers, suppliers and contractors to increase participation in the CII Voucher Incentive Program (VIP) with a point-of-purchase service to customers. A number of new water-saving devices have recently been incorporated into the CII Program, including a hospital x-ray processor recirculating system that can save up to 3.2 acre-feet per year per system; water pressurized brooms, which save as much as 50,000 gallons per year per location; and pre-rinse spray valves, which can save up to 50,000 gallons of water annually.

The Industrial Process Improvement Program offers financial assistance to local industries to encourage investment in water saving process improvements. In the future, the Water Authority may consider providing additional funds to qualified projects to maximize water saving possibilities in the commercial, industrial and institutional sectors. Ever-advancing technologies coupled with an aggressive marketing plan provides solid foundations for these growing programs.

3.3.3 Residential

Programs, such as the HEW and ULFT VIP that target residential customers, have been highly effective in achieving conservation savings. The Residential ULFT VIP has been effective in encouraging toilet retrofits and is being expanded to serve other markets such as new residential construction. The current program focuses on multi-family sites and incentives for dual-flush toilets to maximize the water savings. Dual-flush toilets have two flushing mechanisms, one for liquid waste (0.8-1.1 gallons per flush) and one for solid matter (1.6 gallons per flush). Each of these toilets saves 2,250 gallons per year more than standard ULFTs.

The Residential HEW VIP has evolved to encourage consumers to purchase the most water efficient models. Clothes washers eligible for incentives use 65 percent less water than standard

washers. This savings will be expanded by further limiting the amount of water used in the washers that are eligible for vouchers. Effective in July 2005, only HEWs with a water efficiency factor of 6.0 or less will be eligible for incentives. The water efficiency factor is determined by the amount of water it takes to wash a cubic foot of laundry. The lower the water efficiency factor, the greater the water efficiency of the clothes washer.

Studies for hot-water-on-demand systems are proceeding, and the outcome of those studies will help determine appropriate programs for encouraging the use of these systems in new homes. Finally, the Water Authority and its member agencies will continue to cooperate with the CUWCC and Metropolitan to identify future opportunities for water conservation savings.

SECTION 4 – SAN DIEGO COUNTY WATER AUTHORITY SUPPLIES

Historically, the Water Authority has relied on imported water supplies purchased from Metropolitan to meet the needs of its member agencies. Metropolitan's supplies come from two primary sources, the State Water Project (SWP) and the Colorado River. After experiencing severe shortages from Metropolitan during the 1987-1992 drought, the Water Authority began aggressively pursuing actions to diversify the region's supply sources. Comprehensive supply and facility planning over the last 12 years has provided the direction for implementation of these actions.

A Water Resources Plan developed in 1993 and updated in 1997 emphasized the development of local supplies and core water transfers. Consistent with the direction provided in the 1997 Water Resources Plan, the Water Authority entered into a Water Conservation and Transfer Agreement with IID, an agricultural district in neighboring Imperial County in 1998. Through the transfer agreement, the Water Authority will receive 30,000 AF in 2005, with the volume increasing annually until it reaches 200,000 AF/YR in 2021.

To further diversify regional supplies, the Water Authority's 2000 Plan identified seawater desalination as a potential supply for meeting future demands. In response to the direction provided in the 2000 Plan, the Water Authority Board approved a Seawater Desalination Action Plan in 2001. The current focus of the Action Plan is on developing a 50-mgd seawater desalination facility at the Encina Power Station in the City of Carlsbad by 2011.

In addition, the 2000 Plan identified the need for other competitive imported water sources to meet the demands of the region. In 2003, as part of the execution of the Quantification Settlement Agreement (QSA) on the Colorado River, the Water Authority was assigned rights to 77,700 AF/YR of conserved water from projects to line the All-American and Coachella Canals. Deliveries of this conserved water from the Coachella Canal will reach the region by 2007, and from the All-American Canal by 2008. This section provides specific documentation on the existing and projected supply sources being implemented by the Water Authority.

4.1 WATER AUTHORITY – IID WATER CONSERVATION AND TRANSFER AGREEMENT

On April 29, 1998, the Water Authority signed a historic agreement with IID for the long-term transfer of conserved Colorado River water to San Diego County. The Water Authority-IID Water Conservation and Transfer Agreement (Transfer Agreement) is the largest agriculture-to-urban water transfer in United States history. Colorado River water will be conserved by Imperial Valley farmers who voluntarily participate in the program and then transferred to the Water Authority for use in San Diego County.

4.1.1 Implementation Status

On October 10, 2003, the Water Authority and IID executed an amendment to the original 1998 Transfer Agreement. This amendment modified certain aspects of the 1998 Agreement to be consistent with the terms and conditions of the QSA and related agreements. It also modified other aspects of the agreement to lessen the environmental impacts of the transfer of conserved water. The amendment was expressly contingent on the approval and implementation of the QSA, which was also executed on October 10, 2003. **Section 6.2.1** contains details on the QSA.

On November 5, 2003, IID filed a complaint in Imperial County Superior Court seeking validation of 13 contracts associated with the Transfer Agreement and the QSA. Imperial County and various private parties filed additional suits in Superior Court, alleging violations of the California Environmental Quality Act (CEQA), the California Water Code, and other laws related to the approval of the QSA, the water transfer, and related agreements. The lawsuits have been coordinated for trial. The IID, Coachella Valley Water District, Metropolitan, the Water Authority, and State are defending these suits and coordinating to seek validation of the contracts. Implementation of the transfer provisions is proceeding during litigation. For further information regarding the litigation, please contact the Water Authority's General Counsel.

4.1.2 Expected Supply

Deliveries into San Diego County from the transfer began in 2003 with an initial transfer of 10,000 AF. The Water Authority received 20,000 AF in 2004 and will receive an additional 30,000 AF by the end of the year 2005. The quantities will increase annually to 200,000 AF by 2021 then remain fixed for the duration of the transfer agreement. The initial term of the Transfer Agreement is 45 years, with a provision that either agency may extend the agreement for an additional 30-year term.

During dry years, when water availability is low, the conserved water will be transferred under IID's Colorado River rights, which are among the most senior in the Lower Colorado River Basin. Without the protection of these rights, the Water Authority could suffer delivery cutbacks. In recognition for the value of such reliability, the 1998 contract required the Water Authority to pay a premium on transfer water under defined regional shortage circumstances. The shortage premium period duration is the period of consecutive days during which any of the following exist: i) a Water Authority shortage; ii) a shortage condition for the Lower Colorado River as declared by the Secretary; and iii) a Critical Year. Under terms of the October 2003 amendment, the shortage premium will not be included in the cost formula until Agreement Year 16.

4.1.3 Transportation

The Water Authority entered into a water exchange agreement with Metropolitan on October 10, 2003, to transport the Water Authority-IID transfer water from the Colorado River to San Diego County. Under the exchange agreement, Metropolitan will take delivery of the transfer water through its Colorado River Aqueduct. In exchange, Metropolitan will deliver to the Water Authority a like quantity and quality of water. The Water Authority will pay Metropolitan's

applicable wheeling rate for each acre-foot of exchange water delivered. According to the water exchange agreement, Metropolitan will make delivery of the transfer water for 35 years, unless the Water Authority elects to extend the agreement another 10 years for a total of 45 years.

4.1.4 Cost/Financing

The costs associated with the transfer are proposed to be financed through the Water Authority's rates and charges. In the agreement between the Water Authority and IID, the price for the transfer water started at $258/AF and increases by a set amount for the first five years. The 2005 price for transfer water is $276/AF. Procedures are in place to evaluate and determine market-based rates following the first five-year period.

In accordance with the October 2003 amended exchange agreement between Metropolitan and the Water Authority, the initial cost to transport the conserved water was $253/AF. Thereafter, the price would be equal to the charge or charges set by Metropolitan's Board of Directors pursuant to applicable laws and regulation, and generally applicable to the conveyance of water by Metropolitan on behalf of its member agencies. The transportation charge in 2005 is $258/AF.

The Water Authority is providing $10 million to help offset potential socioeconomic impacts associated with temporary land fallowing. IID will credit the Water Authority for these funds during years 16 through 45. At the end of the fifth year of the transfer agreement (2007), the Water Authority will prepay IID an additional $10 million for future deliveries of water. IID will credit the Water Authority for this up-front payment during years 16 through 30.

As part of implementation of the QSA and water transfer, the Water Authority also entered into an environmental cost sharing agreement. The agreement specifies that the Water Authority will contribute $64 million for the purpose of funding environmental mitigation costs and contributing to the Salton Sea Restoration Fund.

4.1.5 Written Contracts or Other Proof

Appendix E contains a list of the specific written contracts, agreements, and environmental permits associated with implementation of the Water Authority–IID Transfer.

4.1.6 Existing and Future Supplies

Based on the terms and conditions in the Transfer Agreement, **Table 4-1** shows the anticipated delivery schedule of the conserved transfer water in 5-year increments. There is adequate documentation to demonstrate the availability of this supply, and therefore, the supply yields shown in **Table 4-1** will be included in the reliability analysis found in **Section 8** of this 2005 Plan.

TABLE 4-1
EXISTING AND PROJECTED
WATER AUTHORITY – IID TRANSFER SUPPLIES
(Normal Year - AF/YR)

2005	*2010*	*2015*	*2020*	*2025*	*2030*
30,000	70,000	100,000	190,000	200,000	200,000

4.2 ALL-AMERICAN CANAL AND COACHELLA CANAL LINING PROJECTS

As part of the QSA and related contracts, the Water Authority was assigned Metropolitan's rights to 77,700 AF/YR of conserved water from projects that will line the All-American Canal (AAC) and Coachella Canal (CC). The projects will reduce the loss of water that currently occurs through seepage, and the conserved water will be delivered to the Water Authority. This conserved water will provide the San Diego region with an additional 8.5 million acre-feet over the 110-year life of the agreement.

4.2.1 Implementation Status

Earthwork for the Coachella Canal lining project began in November 2004 and involves approximately 37 miles of canal. National Environmental Policy Act (NEPA) and CEQA documentation is complete, including an amended Record of Decision by the U.S. Bureau of Reclamation (USBR). The amendment was required after revising the project design: instead of lining the canal in place, the project now entails the construction of a parallel canal. The current project schedule provides 30 months for construction, resulting in an estimated completion date of early-2007.

Preliminary design-related activities have begun on the AAC lining project, including ground and aerial surveying, mapping cultural resources, and geotechnical investigations. The lining project consists of constructing a concrete-lined canal parallel to 24 miles of the existing AAC from Pilot Knob to Drop 3. NEPA and CEQA documentation is complete, environmental mitigation measures have been identified and Endangered Species Act consultations are pending. Construction of the project is expected to begin by early-2006 and be completed in late-2008.

In July 2005, a lawsuit (*CDEM v United States,* Case No. CV-S-05-0870-KJD-PAL) was filed in the U. S. District Court for the District of Nevada on behalf of U.S. and Mexican groups challenging the lining of the AAC. The lawsuit, which names the Secretary of the Interior as a defendant, claims that seepage water from the canal belongs to water users in Mexico. California water agencies note that the seepage water is actually part of California's Colorado River allocation and not part of Mexico's allocation. The plaintiffs also allege a failure by the United States to comply with environmental laws. Federal officials have stated that they intend to vigorously defend the case.

4.2.2 Expected Supply

The AAC lining project will yield 67,700 AF of Colorado River water per year for allocation upon completion of construction. The CC lining project will yield 26,000 AF of Colorado River water each year available for allocation upon completion of construction. The October 10, 2003, Allocation Agreement states that 16,000 AF/YR of conserved canal lining water will be allocated to the San Luis Rey Indian Water Rights Settlement Parties. The remaining amount, 77,700 AF/YR, will be available to the Water Authority. According to the Allocation Agreement, IID has call rights to a portion (5,000 AF/YR) of the conserved water upon termination of the QSA for the remainder of the 110 years of the Allocation Agreement and upon satisfying certain conditions. The term of the QSA is for up to 75 years.

4.2.3 Transportation

The October 10, 2003, Exchange Agreement between the Water Authority and Metropolitan also provides for the delivery of the conserved water from the canal lining projects. The Water Authority will pay Metropolitan's applicable wheeling rate for each acre-foot of exchange water delivered. In the Agreement, Metropolitan will deliver the canal lining water for the term of the Allocation Agreement (110 years).

4.2.4 Cost/Financing

Under California Water Code Section 12560 et seq., the Water Authority will receive $200 million in state funds for construction of the projects. In addition, under California Water Code Section 79567, $20 million from Proposition 50 is also available for the lining projects. Additionally, the Water Authority will receive $35 million for groundwater conjunctive use projects as part of the agreement. The Water Authority would be responsible for additional expenses above the funds provided by the state.

The rate to be paid to transport the canal lining water will be equal to the charge or charges set by Metropolitan's Board of Directors pursuant to applicable law and regulation and generally applicable to the conveyance of water by Metropolitan on behalf of its member agencies.

In accordance with the Allocation Agreement, the Water Authority will also be responsible for a portion of the net additional Operation, Maintenance, and Repair (OM&R) costs for the lined canals. Any costs associated with the lining projects as proposed, are to be financed through the Water Authority's rates and charges.

4.2.5 Written Contracts or Other Proof

Appendix E contains a list of the specific written contracts, agreements, and environmental permits associated with implementation of the Canal Lining Projects.

4.2.6 Future Supplies

Table 4-2 shows the anticipated delivery schedule of conserved supplies from the canal lining projects in 5-year increments. Adequate documentation exists to demonstrate the availability of this supply, and therefore, the reliability analysis found in **Section 8** of this 2005 Plan will show the supply yields shown in **Table 4-2**.

TABLE 4-2
PROJECTED SUPPLY FROM CANAL LINING PROJECTS
(Normal Year - AF/YR)

	2005	*2010*	*2015*	*2020*	*2025*	*2030*
CC Lining Project [1]	0	21,500	21,500	21,500	21,500	21,500
AAC Lining Project [2]	0	56,200	56,200	56,200	56,200	56,200
TOTAL:	0	77,700	77,700	77,700	77,700	77,700

[1] The estimated project completion date is mid-2007.
[2] The estimated completion date is late-2008.

4.3 WATER AUTHORITY SEAWATER DESALINATION PROGRAM

The development of seawater desalination in San Diego County will assist the region in diversifying its water resources, reducing dependence on imported supplies, and providing a new drought-proof treated water supply.

The Water Authority has been evaluating seawater desalination as a potential highly reliable local water resource since the early 1990s. From 1991 to 1993, the Water Authority conducted detailed studies on the feasibility of developing a seawater desalination facility at the South Bay Power Plant in the City of Chula Vista and Encina Power Station in the City of Carlsbad. During that period, the Water Authority also participated in a study for a desalination plant that would be sited at a power plant in Rosarito Beach, Mexico. The studies concluded that the environmental, regulatory and cost issues combined to make desalinated seawater more expensive than other available water resources options.

Data gathered from recently completed projects worldwide seem to indicate that the cost of seawater desalination has decreased since the Water Authority completed its last study in 1993. This decrease is mainly due to significant technological advances in the development and manufacture of membranes. The reverse osmosis (RO) membranes used in the desalination process cost approximately half the price and are twice as productive as membranes produced ten to fifteen years ago.

Based on the potential reduction in project costs, the Water Authority's 2000 Plan identified seawater desalination as a potential supply for meeting future demands. In response to the direction

provided in the 2000 Plan, the Water Authority Board approved a Seawater Desalination Action Plan in January 2001. The Action Plan covered activities related to the evaluation of seawater desalination opportunities along the San Diego County coastline.

In June 2004, following the Water Authority's RWFMP process, the Water Authority Board of Directors approved adding $668 million to the CIP to develop a desalinated seawater supply. Development of the first phase of the desalinated seawater supply, 56,000 AF/YR, is planned for 2011, with an additional 33,600 AF/YR planned for 2015.

The Water Authority's current seawater desalination efforts focus on three main areas within San Diego County: Encina Power Station in the City of Carlsbad (Carlsbad), San Onofre Generating Station (SONGS) in the northern portion of San Diego County on MCB Camp Pendleton, and the South Bay/South County area.

4.3.1 Regional Seawater Desalination Facility at Encina

The proposed regional seawater desalination project at the Encina Power Station in Carlsbad (Project) includes a 50-mgd seawater desalination facility and a conveyance system consisting of pipelines, pumping station(s), storage tanks, and other appurtenances necessary to deliver and integrate the desalinated water into the Water Authority's aqueduct system. The desalination facility is proposed to be sited within the power plant premises to take advantage of a number of co-location benefits such as an available site that meets land use requirements, access to power sources, and utilization of existing seawater intake and discharge infrastructure.

Implementation Status

To date the Water Authority has accomplished the following actions towards implementation of the project:

- The current CIP budget includes the estimated construction costs associated with the project;
- A preliminary design report has been completed for the distribution facilities;
- In September 2003, work began on an Environmental Impact Report (EIR) for both the desalination plant and conveyance system, with scheduled certification in early-2006;
- On April 28, 2005, the Water Authority entered into an agreement with the City of Carlsbad, the Carlsbad Municipal Water District, and the Carlsbad Housing and Redevelopment Commission to memorialize certain understandings and establish a framework for cooperation regarding the development of a regional seawater desalination project located at the Encina Power Station (Water Authority – Carlsbad Agreement); and
- Negotiations are underway with a private leaseholder at the Encina Power Station regarding a public/private partnership structure that would result in the development of a single regional seawater desalination project at the Encina Power Station.

One of the issues related to the implementation of this Project, along with any other seawater desalination projects located along the coastline, is the potential environmental impact that operating the facilities will have on the existing coastal and marine environment from the

feedwater intake and the concentrate discharge. These issues are being addressed as part of the environmental review and permitting process for the Project.

Cost/Financing

The CIP budget costs for the Project are included in the $668 million that the Water Authority's Board of Directors approved in June 2004. The Water Authority proposes to obtain outside funding and finance the Project through its rates and charges.

The Water Authority is pursuing external funding to offset the capital and operating cost of the Project, including funding through the Metropolitan Water District's Seawater Desalination Program (SDP), state funding through Proposition 50, and federal funding opportunities. In July 2005, the Metropolitan board approved a SDP funding agreement with the Water Authority for the Project.

The Water Authority secured federal funding in the FY 04 Omnibus Appropriations Act (Omnibus Act) for seawater desalination development. The Omnibus Act includes a provision under the VA/HUD State and Tribal Assistance Grants account program that provides funding for the Water Authority's seawater desalination program. The Water Authority received awards totaling $723,200 in FY 04 for seawater desalination project development activities at the Encina Power Station in Carlsbad, California. For FY 05, funding in the amount of $721,700 has been appropriated to the Water Authority for additional seawater desalination project development activities.

Federal, State, and Local Permits/Approvals

Table 4-3 provides a list of the major permits and discretionary actions required for the Project and the anticipated schedule for completion of the permitting process. Based on the estimated completion dates, the Water Authority anticipates the Project to be on-line in 2011.

TABLE 4-3
LIST OF MAJOR PERMITS AND DISCRETIONARY ACTIONS

Permit or Discretionary Action	Purpose	Scheduled Completion
Certification of Environmental Impact Report	Satisfy the requirements of the California Environmental Quality Act.	2006
Endangered Species Act (ESA) Compliance	Satisfy ESA requirements.	2006
Coastal Development Permit	Satisfy the requirements of the California Coastal Act and the federal Coastal Zone Management Act.	2007
Domestic Water Supply Permit	Satisfy the requirements of the state and federal Safe Drinking Water Acts.	2007 (Conceptual approval)
National Pollutant Discharge Elimination System Permit	Satisfy the requirements of the federal Clean Water Act, California Water Code, Ocean Plan, and Comprehensive Water Quality Control Plan for the San Diego Region.	2007
Right-of-Way Acquisition for conveyance facilities	Acquire land necessary for construction of conveyance facilities.	2007

Expected Supplies

Based on completion of the items shown in **Table 4-3** within the schedule, **Table 4-4** shows the estimated annual yield from the Project in 5-year increments. Adequate documentation exists to demonstrate the availability of this potential supply in the future, and therefore, the reliability analysis in **Section 8** of this 2005 Plan will include the supply yields shown in **Table 4-4**. The Water Authority – Carlsbad Agreement provides the City of Carlsbad the opportunity to receive up to 5,000 AF/YR of supply from the project; however, at this time the annual delivery amount for the City of Carlsbad has not been determined. **Table 4-4** shows the full yield from the proposed project.

TABLE 4-4
PROJECTED SEAWATER DESALINATION SUPPLY
REGIONAL PROJECT AT ENCINA POWER STATION
(Normal Year - AF/YR)

2005	*2010*	*2015*	*2020*	*2025*	*2030*
0	0	56,000	56,000	56,000	56,000

4.3.2 Additional Opportunities for Seawater Desalination Development

The Water Authority is also planning for an additional increment of seawater desalination beyond what is currently being planned at the Encina Power Station. This additional increment of supply will be an expansion of the facilities at the Encina Power Station and other options.

Expansion at Encina Power Station

While the Water Authority is currently focusing its efforts on implementing the 50-mgd seawater desalination project at Encina Power Station, the potential exists for future expansion at the site. Therefore, funding has been budgeted in the Water Authority's CIP for an additional 30-mgd at the Encina Power Station. If, after the completion of the 50-mgd project, expanding the project seems feasible, the Water Authority will conduct the necessary environmental documentation and permitting to implement an expanded project.

Seawater Desalination Pre-Feasibility Level Assessment/Fatal Flaw Analysis Study at the San Onofre Nuclear Generating Station

The Water Authority, in collaboration with the Municipal Water District of Orange County (MWDOC), completed a seawater desalination pre-feasibility level assessment/fatal flaw analysis study at SONGS in 2005. The purpose of this study was to determine whether there are sites suitable for a regional seawater desalination facility at or in the vicinity of generating station. A desalination facility at SONGS would provide a new water source and increase reliability for San Diego County and southern Orange County, and potentially provide back-up supplies to MCB Camp Pendleton.

The fatal flaw study considered nine potential sites. After screening all nine locations with a set of siting criteria, two sites – the Percolation Pond Site and the South State Park Site – underwent further evaluation. Both sites are adequate for a 50-mgd or 100-mgd facility, including an area for product water storage and a conveyance system pump station.

The product water conveyance systems from a desalination facility to the interconnection point within the Water Authority and MWDOC regional systems would include pump stations, pipelines, storage facilities, and other appurtenances. The study assumed that the product water from the desalination facility would be split 50/50 between the Water Authority and MWDOC.

This study also included a budgetary estimate for capital as well as operations and maintenance (O&M) costs for the desalination facility and conveyance systems (one segment heading north to MWDOC and the other heading south to San Diego).

The study identified no fatal flaws with respect to locating a regional 50-mgd to 100-mgd seawater desalination facility in the vicinity of SONGS. Based on the preliminary results of the

study, the Water Authority and MWDOC are proceeding with the development of a detailed feasibility study with concurrence from MCB Camp Pendleton and Southern California Edison.

South County/Tijuana Region Seawater Desalination Feasibility Study

In 2005, the Water Authority, in coordination with Mexico, completed a South County/Tijuana Region Seawater Desalination Feasibility Study (South County/Tijuana Study). The purpose of this study was to identify and evaluate, at a feasibility level, suitable sites in the United States and Mexico for a seawater desalination facility that could provide both domestic and cross-border water deliveries.

Overall, six sites in Mexico and eight sites in the United States were identified and screened. Sites at the South Bay Power Plant and property adjacent to the International Boundary and Water Commission wastewater treatment plant were selected in the United States. The Rosarito Power Plant site and the La Mision Beach Well site were selected in Mexico.

For each potential desalination facility identified, two-product water delivery scenarios were evaluated. The first scenario evaluated domestic water delivery only; the second evaluated domestic and cross-border water delivery.

Conclusions from the South County/Tijuana Study show that desalination is technically feasible in the Border region, including South County and Mexico. However, significant uncertainties exist over the viability of intake and discharge infrastructure, particularly for a project in the South County. In addition, with treated water demand in the South County not projected to exceed supply until 2018, a facility in the South County would not likely be economically viable prior to that date. As such, the Water Authority plans no further desalination study or project activity for the South County region for the near term.

Water Authority Seawater Desalination Program Goal

The Water Authority is currently focusing its efforts on implementing the 50-mgd seawater desalination project at the Encina Power Station but will continue to evaluate opportunities at San Onofre and South County along with an expansion beyond the 50-mgd at the Encina Power Station. Upon further development of these supplies and adequate documentation of project implementation, they will be included in the next update of the Water Authority's Urban Water Management Plan. Because seawater desalination will play an important role in both the near-term and long-term, the Water Authority has established a long-term goal for future development of this supply. In combination with the yield from the regional project at the Encina Power Station and other potential seawater desalination supplies, the goal for the Water Authority's Seawater Desalination Program is up to 89,600 AF/YR starting in 2020 and continuing at this level through the 2030 planning period.

4.4 SUMMARY OF WATER AUTHORITY SUPPLIES

Table 4-5 shows the documented Water Authority supplies existing and currently planned to assist in meeting future demands within the Water Authority's service area. In 2005, the Water Authority's IID transfer water accounted for 30,000 AF of supply. By 2030, deliveries of water from the IID transfer, AAC and CC Lining Projects, and Regional Seawater Desalination Project at the Encina Power Station will provide an expected supply of 333,700 AF/YR. The expected Water Authority supplies from **Table 4-5** are utilized in the reliability analysis included in **Section 8**. The additional seawater desalination supplies being planned are included in the 2005 Plan water resources goal.

TABLE 4-5
PROJECTED WATER AUTHORITY SUPPLIES
(Normal Year - AF/YR)

	2005	*2010*	*2015*	*2020*	*2025*	*2030*
IID Water Transfer	30,000	70,000	100,000	190,000	200,000	200,000
All-American Canal Lining Project	0	56,200	56,200	56,200	56,200	56,200
Coachella Canal Lining Project	0	21,500	21,500	21,500	21,500	21,500
Regional Seawater Desalination at Encina	0	0	56,000	56,000	56,000	56,000
TOTAL WATER AUTHORITY SUPPLIES	**30,000**	**147,700**	**233,700**	**323,700**	**333,700**	**333,700**

SECTION 5 – MEMBER AGENCY SUPPLIES

Local resources developed and managed by the Water Authority's member agencies are critical to securing a diverse and reliable supply for the region. Local projects, such as recycled water and groundwater recovery, reduce demands for imported water and often provide agencies with a drought-proof supply. This section provides general information on the local resources being developed and managed by the member agencies. These supplies include surface water, groundwater, and recycled water. In addition, as discussed in **Section 4.3**, the Water Authority is implementing a local seawater desalination project with the City of Carlsbad.

The Water Authority, working closely with its member agencies, took the following steps to update the yields anticipated from the member agencies' local supplies:

1. Provided the member agencies with the projected supply numbers included in the Water Authority's 2000 Plan and requested they update the figures for their specific project(s);
2. Prepared revised projections based on input from agencies;
3. Separated the recycled water and groundwater projects into two categories, "verifiable" and "other potential projects," based on the likelihood of development. "Verifiable" projects are those with adequate documentation regarding implementation or existing projects already planned for expansion. "Other potential projects" are not far enough along in the planning process, but they are included with the verifiable projects to form a 2005 Plan water supply goal;
4. Presented revised supply numbers to member agencies at several meetings and requested input; and
5. Distributed administrative draft of the 2005 Plan to member agencies for their review, providing them another opportunity to review and revise the updated local supply figures prior to Water Authority Board of Directors approval.

Before 1947, the San Diego region relied on local surface water runoff in normal and wet weather years and on groundwater pumped from local aquifers during dry years when stream flows were reduced. As the economy and population grew, local resources became insufficient to meet the region's water supply needs. From the 1950s onward, the region became increasingly reliant on imported water supplies. Since 1980, a range of 5 to 36 percent of the water used within the Water Authority's service area has come from local sources, primarily from surface water reservoirs with yields that vary directly with annual rainfall. A small but growing share of local supply comes from recycled water and groundwater recovery projects. Yield from these projects are considered drought-proof since they are primarily independent of precipitation. In FY 2005, total local water sources provided eleven - percent of the water used in the Water Authority's service area.

5.1 SURFACE WATER

5.1.1 Description

Seven watersheds in San Diego County contain water supply reservoirs. These watersheds start at the crest of the Peninsular Range and drain into the Pacific Ocean. Runoff within these

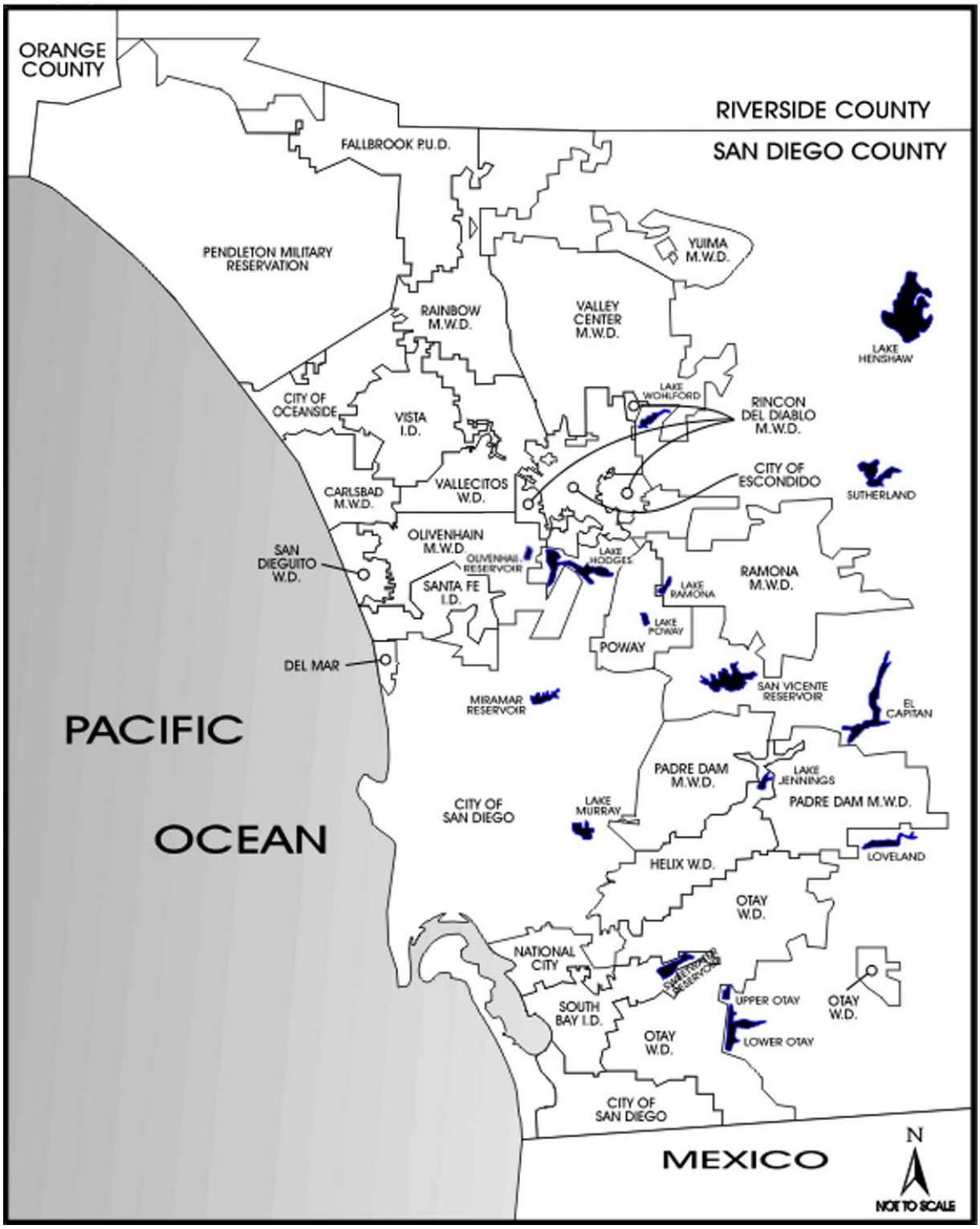
watersheds is largely developed. The oldest functional reservoir in the county, Cuyamaca Reservoir, was completed in 1887. The Olivenhain Reservoir completed in 2003 is the region's newest. It is part of the Water Authority's ESP and has a storage capacity of 24,364 AF. Twenty-five surface reservoirs with a combined capacity of 593,490 AF are located in the Water Authority's service area (**Table 5-1**). **Figure 5-1** shows the location of local reservoirs.

TABLE 5-1
MAJOR SAN DIEGO COUNTY RESERVOIRS

MEMBER AGENCY	RESERVOIR	CAPACITY (AF)
Carlsbad M.W.D.	Maerkle	600
Escondido, City of	Dixon	2,606
Escondido, City of	Wohlford	6,506
Fallbrook P.U.D.	Red Mountain	1,335
Helix W.D.	Cuyamaca	8,195
Helix W.D.	Jennings	9,790
Poway, City of	Poway	3,330
Rainbow M.W.D.	Beck	625
Rainbow M.W.D.	Morro Hill	465
Ramona M.W.D.	Ramona	12,000
San Diego, City of	Barrett	37,947
San Diego, City of [1]	El Capitan	112,807
San Diego, City of [2]	Hodges	33,550
San Diego, City of	Lower Otay	49,510
San Diego, City of	Miramar	7,185
San Diego, City of	Morena	50,207
San Diego, City of	Murray	4,818
San Diego, City of	San Vicente	90,230
San Diego, City of	Sutherland	29,685
San Dieguito W.D./Santa Fe I.D.	San Dieguito	883
SDCWA/Olivenhain MWD	Olivenhain	24,364
Sweetwater Authority	Loveland	25,387
Sweetwater Authority	Sweetwater	28,079
Valley Center M.W.D.	Turner	1,612
Vista I.D.	Henshaw	51,774
Total Capacity		593,490

= Connected to Water Authority aqueduct system.
[1] = Imported water can be delivered via San Vicente.
[2] = System connection is proposed as part of the Emergency Storage Project.

FIGURE 5-1
MAJOR SAN DIEGO COUNTY
RESERVOIRS



5.1.2 Issues

Management

Managing the region's reservoir system to achieve the optimal use of local and imported water is an important element of resources planning. Local surface water supplies can offset dry-year shortfalls in imported water. However, water use records indicate that local reservoirs are generally operated to maximize the use of local supplies in wet and normal years in order to reduce the need for imported water purchases. While this mode of reservoir operation reduces losses due to evaporation and spills, it also results in increased demands for imported water during dry years when imported water is more likely to be in short supply. Most member agencies also maintain a portion of their storage capacity for emergency storage. Many local reservoirs could be operated to maintain carryover storage, but this practice would tend to decrease their average annual yield. An environmental analysis of dedicated carryover storage capacity is being evaluated as part of the expansion of the San Vicente Reservoir, which is being implemented under the ESP. The RWFMP identified carryover storage as necessary to supplement supplies during dry weather events and to maximize the efficient use of existing and planned infrastructure.

Water Quality

See **Section 7** for water quality information.

5.1.3 Encouraging Optimization of Local Surface Water Reservoirs

To optimize the use of local storage, the Water Authority and its member agencies participate in Metropolitan's Surface Storage Operating Agreement (SSOA). The SSOA, initiated in October 2003, allows Metropolitan to store up to 70,000 AF/YR of water in the Water Authority's member agency reservoirs. The water is placed into storage in the winter months when demand is low and pipeline capacity is available, and withdrawn by the member agencies in the summer months when demand increases and pipeline capacity is restricted due to increased demands. Benefits of the SSOA include decreased peak demands on the Skinner TP, enhancement of local storage operations, and a credit on the member agency's invoice when water is withdrawn from the reservoir by the member agency. Up to 32 percent of the regional water demands have been met in the peak demands months utilizing SSOA water.

5.1.4 Projected Surface Water Supplies

Surface water supplies represent the largest single local resource in the Water Authority's service area. However, annual surface water yields can vary substantially due to fluctuating hydrologic cycles. Since 1980, annual surface water yields have ranged from a low of 24,000 AF to a high of 174,000 AF. Planned ESP projects are expected to increase local yield due to the more efficient use of local reservoirs; the volume has not been determined. Based on information provided by the Water Authority's member agencies, the local surface water supplies are assumed to have an average yield of 59,649 AF.

A list of the individual reservoirs, expected yield and basis for the supply figure can be found in **Appendix F, Table F-1**. **Table 5-2** shows the projected average surface water supply within the Water Authority's service area. Specific information on the projected yields from local reservoirs is expected to be included in the member agencies' 2005 Plans.

TABLE 5-2
PROJECTED SURFACE WATER SUPPLY
(Normal Year - AF/YR)

2005 [a]	*2010*	*2015*	*2020*	*2025*	*2030*
45,521	59,649	59,649	59,649	59,649	59,649

[a] Based on FY 2005 totals.

5.2 GROUNDWATER

Groundwater is being used to meet demands throughout the Water Authority's service area, from the City of Oceanside in the north to National City in the south. This section provides a general description of groundwater development within the Water Authority's service area, the issues associated with development of this supply, and projected regional yield. Specific information required under the Act on groundwater basins and projects is expected to be included in the member agencies' 2005 Plans.

5.2.1 Description

Agencies within the Water Authority's service area used approximately 17,844 AF of groundwater in FY 2005, which is lower than the average due to an extended period of low rainfall, which resulted in limited natural recharge into the basins. In fact, over the last five years groundwater production used to meet potable demands has been below average at about 17,000 AF/YR. Many private well owners also draw on groundwater to help meet their domestic water needs, which helps to offset demand for imported water. The amount of groundwater pumped by private wells is significant, but to date has not been accurately quantified.

Groundwater production in the Water Authority's service area is limited by a number of elements, including lack of storage capacity in local aquifers, availability of groundwater recharge, and degraded water quality. Narrow river valleys filled with shallow sand and gravel deposits are characteristic of the most productive groundwater basins in the San Diego region. Outside of the principal alluvial aquifers and farther inland, groundwater occurs in fractured crystalline bedrock and semi-consolidated sedimentary deposits where yield and storage are limited and the aquifers are best suited for lower-yielding domestic water supply wells. **Figure 5-2** shows the location of the principal alluvial groundwater basins located within the Water Authority's service area.

Although groundwater supplies are less plentiful in the San Diego region than in some other areas of California, such as the Los Angeles Basin in southern California and the Central Valley in northern California, the Water Authority believes that sufficient undeveloped supplies exist that could help meet a greater portion of the region's future water supply and storage needs. Several agencies within the Water Authority's service area have documented potential projects

that could provide an additional 21,400 AF/YR of groundwater production in the coming years. Existing, planned and potential projects can be grouped into the following three categories:

Groundwater Extraction and Disinfection Projects

These projects are generally located in basins with higher water quality levels, where extracted groundwater requires minimal treatment for use as a potable water supply. Examples of this type of groundwater project include projects currently operated by MCB Camp Pendleton, Yuima MWD, and the Sweetwater Water Authority (National City Well Field). Another high yielding basin is the upper San Luis Rey, which provides groundwater supplies to the Vista Irrigation District and City of Escondido and is operated in conjunction with surface water supplies. The unit cost of water produced from simple groundwater extraction and disinfection projects is generally well below the cost of imported water. Because most of the higher quality groundwater within the Water Authority's service area is already being fully utilized, a relatively small amount of this "least cost" groundwater is available for new supplies. However, these basins are good candidates for conjunctive-use operations, which can significantly increase the average annual production rate of groundwater.

Brackish Groundwater Recovery Projects

Groundwater that is high in Total Dissolved Solids (TDS) is typically found in basins that have been impacted by imported-water irrigation or by seawater intrusion resulting from the historical overdraft of coastal basins. Brackish groundwater recovery projects use desalination technologies, principally reverse osmosis, to treat extracted groundwater to potable water standards. The City of Oceanside's 6.37-mgd capacity Mission Basin Desalter and the Sweetwater Authority's existing 4.0-mgd Richard A. Reynolds Groundwater Desalination Facility are two currently operating brackish groundwater recovery projects in the Water Authority's service area. Unit costs for brackish groundwater recovery projects are considerably higher than those for simple groundwater extraction projects due to the additional treatment requirements, including concentrate disposal needs. However, where economical options exist for disposal of brine, this type of groundwater project has proven to be an economically sound water supply option.

Groundwater Recharge and Recovery Projects

Artificial recharge and recovery projects or conjunctive-use projects improve groundwater basin yields by supplementing natural recharge sources with potable or recycled water, and/or inducing additional natural recharge. These projects can supply stored water to the region if imported deliveries are limited due to supply and facility constraints. The Water Authority and City of Oceanside completed a study in 2005 that evaluated the potential for a conjunctive-use project in the Mission Basin. Results from the study indicate that use of the basin for recharge and recovery may be limited due to the impact on sensitive riparian habitat and costs for recharge facilities. Oceanside plans to complete expansion of its existing demineralization facility and then monitor groundwater levels in the basin prior to proposing development of a potential conjunctive-use project. The study approach and information generated by this conjunctive-use study is being made available to other agencies within the Water Authority's service area considering development of such a project. Refer to **Section 5.2.3** for additional information on the study.

FIGURE 5-2
ALLUVIAL GROUNDWATER BASINS

5.2.2 Issues

Local agencies must consider a number of issues when developing groundwater projects, including economic and financial considerations, legal, institutional, regulatory, environmental, and water quality issues. These issues can limit the amount of groundwater development in San Diego County.

Please see **Section 5.3.4** for information on the Water Authority's Financial Assistance Program funding opportunities for facility planning, feasibility investigations, preliminary engineering studies, environmental impact reports, and research projects related to groundwater development.

Economic and Financial Considerations

Because of the saline nature of the groundwater basins in San Diego County, the cost of groundwater development usually includes demineralization, which can be costly to construct and operate. One of the more costly elements is the facility necessary to dispose of the brine generated from the treatment process. To address this element, the United States Bureau of Reclamation (USBR), in coordination with numerous public agencies including the Water Authority, is conducting a multiyear planning study to evaluate brine concentrate management and disposal technologies.

Institutional, Legal, and Regulatory Issues

Institutional and legal issues can also impact project development. Because most basins involve multiple water agencies and numerous private wells, water rights are a concern. Agencies are often reluctant to implement groundwater development projects unless jurisdiction and water rights issues are resolved beforehand.

Uncertainty over future regulatory requirements for drinking water supplies can pose another barrier to project development. When developing facilities and compliance plans for groundwater recharge projects, agencies must take into account proposed or potential regulatory changes related to water quality issues. Some of the regulations for which changes are expected over the next decade include state and federal drinking water standards and California Department of Health Services groundwater recharge regulations.

Environmental Regulatory Constraints

Regulatory issues related to environmental protection are common to many of the groundwater projects proposed within the Water Authority's service area. These issues include potential impacts to endangered species and groundwater-dependent vegetation. Impacts may occur if a project results in seasonal or long-term increases in the depth of the groundwater. Although potential environmental impacts can generally be mitigated, mitigation costs can reduce the cost-effectiveness of a project. Concentrate disposal requirements for brackish groundwater recovery projects can also constrain projects sited in inland basins without access to an ocean outfall.

Water Quality

See **Section 7** for water quality information.

5.2.3 Projected Groundwater Supplies

The Water Authority worked closely with its member agencies to determine the projected yield from existing and planned groundwater projects. **Table 5-3** shows the estimated annual yield from groundwater projects in 5-year increments, based on the implementation schedules provided by the member agencies and the likelihood of development. The reliability analysis found in **Section 8** of this 2005 Plan includes these projected supply yields. **Table F-2, Appendix F** contains a detailed list of the projects and projected supplies.

TABLE 5-3
PROJECTED GROUNDWATER SUPPLY
(Normal Year - AF/YR)

2005 [a]	*2010*	*2015*	*2020*	*2025*	*2030*
17,844	28,575	30,345	31,175	31,175	31,175

[a] Based on FY 2005 totals.

Table 5-3 shows the increase in groundwater production from the current yield of 17,844 AF/YR resulting from the expansion of projects operated by the Sweetwater Authority and the City of Oceanside. To achieve this increase in groundwater yield, funding assistance is critical, as is overcoming the regulatory constraints associated with development.

The City of Oceanside anticipates that its proposed 6.37 mgd Mission Basin Desalter (4.0-mgd expansion) will be completed by the end of the year 2006. The project will include the development of the estimated remaining "safe yield" of the basin through expansion of the existing demineralization facility. The Sweetwater Authority is participating in studies with the United States Geological Survey to evaluate the San Diego Formation Aquifer and make safe use of the available yield from the aquifer.

Regional Groundwater Goal

Maximizing groundwater development is critical to diversifying the region's water supply portfolio. Beyond the verifiable yield included in **Table 5-3**, the member agencies are considering developing an estimated 21,400 AF/YR of additional yield by 2030. These projects are generally not expansions of existing projects and are still in the planning and/or conceptual stage. Funding assistance and overcoming regulatory constraints is critical to the development of this additional supply. **Table F-2, Appendix F** includes a list of the projects. When these projects become more certain, they will be included in future updates of the Water Authority's Urban Water Management Plan.

To highlight the importance of maximizing groundwater supplies within the region, a regional groundwater goal has been established: 52,575 AF/YR by 2030, in combination with the yields shown in **Table 5-3**.

Conjunctive-Use

As mentioned above, conjunctive-use projects can supply stored water to the region if imported deliveries are limited due to supply and/or facility constraints. The City of San Diego, Otay Water District, Olivenhain Municipal Water District, and the City of Oceanside are considering developing conjunctive-use projects in the future. **Table F-2, Appendix F** includes the estimated potential storage yield from these projects. If developed, they could provide 17,450 AF/YR of storage yield for the region by 2030.

Because the imported conjunctive-use projects produce minimum amounts of new yield, the regional reliability analysis in **Section 8** does not include the supply figures. In addition, the projects are still in the conceptual and/or planning stages.

Results from the Lower San Luis Rey River Valley Groundwater Storage and Recovery Feasibility Study, prepared by the Water Authority in conjunction with the City of Oceanside, also identifies significant constraints to the development of groundwater conjunctive-use projects in San Diego County. These constraints relate to the following:

- Cost to install infrastructure to deliver and extract the recharge water;
- Injecting higher quality imported water into brackish basins and then having to demineralize the water when it is extracted;
- Potential impact on sensitive riparian habitat; and
- Lack of opportunities for spreading basins.

5.3 WATER RECYCLING

A fundamental element to developing a diverse supply mix for the region and to using existing water supplies more efficiently is through implementation of water recycling projects. This section provides a general description of recycled water development within the Water Authority's service area, the issues associated with developing this supply, and projected regional yield. Documentation on specific existing and future recycling projects is expected to be in the 2005 Plans for those agencies that include water recycling as a supply. The Water Authority coordinated the preparation of this section with its member agencies and those wastewater agencies that operate water recycling facilities within the Water Authority's service area.

5.3.1 Description

Water recycling is the treatment and disinfection of municipal wastewater to provide a water supply suitable for non-drinking purposes. Agencies in San Diego County use recycled water to fill lakes, ponds, and ornamental fountains; to irrigate parks, campgrounds, golf courses, freeway medians, community greenbelts, school athletic fields, food crops, and nursery stock; and to control dust at construction sites. Recycled water can also be used in certain industrial processes and for flushing toilets and urinals in non-residential buildings. As an example, the detention facility in the Otay Mesa area of San Diego County is dual-plumbed to allow use of recycled

water for toilet and urinal flushing. However, current regulations allow only new buildings to be dual-plumbed for this specific use. Additional uses for recycled water are being identified and approved as local agencies and regulators become comfortable with its use.

5.3.2 Issues

Local agencies must consider a number of issues when developing recycled water projects, including economic and financial considerations, regulatory, institutional, public acceptance, and water quality concerns related to unknown or perceived health and environmental risks. These issues, if unresolved, can limit the amount of wastewater recycled in San Diego County. In fact, the impact from the challenges associated with recycled water are apparent when comparing the 2005 recycled water projections from the Water Authority's 2000 Plan (33,400 AF) to actual FY 2005 recycled water demand (11,479 AF). The following sections discuss some of the specific challenges associated with recycled water development.

Economic and Financial Considerations

The capital-intensive cost of constructing recycled water projects has traditionally been a barrier to project implementation. The up-front capital costs for construction of treatment facilities and recycled water distribution systems can be high, while full market implementation is usually phased in over a number of years, resulting in very high initial unit costs that affect cash flow in the early project years.

Costs associated with converting existing potable water customers to recycled water customers have also proved challenging. This situation is compounded by the seasonal nature of recycled water demands and the lack of large industrial water users in San Diego County that can use recycled water. The lack of sizeable opportunities for groundwater recharge storage compounds this situation. Recycled water demands tend to peak during the hot summer months and drop off during the winter months when landscape irrigation demands are low. Projects that serve a large portion of irrigation demands, like the majority of the projects in the Water Authority's service area, often use only half of their annual production capacity due to these seasonal demand patterns. The costs of these projects tend to be higher than those of projects that serve year-round demands, since the project facilities must be sized to accommodate seasonal peaking. Projects that serve mostly irrigation demands also tend to have less stable revenue bases since irrigation demands are heavily influenced by hydrologic conditions.

To be financially feasible, a project's benefits must offset or exceed its associated costs. Project benefits can take the form of: (1) revenues from the sale of recycled water; (2) increased supply reliability; (3) increased control over the cost of future water supplies; and (4) avoided water and wastewater treatment, storage, and conveyance costs. Agencies developing recycled water projects must be able to quantify these benefits in order to determine the financial feasibility of a project. In addition, financial incentives and grant funding from the Water Authority, Metropolitan, and federal and state agencies are critical to offsetting project costs and project implementation.

Regulatory

Two state agencies have primary responsibility for regulating the application and use of recycled water: the Department of Health Services (DHS) and the California Regional Water Quality Control Board (Regional Board). Planning and implementing water recycling projects entail numerous interactions with these regulatory agencies prior to project approval.

The DHS establishes the statewide effluent bacteriological and treatment reliability standards for recycled water uses in Title 22 of the California Administrative Code. Under Title 22, the standards are established for each general type of use based on the potential for human contact with recycled water. The highest degree of standards for recycled water is for unrestricted body contact.

The Regional Board is charged with establishing and enforcing requirements for the application and use of recycled water within the state. Permits are required from the Regional Board for each water recycling operation. As part of the permit application process, applicants are required to demonstrate that the proposed recycled water operation will not exceed the ground and surface water quality objectives in the basin management plan, and that it is in compliance with Title 22 requirements.

Coordination between the regulatory agencies responsible for monitoring development of recycled water is important, along with the development of a reasonable and consistent application of regulations. Regulatory agencies also need to work closely and cooperatively with project proponents in their efforts to satisfy the regulations and still be able to develop a much needed, cost-effective water-recycling project.

A regulatory issue that may hinder development of projects is the DHS groundwater recharge rule that requires treatment prior to injection of recycled water in order to reduce the total organic carbon (TOC) concentration to less than 2.0 mg/l. This requirement may increase the cost and reduce the ability to develop the limited opportunities for groundwater recharge in San Diego County.

Institutional

The primary institutional issue related to the development of water recycling in San Diego County is interagency coordination, such as when the wastewater agency that produces the recycled water is not the water purveyor within the reuse area. At those times, effective communication and cooperation between both agencies regarding the distribution of recycled water and providing service to the water customer is vital and should begin early in the planning process.

These institutional arrangements require contracts and/or agreements between the parties and/or agencies involved, the terms of which must be established on a case-by-case basis. The agreements usually define the reporting and compliance responsibilities, the amount of recycled water deliveries, water pricing, and a financing plan that identifies which agency will receive the financial incentives.

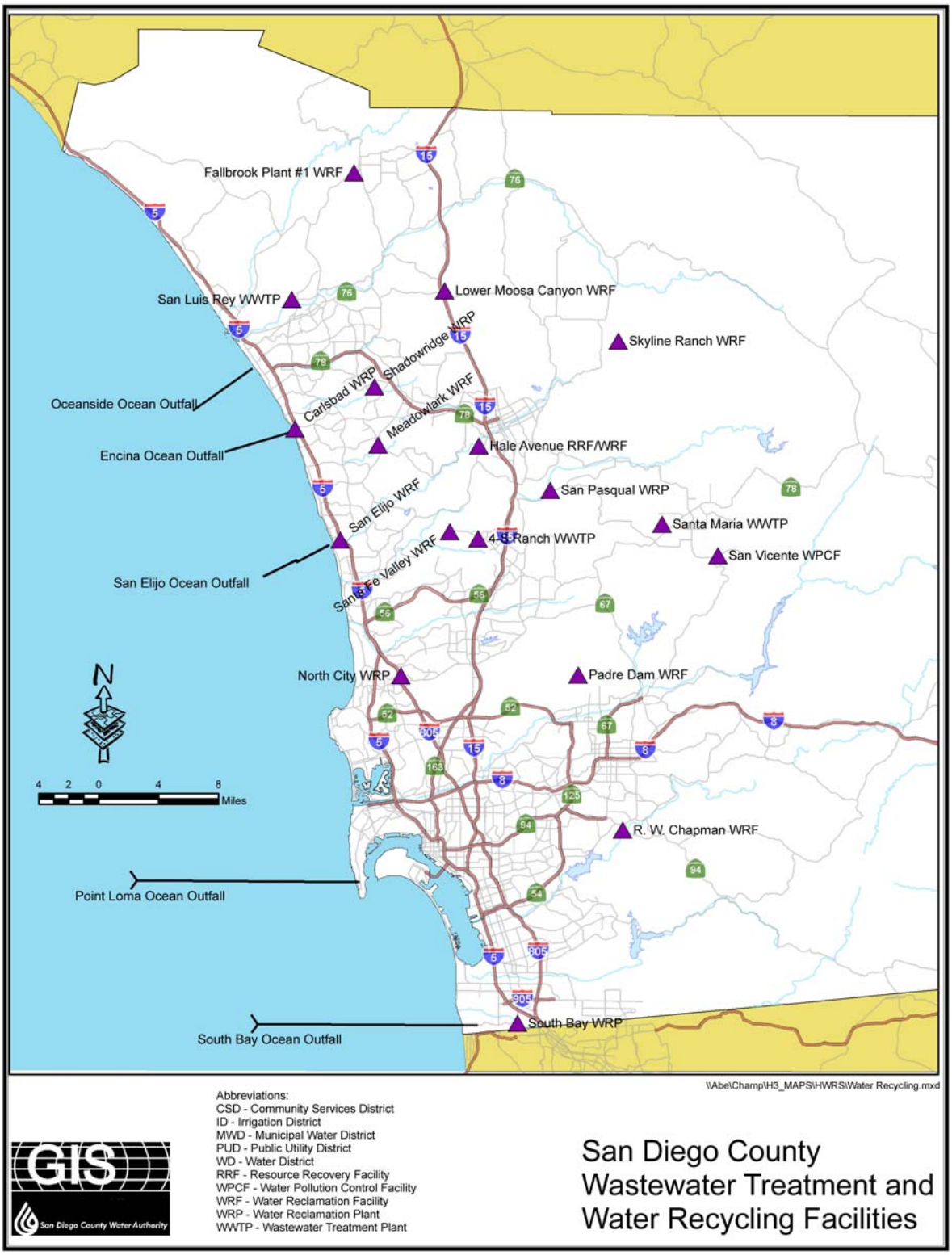
Public Acceptance

Without public acceptance, siting, financing, constructing, and operating a water-recycling project becomes increasingly difficult. The most successful means to obtaining public acceptance is through education and involvement. Agencies in the San Diego region have formed citizens advisory groups and held public workshops in an effort to increase public involvement in projects. In the Water Authority's service area, the Regional Public Information and Customer Marketing Program is being developed to promote the increased use of recycled water.

5.3.3 Wastewater Generation, Collection, Treatment, and Disposal

Approximately 300-mgd of wastewater is currently being generated, collected, treated, and disposed of within the Water Authority's service area. Most of the large wastewater treatment plants are located along the coast for easy and convenient access to an ocean outfall. These plants serve most of the San Diego region's highly urbanized areas. **Figure 5-3** identifies the location of the wastewater treatment plants and the associated outfall systems. The coastal location of the plants is not always conducive to development of recycled water. Most of the market for recycled water is located at higher elevations making distribution systems costly. **Table F-3**, **Appendix F** shows a detailed list of the wastewater treatment plants within the county, their capacities at various levels of treatment, and the type of disposal. In addition, approximately 10 to 15-mgd of wastewater within the Water Authority's service area is generated and disposed of through private systems, such as septic tanks.

FIGURE 5-3
WASTEWATER TREATMENT AND WATER RECYCLING FACILITIES



5.3.4 Encouraging Recycled Water Development

The Act requires agencies to describe in their plan the actions, including financial incentives that agencies may take to encourage the use of recycled water. **Table 5-4** summarizes the programs used by the Water Authority's member agencies. The water recycling agencies develop some of the programs, while others are developed or funded by the water providers, such as the Water Authority, Metropolitan, and state and federal agencies.

TABLE 5-4
PROGRAMS TO ENCOURAGE RECYCLED WATER USE

Incentive Programs - Reclaimed Water Development Fund (Water Authority) Local Resources Program (Metropolitan)
Grants - Title XVI Funding Program (US Bureau of Reclamation) Proposition 13 Grant (State of California) Proposition 50 Grant (State of California)
Low Interest Loans - Financial Assistance Program (Water Authority) State Revolving Fund (State of California) Water Reclamation Loan Program (State of California) Proposition 13 Loan (State of California)
Long-Term Contracts - Ensure price and reliability
Funding assistance to State Water Resources Control Board to fund staff position to expedite water recycling projects.
Rate Discounts
Public Education/Information
Regional Planning
Model Water Reclamation Ordinance and Implementation Handbook - Dual Plumbing Standards Prohibits Specific Potable Water Uses

Funding Programs

Another important component of a successful recycling project is securing diversified funding and establishing funding partnerships. The Water Authority has focused on providing and facilitating the acquisition of outside funding for water recycling projects.

A number of financial assistance programs available to San Diego County agencies include: the Water Authority's Financial Assistance Program (FAP) and Reclaimed Water Development Fund (RWDF); Metropolitan's Local Resources Program (LRP); the USBR Title XVI Grant Program; and the State Water Resources Control Board (SWRCB) low-interest loan programs. Together, these programs offer funding assistance for all project phases, from initial planning and design to construction and operation. Financial assistance programs administered by the Water Authority, Metropolitan, and the USBR provided $10.4 million to San Diego County agencies during FY 04. It is anticipated that approximately $7.9 million will be awarded in 2005 from these funding sources. These programs are projected to ultimately reuse approximately 54,000 AF/YR.

Financial Assistance Program. The Water Authority offers FAP funding to encourage facility planning, feasibility investigations, preliminary engineering studies, environmental impact reports, research projects related to water recycling, groundwater development, and seawater desalination. Since its inception in June 1988, the FAP has provided local agencies with more than $1.8 million for water recycling studies, $797,000 for groundwater development studies, and over $200,000 for seawater desalination studies. Agencies may apply for FAP funding through either a loan or a grant. FAP funds are distributed on a loan basis for feasibility studies, master plans, facility plans, and environmental reports. Repayment of the loan is required when the project has satisfactorily met CEQA requirements, or when the planned project is complete. Grant funding is also distributed through the FAP for research and development projects. To receive funding as a grant, the agency must have already secured partial funding for the project from another source.

Reclaimed Water Development Fund. To aid agencies in overcoming financial constraints associated with development of water recycling projects, the Water Authority's Board of Directors adopted the RWDF program in April 1991, which provided incentive funding of up to $100/AF for beneficial reuse for recycling projects that demonstrated a financial need. Recently, the incentive level was increased to $147/AF. This incentive contribution offsets costs, especially in the early years of project start-up. In order to qualify, project expenses must exceed project revenues. To date, the Water Authority has entered into RWDF agreements with nine agencies for a combined project yield of 29,857 AF/YR. In FY 04, the Water Authority provided local agencies with $880,500 in RWDF incentives.

Local Resources Program. Metropolitan also has a program that currently underwrites local projects during the initial years of operation. The LRP provides incentives of up to $250 AF/YR for recycled water and groundwater recovery projects. Currently, fifteen water-recycling projects in San Diego County have agreements for LRP funding. Metropolitan provided $2,111,752 in FY 04, and $1,796,642 in FY 05, for LRP funding. Metropolitan also provided funding through its Groundwater Recovery Program (GRP) for two groundwater recovery projects in the amounts of $1,292,686 in FY 04, and $709,105 in FY 05.

The Reclamation Wastewater and Groundwater Study and Facilities Act – Title XVI. The Title XVI Grant Program is a significant source of funding for San Diego area recycling projects. Title XVI of Public Law 102-575, the Reclamation Wastewater and Groundwater Study and Facilities Act, authorizes the federal government to fund up to 25 percent of the capital cost of authorized recycling projects, including the San Diego Area Water Reclamation Program, an inter-connected system of recycling projects serving the Metropolitan Sewage System service area. PL104-266, the Reclamation Recycling and Water Conservation Act of 1996, authorized two additional projects in northern San Diego County: the North San Diego County Area Water Recycling Project and the Mission Basin Brackish Groundwater Desalting Demonstration Project. To date, San Diego agencies have been authorized to receive more than $195 million under the Title XVI grant program, including more than $7.3 million obligated during Federal Fiscal Year (FFY) 04. A total of $94,591,000 has been received from this funding source to date. It is critical that funding from this program be maintained each year.

State Revolving Fund/Water Reclamation Loan Program. The SWRCB, through the Division of Financial Assistance, provides financial assistance for water recycling projects in the form of low-interest loans and/or grants for project construction and grants for project planning. The State Revolving Fund (SRF) and the Water Reclamation Loan Program (WRLP) provides agencies with low-interest construction loans for water recycling and groundwater projects. This below-market interest rate can result in substantial savings on debt service. The SRF and WRLP loans carry an interest rate equal to 50 percent of the state's general obligation bond interest rate. Approximately $42 million was appropriated to the SWRCB in FY 03 and 04 for the funding of water recycling projects. Additional funding for FY 03 from the SWRCB included $4 million from Proposition 13 and the 2000 Bond Law for San Diego area water recycling projects. In FY 04, an additional $75,000 was awarded to local water recycling projects through SWRCB funding sources. An example of funding recently awarded to one of the Water Authority's member agencies was the $1.08 million grant given to the Olivenhain Municipal Water District.

California voters passed Proposition 50, known as the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 on November 5, 2002. In spring 2005, more than $10 million was earmarked from this bond measure for San Diego area water recycling projects. It is anticipated that disbursements will begin in late-2005.

Policies, Ordinances and Guidance Documents

The Water Authority has adopted a number of policies, guidance documents, and a model ordinance to assist local agencies with water recycling project implementation. Many local agencies have adopted the Water Authority-sponsored ordinance, which includes provisions that typically require new development projects to install recycled water systems. The ordinance also states that where allowed by law and available in sufficient quantities, at a reasonable cost and quality, recycled water shall be the sole water supply delivered for non-potable uses.

Training

The Water Authority, in partnership with other water agencies, offers a one-day course designed to provide irrigation supervisors with a basic understanding of recycled water. Completion of the Recycled Water Site Supervisor Training fulfills the training requirement as mandated by regulatory authorities. The class provides information to supervisors on the water recycling process, recycled water quality and safety issues, the duties and responsibilities of the supervisor, landscape irrigation fundamentals, maintenance and management, and cross connection control shut-down tests and inspections. Understanding similarities and differences between recycled and potable water is important to the successful operation of a recycled water system. The first class started in 1993 with 14 participants. At this time, more than 1,000 participants have been certified. Instructors include a state registered environmental health specialist, environmental assessor, water quality chemist/reclamation specialist, and landscape specialists.

Optimizing the Use of Recycled Water – Regional Perspective

While local agencies typically expand and develop their respective recycled water projects independently based on local interests, the Water Authority is conducting studies that will identify opportunities to expand the region's use of recycled water. These studies, namely, the San Diego County Water Authority Regional Recycled Water System Study, completed in March 2002, and the Regional Recycled Water Study – Phase II, scheduled for completion in December 2005, have taken a regional approach to water recycling project planning and development. Primary tasks to be completed under the Regional Recycling Water Study – Phase II include: developing strategies to overcome identified obstacles to water recycling; developing a marketing plan and regional strategies to market recycled water to target industries and customers; investigating and examining to what extent - and levels - TDS in source water affect the use and application of recycled water for local end-users; researching and identifying the impediments to the implementation of water repurification projects; and funneling planning grant funding to regional agencies to further expand the use of recycled water.

The Water Authority also participated in the California Recycled Water Task Force. This legislated task force identified constraints, impediments, and opportunities for the increased use of recycled water, and report its findings to the California Legislature by July 1, 2003. Many of the recommendations identified in the completed report entitled, "Water Recycling 2030: Recommendations of California's Recycled Water Task Force," dated June 2003, have been regionally supported and adopted. Six of the key issue areas identified in the report are currently being addressed via the Phase II Study efforts and through legislative means either supported or initiated by the Water Authority. These areas include: (1) Funding for water recycling; (2) Public dialogue/Public outreach; (3) Plumbing Code/Cross-connection control; (4) Regulations and permitting; (5) Economics of water recycling; and (6) Science and health/Indirect potable reuse.

5.3.5 Projected Recycled Water Use

The Water Authority worked closely with its member agencies to determine the projected yield from existing and planned recycled water projects. **Table 5-5** shows the estimated annual yield from the projects in 5-year increments, based on the implementation schedules provided by the member agencies and the likelihood of development,. These projected supply yields will be included in the reliability analysis found in **Section 8** of this 2005 Plan. **Table F-4, Appendix F** contains a detailed list of the projects and projected supplies.

TABLE 5-5
PROJECTED RECYCLED WATER USE
(Normal Year - AF/YR)

2005 [a]	*2010*	*2015*	*2020*	*2025*	*2030*
11,479	33,668	40,662	45,548	46,492	47,584

[a] Based on FY 2005 totals.

The increase in recycled water use shown in **Table 5-5**, from the current use of 11,479 AF/YR, is primarily from the expansion of existing facilities. The City of Carlsbad is constructing a new treatment and distribution system to deliver close to 3,000 AF/YR of recycled water. The Otay Water District is constructing a distribution system to deliver an estimated 5,000 AF/YR of recycled water by 2030 purchased from the City of San Diego's South Bay Water Recycling Plant.

Regional Water Recycling Goal

Maximizing recycled water development is critical to diversifying the region's water supply portfolio. Beyond the verifiable yield included in **Table 5-5**, the member agencies are considering development of an additional 6,829 AF/YR by 2030. These projects are still in the planning and/or conceptual stage. Funding assistance and overcoming regulatory constraints is critical to the development of this additional supply. **Table F-4, Appendix F** contains a list of the projects. When development of these projects becomes more certain, they will be included in future updates of the Water Authority's 2005 Plan. In order to highlight the importance of maximizing recycled water use within the region, a regional water recycling water goal has been established. In combination with the figures shown in **Table 5-5**, the regional water-recycling goal is 54,413 AF/YR by 2030.

5.4 SUMMARY OF MEMBER AGENCY SUPPLIES

Table 5-6 shows the projected supply figures for existing and projected local resources for the Water Authority's service area based on input from the member agencies. These supplies are considered verifiable and will be used in the regional reliability analysis included in **Section 8**. The Water Authority – Carlsbad Agreement provides the City of Carlsbad the opportunity to receive up to 5,000 AF/YR of supply from the project; at this time, however, the annual delivery amount for the City of Carlsbad has not been determined. (Refer to **Section 4.3**.)

TABLE 5-6
PROJECTED MEMBER AGENCY LOCAL SUPPLIES
(Normal Year - AF/YR)

Local Supply	*2005* [a]	*2010*	*2015*	*2020*	*2025*	*2030*
Surface Water	45,521	59,649	59,649	59,649	59,649	59,649
Groundwater	17,844	28,575	30,345	31,175	31,175	31,175
Recycled Water	11,479	33,668	40,662	45,548	46,492	47,584
TOTAL MEMBER AGENCY SUPPLIES	74,844	121,892	130,656	136,372	137,316	138,408

[a] Based on FY 2005 totals.

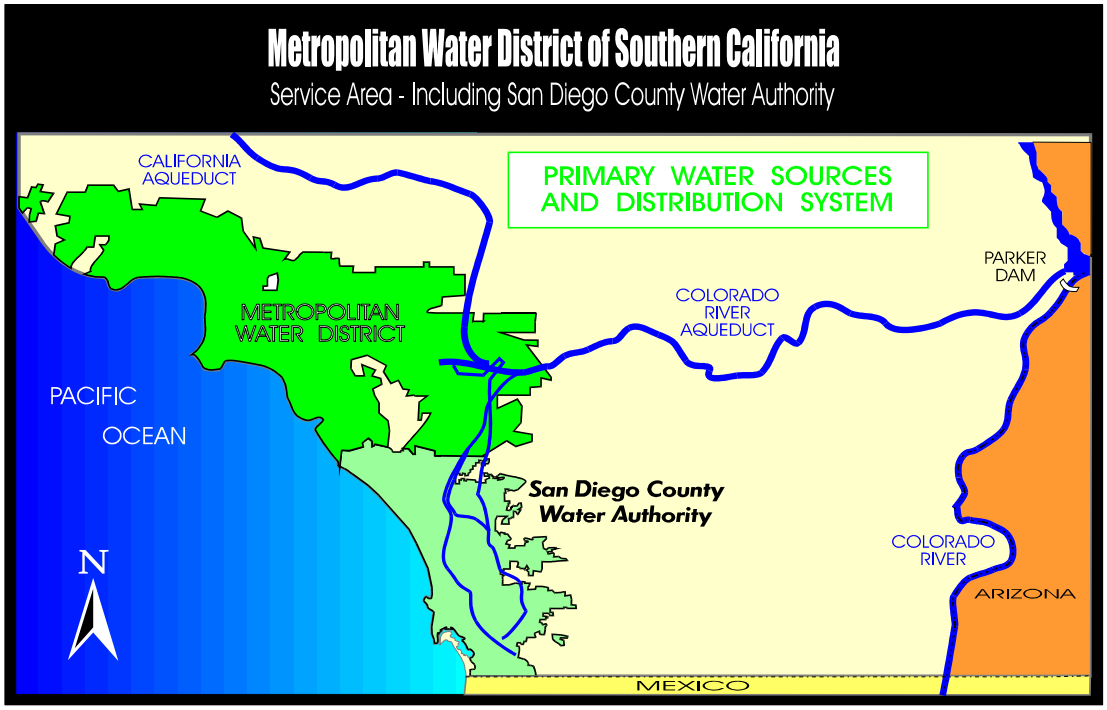
The estimates for projected member agency local supplies included in **Table 5-6** could be even greater with increased funding opportunities, technological advances, and by successfully addressing regulatory and environmental issues. Maximizing groundwater and recycled water development can provide further diversification of regional supplies. In order to highlight the importance of maximizing these supplies, a local resources goal has been established. In combination with the figures shown in **Table 5-6**, the total regional local resources goal, excluding supply from conjunctive use projects using imported or recycled water, is 164,683 AF/YR by 2030.

SECTION 6 – METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

6.1 DESCRIPTION

Metropolitan was formed in 1928 to develop, store, and distribute supplemental water in Southern California for domestic and municipal purposes. Metropolitan supplies water to approximately 18 million people in a service area that includes portions of Ventura, Los Angeles, Orange, San Bernardino, Riverside, and San Diego counties. The Metropolitan service area, shown in **Figure 6-1**, covers a 70-mile-wide strip of the Southern California coastal plain, extending from the city of Oxnard on the north to the Mexican border. Close to half of the water used in this 5,200-square-mile region is supplied by Metropolitan, and about 90 percent of its population receives at least some of its water from Metropolitan. The Water Authority, one of 27 Metropolitan member agencies, is the largest agency in terms of deliveries, purchasing about 25 percent of all the water Metropolitan delivered in FY 04. The extent to which Metropolitan's member agencies rely upon Metropolitan supplies varies by the amount of local supplies available.

FIGURE 6-1
METROPOLITAN SERVICE AREA

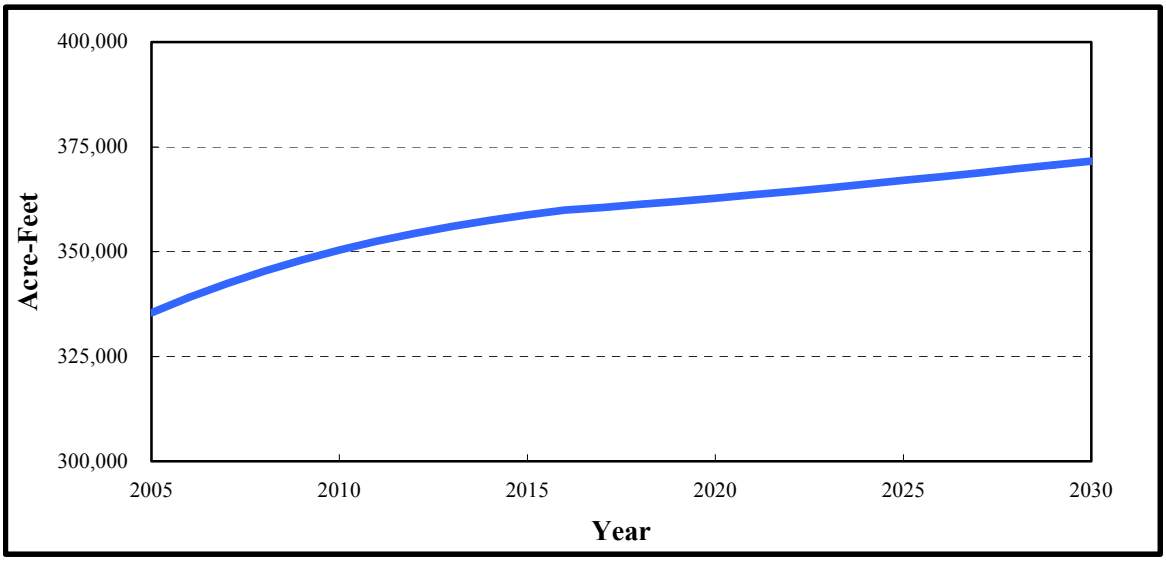


6.1.1 Metropolitan Act Section 135; Preferential Right to Water

Under Section 135 of the Metropolitan Act, preferential rights are determined by each agency's total historic payments to Metropolitan from property taxes, stand-by charges, readiness-to-serve charges, and other revenue. Revenue resulting from the purchase of Metropolitan water is excluded, even though a portion of such revenues is used to pay for capital projects. While the

Water Authority had a preferential right to 15.8 percent of Metropolitan's water in FY 04, it purchased about 25 percent of Metropolitan's available supply. At any time under preferential rights rules, Metropolitan may allocate water without regard to historic water use or dependence on Metropolitan. **Figure 6-2** shows the Water Authority's projected preferential rights for the years 2005 through 2030.

FIGURE 6-2
PROJECTED WATER AUTHORITY PREFERENTIAL RIGHT



To seek clarification regarding the current application and legality of Section 135, the Water Authority board of directors voted in April 2004 to appeal an appellate court ruling that preserves Metropolitan's preferential right process. In July 2004, the State Supreme Court denied the Water Authority's appeal of an appellate court decision that Metropolitan might continue to exclude water purchases from the preferential rights calculation. The decision makes clear how much water the Water Authority may count on from Metropolitan should a member agency invoke its preferential right.

Metropolitan stated, consistent with Section 4202 of its Administrative Code, that it is prepared to provide the Water Authority's service area with adequate supplies of water to meet expanding and increasing needs in the years ahead. When, and as additional water resources are required to meet increasing needs, Metropolitan stated that it will be prepared to deliver such supplies. In their draft 2005 Regional Urban Water Management Plan (RUWMP), Section II.4, Metropolitan also states that as a result of investments made in supply and storage, that they have identified a resource management plan that should result in 100 percent reliability for non-discounted non-interruptible demands through 2025.

6.1.2 Metropolitan's Integrated Resources Plan

The Integrated Resources Plan (IRP) identifies a mix of resources (imported and local) that when implemented will provide 100 percent reliability for full-service demands through the attainment

of regional targets set for conservation, local supplies, SWP supplies, Colorado River supplies, groundwater banking, and water transfers. The 2004 update to the IRP now includes a planning buffer supply to mitigate against the risks associated with implementation of local and imported supply programs. The planning buffer identifies an additional increment of water that could potentially be developed if other supplies are not implemented as planned. As part of implementation of the planning buffer, Metropolitan periodically evaluates supply development to ensure that the region is not over-developing supplies. If managed properly, the planning buffer will help ensure that the southern California region, including San Diego County, will have adequate supplies to meet future demands. Specific information on Metropolitan's IRP and Water Surplus and Drought Management Plan (WSDM Plan) are expected to be contained in their 2005 RUWMP.

6.2 METROPOLITAN'S WATER SUPPLIES

Metropolitan obtains its water from two sources: the CRA, which it owns and operates, and the SWP. **Figure 6-3** shows these imported water supply sources, and they are described below. Detailed documentation on Metropolitan's supplies can be found in its 2005 RUWMP.

6.2.1 Colorado River

Metropolitan was formed to import water from the Colorado River. During the 1930s, Metropolitan built the CRA to convey this water. Metropolitan's member agencies received the first deliveries in 1941. The aqueduct is more than 240 miles long, beginning at Lake Havasu on the Arizona/California border and ending at Lake Mathews in Riverside County. The aqueduct has capacity to deliver up to 1.3 million acre-feet per year (MAF/YR). **Figure 6-3** shows the location of the aqueduct.

Reliability Issues

Before 1964, Metropolitan had a firm annual allocation of 1.212 million acre-feet (MAF) of Colorado River water through contracts with the U.S. Department of the Interior, which was enough to keep Metropolitan's aqueduct full. However, as a result of the U.S. Supreme Court decision in Arizona vs. California, Metropolitan's firm supply fell to 550,000 AF. Due to growth in demand from the other states and drought conditions, since 2003, Metropolitan's deliveries have been limited to their base apportionment plus water from a conservation program with IID.

FIGURE 6-3
MAJOR WATER CONVEYANCE FACILITIES
SERVING SAN DIEGO COUNTY

Water availability from the Colorado River is governed by a system of priorities and water rights that has been established over many years. The Colorado River Lower Basin states (California, Arizona, and Nevada) have an annual apportionment of 7.5 MAF of water divided as follows: (1) California, 4.4 MAF; (2) Arizona, 2.8 MAF; and (3) Nevada, 300,000 AF. The 1931 Seven Party Agreement established California's priorities for water. As shown in as shown in **Table 6-1**, Metropolitan's 4th priority of 550,000 AF is junior to that of the first three priorities, 3.85 MAF to California agricultural agencies. Water used to satisfy priorities 5(a)-6(b) must come from unused allocations within California, Arizona, or Nevada or from surplus.

TABLE 6-1
SEVEN PARTY AGREEMENT PRIORITIES

PRIORITY	DESCRIPTION	ACRE-FEET/YEAR
1	Palo Verde Irrigation District	Priorities 1, 2, and 3 shall not exceed 3,800,500
2	Yuma Project Reservation Division	Same as above
3 (a)	Imperial Irrigation District and lands in Imperial and Coachella valleys to be served by All-American Canal	Same as above
3 (b)	Palo Verde Irrigation District	Same as above
4	Metropolitan Water District	550,000
5 (a)	Metropolitan Water District	550,000
5 (b)	City/County of San Diego[1]	112,000
6 (a)	Imperial Irrigation District	300,000
6 (b)	Palo Verde Irrigation District	
	TOTAL	5,362,000

[1] In 1946, San Diego's rights were merged with and added to the rights of Metropolitan as one condition of the Water Authority's annexation to Metropolitan.

In recent years, Arizona and Nevada have increased water demand to near-apportionment levels, limiting the availability of unused apportionments to Metropolitan. Arizona's demand has been substantially increased by deliveries to an in-state groundwater banking program. Nevada began banking water under an interstate water banking rule established by the Department of Interior in 1999, which allows Nevada to bank water in Arizona for Nevada's future use.

Five consecutive years of drought conditions throughout the Colorado River Basin were somewhat relieved during the winter of 2004-05, and water storage levels in the main reservoirs rebounded from a rapid and steep decline. Inflow into Lake Powell was above average for water year 2005 and for the first time since 1999, the water surface elevation in Lake Powell increased. As of the end of June 2005, storage in Lake Powell was 51 percent

of capacity; storage in Lake Mead was 59 percent of capacity. The draft U.S. Bureau of Reclamation Annual Operating Plan for Colorado River System Reservoirs anticipates a "partial domestic surplus" condition for calendar year 2006, which provides limited surplus water for Metropolitan. However, since the Interim Surplus Guidelines were implemented in 2001, Metropolitan has not taken any surplus water, and instead has left those supplies as system storage in Lake Mead. It is not yet clear whether Metropolitan will take any available surplus water in calendar year 2006.

Environmental Considerations

In 1994, the U.S. Fish and Wildlife Service (USFWS) designated 1,980 miles of the Colorado River and its tributaries in Colorado, Utah, New Mexico, Arizona, California, and Nevada as critical habitat for four endangered species of native fish. In response to the 1994 designation, the Lower Colorado River Multi-Species Conservation Program (LCR MSCP) was formed. The program is a partnership of federal agencies; state and local agencies in Arizona, California, and Nevada, including the Water Authority; Native American tribes; and other non-federal participants. The partnership is responding to the need to balance the legal use of lower Colorado River water resources and the conservation of threatened and endangered species and their habitats in compliance with the federal Endangered Species Act (ESA). Taking over ten years to develop, the LCR MSCP was approved in April 2005. The program is designed to benefit at least 26 species and restore a range of habitats along the lower Colorado River, including 8,132 acres of riparian, marsh, and backwater habitat. The $626 million program will be cooperatively funded and implemented by the partnership over the next 50 years. By meeting the needs of fish and wildlife under the ESA and preventing the listing of additional species, the program provides greater certainty of continued water and power supplies from the river for Nevada, California, and Arizona.

Current Supplies

Metropolitan currently has a firm supply from two sources: its fourth priority of 550,000 AF, and the yield of a conservation program that Metropolitan completed with IID in 1988. This program currently yields about 106,000 AF, giving Metropolitan a total supply of approximately 656,000 AF. Under certain conditions, however, Metropolitan must provide 50,000 AF of the conservation program water to the Coachella Valley Water District (CVWD). Thus, Metropolitan's firm supply is now about 606,000 AF. The remaining 600,000 AF of water needed to fill the CRA must come from the unused apportionments of other states or from surplus water.

Quantification Settlement Agreement and Future Supplies

The Water Authority, together with CVWD, IID, and Metropolitan, entered into the QSA in October 2003. The QSA resolved longstanding disputes regarding Colorado River water use among the agencies, and established a water budget for the agricultural agencies. This permitted the implementation of several water conservation and transfer agreements, including the Water Authority's transfer agreement with IID.

Transfers from IID began in late 2003 with the signing of the QSA. The Water Authority will receive up to 200,000 AF of water per year after an initial 19-year ramp-up in the water deliveries. Other supplies include about 77,700 AF from conservation projects to line the AAC and CC, located in Imperial and Coachella valleys.

6.2.2 STATE WATER PROJECT

Metropolitan's other water source, the SWP, is owned by the State of California and operated by the DWR. The project stretches more than 600 miles, from Lake Oroville in the north to Lake Perris in the south. Water is stored at Lake Oroville and released when needed into the Feather River, which flows into the Sacramento River and to the Sacramento-San Joaquin River Delta (Delta). In the north Delta, water is pumped into the North Bay Aqueduct for delivery to Napa and Solano counties. In the south Delta, water is diverted into the SWP's Banks Pumping Plant, where it is lifted into the 444 mile-long California Aqueduct. Some of this water flows into the South Bay Aqueduct to serve areas in Alameda and Santa Clara counties. The remainder flows southward to cities and farms in central and southern California. In the winter, when demands are lower, water is stored at the San Luis Reservoir located south of the Delta. SWP facilities provide drinking water to 23 million Californians and 755,000 acres of irrigated farmland. **Figure 6-3** shows the California Aqueduct.

Reliability Issues

The reliability of SWP supplies is limited by both the level of SWP supply development and pumping restrictions due to state and federal environmental regulations. Actions taken by the CALFED Bay-Delta Program have improved the situation. (See below for more on the impact of CALFED on SWP supplies.) When approved by the voters in the 1960s, the SWP was planned to deliver 4.2 MAF to 32 contracting agencies. Subsequent contract amendments reduced total contracted deliveries to 4.13 MAF and the number of contracting agencies to 29. Metropolitan's contracted entitlement is 2,011,500 AF, or almost 49 percent of the total. It is important to note that when voters approved construction of the SWP in 1960, state planners did not expect the full amount of contracted water to be needed for at least the first 20 years of the project. As such, the planners anticipated that the facilities needed to produce the full contracted amount would be constructed over time as demands on the system increased. However, decisions about these additional facilities were repeatedly deferred as public attitudes and environmental regulations changed and costs increased. New state and federal environmental laws put some potential water supply sources off limits to development. More stringent water quality standards adopted by the SWRCB to protect the San Francisco Bay/Sacramento-San Joaquin River Delta (Bay-Delta) have also reduced the amount of water available for diversion. At the same time, California's population and water demand continued to grow.

By the late 1980s, the SWP could not meet contractor demands during drought periods. During the initial years of the 1987 – 1992 drought, DWR maintained SWP deliveries using water stored at Lake Oroville and the San Luis Reservoir. In 1991, however, the SWP

delivered only 549,113 AF of entitlement water. Of this amount, Metropolitan received 381,070 AF, or about 20 percent of its entitlement.

DWR's *Draft 2005 State Water Project Delivery Reliability Report* projected average SWP deliveries to increase slightly, and multiple dry-year deliveries to remain generally unchanged. Minimum SWP deliveries may be as low as 4% to 5% of the full Table A basic contract amount in the single driest year (1977 hydrology). However, DWR has suggested that adjustments would be made to reflect more realistic operations where carryover storage and other provisions would enhance SWP dry-year deliveries to a level that is comparable in quantity to the previous reliability report from DWR.

Environmental Considerations

In recent years, actions taken to protect the ecosystem of the Bay-Delta have placed additional restrictions on SWP operations. The Bay-Delta is the largest estuary on the west coast and supports more than 750 plant and animal species. However, 150 years of human activity, dating back to 19th century gold mining, has taken its toll on the Bay-Delta ecosystem and the fish that live there. Between 1989 and 1999, the winter-run Chinook salmon was designated, or "listed," as an endangered species under the federal ESA and the Delta smelt, steelhead trout, and spring-run Chinook salmon were placed on the list of threatened species.

The degradation of the Bay-Delta ecosystem and the decline of Delta fisheries can be traced to numerous factors, including habitat loss, water diversions, pollution, over-fishing, and the introduction of non-native species. Regulatory protection efforts have nevertheless tended to focus on the operations of the SWP and the federal Central Valley Project (CVP). For example, in 1999, the SWP was forced to reduce pumping by about 500,000 AF to protect Delta smelt and spring-run Chinook salmon. These pumping reductions were in addition to fish protection measures built into the water quality standards established by the SWRCB. Actions taken by CALFED have stabilized this situation over the past four years, but this situation is temporary unless further actions are taken to extend it over the longer term.

Water Quality Considerations

Please see **Section 7** for water quality information.

Current Supplies

SWP delivery contracts were amended in 1995 to reflect principles developed under the December 1994 Monterey Agreement. Under the Monterey amendments, all SWP supplies are allocated to contractors in proportion to their contractual entitlements. Metropolitan's approximately 49 percent share of total SWP contract entitlements, entitles it to a proportionate share of SWP supplies. According to the November 2005 draft of Metropolitan's RUWMP, Metropolitan received an average of 1.04 million AF/YR from the SWP from 1995-2004. From 2000-2004, the annual average was 1.46 MAF.

DWR's implementation of the Monterey Agreement was successfully challenged in court by the Planning and Conservation League and others. On September 15, 2000, the Third District Court of Appeal reversed a trial court ruling for DWR and ordered a new environmental impact report (EIR) and a trial on the validity of the agreement. DWR is conducting the new environmental review, which is due for completion in 2005.

Future Supplies and the CALFED Bay-Delta Program

Metropolitan's Integrated Water Resources Plan Update (IRP Update), adopted by the Metropolitan Board of Directors in July 2004, indicates that Metropolitan's SWP target for a dry year (based on 1977 hydrology) is 463,000 AF in 2010, and 650,000 AF in 2020. The IRP Update also estimates that in the 2020-2025 period, Metropolitan's annual supply range from the SWP will be between 418,000 AF and 1.74 MAF. This figure does not include another 75,000 to 200,000 AF estimated from San Luis Reservoir carryover storage, 200,000 AF from planned CALFED projects, and 45,000 AF from the Sacramento Valley Water Management Agreement (the latter two programs are still in development and subject to change). The November 2005 RUWMP draft estimates that the SWP will be capable of serving 1.5 MAF to Metropolitan through 2030 in an average year.

Work being done by the CALFED Bay-Delta Program, which is administered by the California Bay-Delta Authority, is expected to provide the greatest opportunity for SWP supply reliability and water quality improvements. However, the outcome of this process remains uncertain. The state and federal governments organized the CALFED Program in 1995 to develop and implement a balanced, comprehensive, and long-term plan to restore the Bay-Delta's ecological health and improve water management for beneficial uses of the estuary. CALFED is working in four inter-related, over-arching categories: ecosystem restoration, levee stability, water quality improvement, and water supply reliability. The CALFED Program made the transition from planning to implementation in 2000 with the release of the Record Of Decision, final programmatic environmental EIS/EIS and *California's Water Future: A Framework for Action*.

The elements of the CALFED Program that have the greatest potential for increasing the reliability and quality of SWP supplies are included in the Delta Improvements Package (DIP), approved by the California Bay-Delta Authority in 2004 as the first major action by CALFED to implement its long-term Bay-Delta plan. Among the activities in the DIP, the most important are improvements to the existing Delta conveyance system, including expansion of the permitted capacity of the SWP pumping plant from its current level of 6,680 cfs to 8,500 cfs (and ultimately to 10,300 cfs subject to certain conditions). The conveyance system improvements would improve the reliability and quality of SWP supplies by allowing the SWP to increase pumping during those times of the year when additional water is available and when water quality is highest, and they would reduce pumping when endangered fish are migrating through the Delta. The improvements will also increase the amount of pumping capacity available for other purposes, such as water transfers.

The ability of CALFED to work with its member agencies to implement the DIP and other projects was called into question by a state appellate court decision issued on October 7, 2005, concerning CALFED's programmatic environmental impact report (PEIR), which served as the foundation of the Bay-Delta Program record of decision. While the court upheld the PEIR on a number of issues in the case, it concluded that the PEIR should have analyzed an alternative that reduced water exports from the Delta. The court also found that the PEIR inadequately discussed the environmental impacts of diverting water to meet CALFED's goals and did not include sufficient information about the Environmental Water Account. The state attorney general has asked the court for a rehearing of its ruling. If the decision stands, CALFED will have to draft a supplement to its PEIR that considers the "reduced exports" alternative, at the very least. It is currently unclear how much the ruling may affect programs and projects involving the Bay-Delta that are being undertaken by CALFED member agencies.

Another essential element of the CALFED Program is the Environmental Water Account (EWA), a pilot program that provides water at critical times to meeting ecosystem needs while minimizing water supply impacts on water-users. In addition, new surface and groundwater storage could also enhance the reliability and quality of SWP supplies. The CALFED framework calls for the construction of up to 4.75 MAF of new surface and groundwater storage over the life of the CALFED Program; however, it is not known whether any of the new storage would be constructed as part of the SWP.

The amount of water produced through the proposed conveyance improvements will depend on how the individual facilities are operated and on the level of assurances provided by the state and federal regulatory agencies. The EWA provides the SWP and CVP with regulatory assurances intended to ensure that the projects will not face additional water supply impacts due to regulatory actions taken under the federal ESA or other federal or state laws or regulations. However, while the EWA has been extended as a pilot program through 2007, it has not yet been made permanent. If CALFED succeeds in its mission of restoring stability to the Bay-Delta system, and the EWA, and the regulatory assurances, are extended beyond the initial four-year period, then the improvements described in the DIP have the potential to increase Metropolitan's share of average SWP supplies by between 93,000 and 168,000 AF/YR. If CALFED is not successful, and the Bay-Delta system continues to decline, Metropolitan's SWP supplies could even decrease in size and quality relative to existing levels.

SECTION 7 – WATER QUALITY

The Act requires that the 2005 Plan include information, to the extent practicable, on the quality of existing supply sources and the manner in which water quality affects water supply reliability. This section summarizes water quality issues associated with supplies serving the San Diego region. Information on Colorado River and SWP supplies came in part from Metropolitan's draft 2005 RUWMP.

7.1 COLORADO RIVER

High salinity levels and perchlorate contamination represent two areas of concern regarding the quality of Colorado River supplies. In Moab, Utah, a pile of radioactive waste near the Colorado River is also considered to be a potential threat to the Colorado River's water quality. Research on the potential impact to water quality is inconclusive, but removal of the radioactive waste is being investigated.

Salinity

The salts in the Colorado River System are indigenous and pervasive, mostly resulting from saline sediments in the basin that were deposited in prehistoric marine environments. They are easily eroded, dissolved, and transported into the river system. Agricultural development and water diversions over the past 50 years increase the already high naturally occurring levels of TDS.

Water imported via the CRA has a TDS averaging around 650 mg/l during normal water years. During the high water flows of 1983-1986, salinity levels in the CRA dropped to a historic low of 525 milligrams per liter (mg/l). However, during the 1987-1990 drought, higher salinity levels returned. During an extreme drought, CRA supplies could exceed 900 mg/l. High TDS in water supplies leads to high TDS in wastewater, which lowers the usefulness of the water and increases the cost of recycled water. (Refer to **Section 7.5** for details on salinity impacts to water recycling.) In addition to the link between water supply and water quality, high levels of TDS in water supplies can damage water delivery systems and home appliances.

To reduce the affects of high TDS levels on water supply reliability, Metropolitan approved a Salinity Management Policy in April 1999. One of the policy goals is to blend Colorado River supplies with lower-salinity water from the SWP to achieve delivered water salinity levels less than 500 mg/l TDS. In addition, to foster interstate cooperation on this issue, the seven basin states formed the Colorado River Basin Salinity Control Forum (Forum). To lower TDS levels in Colorado River supplies, the Forum develops programs designed to prevent a portion of the abundant salt supply from moving into the river system. The Colorado River Basin Salinity Control Program targets the interception and control of non-point sources, such as surface runoff, as well as wastewater and saline hot springs.

Perchlorate

Ammonium perchlorate is used as the main component in solid rocket propellant, and it can also be found in some types of munitions and fireworks. Ammonium perchlorate and other perchlorate salts are readily soluble in water, dissociating into the perchlorate ion, which does not readily interact with the soil matrix or degrade in the environment. The primary human health concern related to perchlorate is its effects on the thyroid. Perchlorate has been detected at low levels in Metropolitan's CRA water supply.

Because of the growing concerns over perchlorate levels in drinking water, in 2002 Metropolitan adopted a Perchlorate Action Plan. Objectives include expanded monitoring and reporting programs and continued tracking of remediation efforts in the Las Vegas Wash. Metropolitan has been conducting monthly monitoring of Colorado River supplies. The perchlorate originates in the Las Vegas Wash, and the most likely source was a chemical manufacturing site located in Henderson, Nevada. The Nevada Department of Environmental Protection manages a comprehensive groundwater remediation program in the Henderson area. As of December 2004, the amount of perchlorate entering the Colorado River system from Henderson has been reduced from approximately 900 pounds per day (lb/day) to less than 150 lb/day.

7.2 STATE WATER PROJECT

The quality of SWP water as a drinking water source is affected by a number of factors, most notably seawater intrusion and agricultural drainage from peat soil islands in the Delta. SWP water contains relatively high levels of bromide and total organic carbon, two elements that are of particular concern to drinking water agencies. Bromide and total organic carbon combine with chemicals used in the water treatment process to form disinfection by-products that are strictly regulated under the federal Safe Drinking Water Act (SDWA). Wastewater discharges from cities and towns surrounding the Delta also add salts and pathogens to Delta water, and they reduce its suitability for drinking and recycling.

Water agencies treat all water to meet stringent state and federal drinking water standards before delivering it to customers. However, source water of poor quality will make it increasingly expensive and difficult to meet such standards. The California Urban Water Agencies (CUWA) retained the assistance of a panel of drinking water quality and treatment experts to evaluate the source water quality necessary to allow agencies treating Delta water to comply with future drinking water regulations under a plausibly conservative regulatory scenario. The expert panel identified target bromide and total organic carbon concentrations of 50 parts per billion (ppb) and 3 parts per million (ppm), respectively. These targets were written into the Record Of Decision (ROD) adopted by CALFED in 2000.

The ROD states that CALFED will either achieve these targets at Clifton Court Forebay and drinking water intakes in the south and central Delta, or it will achieve an "equivalent level of public health protection using a cost-effective combination of alternative source waters, source control, and treatment technologies." CALFED did not establish a similar target for the salinity of Delta water, a particular concern in Southern California, because of the high

salinity levels in Colorado River water, but the 2004 CALFED Drinking Water Quality Program Plan lists two "numeric targets," less than 220 ppm over a 10-year average and less than 440 ppm as a monthly average.

Actions to protect Delta fisheries have exacerbated existing water quality problems by forcing the SWP to shift its diversions from the springtime to the fall, when salinity and bromide levels are higher. Closure of the Delta Cross-Channel gates to protect migrating fish has also degraded SWP water quality by reducing the flow of higher quality Sacramento River water to the SWP pumps at critical times.

Water supplies from the SWP have significantly lower TDS levels than the Colorado River, averaging 250 mg/l in water supplied through the East Branch and 325 mg/l on the West Branch. Because of this lower salinity, Metropolitan blends SWP water with high salinity CRA water to reduce the salinity levels of delivered water. However, both the supply and the TDS levels of SWP water can vary significantly in response to hydrologic conditions in the Sacramento-San Joaquin watersheds.

The TDS levels of SWP water can also vary widely over short periods of time. These variations reflect seasonal and tidal flow patterns, and they pose an additional problem to blending as a management tool to lower the higher TDS from the CRA supply. For example, in the 1977 drought, the salinity of SWP water reaching Metropolitan increased to 430 mg/l, and supplies became limited. During this same event, salinity at the Banks pumping plant exceeded 700 mg/l. Under similar circumstances, Metropolitan's 500 mg/l salinity objectives could only be achieved by reducing imported water from the CRA. Thus, it may not be possible to maintain both salinity standards and water supply reliability unless salinity levels of source supplies can be reduced.

The CALFED Bay-Delta Program's EIS/EIR, Technical Appendix, July 2000 Water Quality Program Plan, identified targets that are consistent with TDS objectives in Article 19 of the SWP Water Service Contract: a ten-year average of 220 mg/l and a maximum monthly average of 440 mg/l. These objectives were set in the 1960s when Metropolitan expected to obtain a greater proportion of its total supplies from the SWP. Because of reductions in expected SWP deliveries, Metropolitan's Board believes that this standard is no longer appropriate, so it has adopted a statement of needs from the Bay-Delta. Under the drinking water quality and salinity targets element, the Board states its need "to meet Metropolitan's 500 mg/l salinity-by blending objective in a cost-effective manner while minimizing resource losses and ensuring the viability of recycling and groundwater management programs."

7.3 SURFACE WATER

The region's water quality is influenced by a variety of factors depending on its source. As stated above, water from the Colorado River and from Northern California are vulnerable to a number of contributors to water quality degradation. Regional surface and groundwater are primarily vulnerable to increasing urbanization in the watershed, agriculture, recreational uses, wildlife, and fires.

Source water protection is fundamentally important to all of California. The DHS requires large utilities delivering surface water to complete a Watershed Sanitary Survey every five years to examine possible sources of drinking water contamination. The survey includes suggestions for how to protect water quality at the source.

A similar requirement from United States Environmental Protection Agency (EPA) calls for utilities to complete a Source Water Assessment (SWA). Information collected in SWAs is used to evaluate changes in potential sources of contamination and to help determine if more protection measures are needed. EPA requires utilities to complete a SWA that uses information collected in the sanitary surveys. The SWA is also used to evaluate the vulnerability of water sources to contamination and also helps determine whether more protective measures are needed.

The monitoring of key constituents in source waters is critical in helping to identify constituents that should be controlled at the source and to determine the best ways to operate the water system so as to improve the quality of water delivered to the consumer. The effect of urban runoff on receiving water quality is a recently recognized problem. Most of the work up to the present has centered on characterizing urban runoff: measuring concentrations of various constituents, attempting to relate these concentrations to such factors as land use type and rainfall intensity, and studying the effects of these constituents on street surfaces. It appears that considerable quantities of contaminants, heavy metals in particular, may enter the receiving waters through urban runoff. The federal Water Pollution Control Act Amendments of 1972 stress future "control of treatment of all-point and non-point sources of pollution." Thus, the federal government has concluded that non-point sources, such as urban runoff, are indeed harmful to the aquatic environment and that measures should be taken to control such emissions.

There are four basic approaches to controlling pollution from urban runoff: (1) prevent contaminants from reaching urban land surfaces; (2) improve street cleaning and cleaning of other areas where contaminants may be present; (3) treat runoff prior to discharge to receiving waters; and (4) control land use and development. Which approach or combination of approaches is most effective or economical has not yet been studied extensively. Thus, only the basic characteristics of each approach can be discussed. In addition to these direct approaches, measures to reduce the volume of runoff from urban areas are also available.

The fourth approach, control land use and development, is used to encourage controls on urbanization in order to reduce the volume of runoff. The usual pattern is that increased urbanization leads to higher runoff coefficients, reflecting the many impervious surfaces associated with development. Roof drains to storm sewers, paved parking lots and streets, installation of storm sewers, filling of natural recharge areas, and increased efficiency in realigned and resurfaced stream channels all are characteristics of urban growth. Development near streams and on steep slopes harms water resources. It is less disruptive to develop the lower portions of a watershed than the headwater areas, both

from the standpoint of the length of channel affected and the extent of channel enlargement necessary to convey storm water. Use of porous pavements and less reliance on roof connections to storm drains and more emphasis on local recharge would reduce the peak volume of runoff from storms. An area's mass emissions of urban drainage constituents should be quantified. Urban planning should be more cognizant of land constraints to permit greater natural recharge where possible and feasible, and to discourage intensive development of steep land, particularly in headwater areas.

To address the issues associated with surface water quality, the Water Authority, the City of San Diego, and the County of San Diego have formed a Regional Water Management Group to coordinate development of an Integrated Regional Water Management Plan (IRWMP) for the San Diego region. An important element in the IRWMP is to protect and enhance the region's local surface water quality. As part of this process, projects will be identified and implemented to assist in watershed protection, and thereby, protect the quality of surface water supplies.

In the past, regional surface water quality has been considered good to excellent. Water quality can vary with imported water inflows and surface water contamination. Source water protection is considered a key element in regional water quality. The Water Authority and its member agencies are working together to improve watershed awareness and management. Currently, the most significant water quality issue that affects the public is algae blooms, which can create taste and odor problems.

In San Diego County, DHS has primacy over the implementation of the SDWA. The SDWA regulates source water protection to ensure public health through the multiple barrier approach, an approach that anticipates that the public will participate in source water protection. Member agencies in the Water Authority's service area that have surface water have a good, long-standing, working relationship with DHS.

7.4 GROUNDWATER

Two water quality parameters that can affect reliability of groundwater resources in San Diego County are contamination from high salinity levels and Methyl Tertiary Butyl Ether (MTBE).

Salinity

Increased TDS in groundwater basins occurs either when basins near the ocean are over drafted, leading to seawater intrusion, or when agricultural and urban return flows add salts to the basins. Much of the water used for agricultural or urban irrigation infiltrates into the aquifer, so where high TDS irrigation water is used or where the water transports salts from overlying soil, the infiltrating water will increase the salinity of the aquifer. Using this resource requires costly demineralization projects. (Refer to **Section 5.2.1** for discussion on groundwater recovery projects.)

To protect the quality of these basins, the Regional Board often places restrictions on the salinity levels of water used for basin recharge or for irrigation of lands overlying the aquifers. Where these restrictions are in place, water reuse and aquifer recharge may be restricted, or expensive mitigation measures may be required.

Methyl Tertiary Butyl Ether

Until recently, MTBE was the primary oxygenate in virtually all the gasoline used in California. In January 2004, the Governor's executive order to remove MTBE from gasoline became effective, and now ethanol is the primary oxygenate. Relative to other organic compounds, MTBE is very soluble in water and has low affinity for soil particles, thus allowing the chemical to move quickly in the groundwater. MTBE is also resistant to chemical and microbial degradation in water, making treatment more difficult than the treatment of other gasoline components.

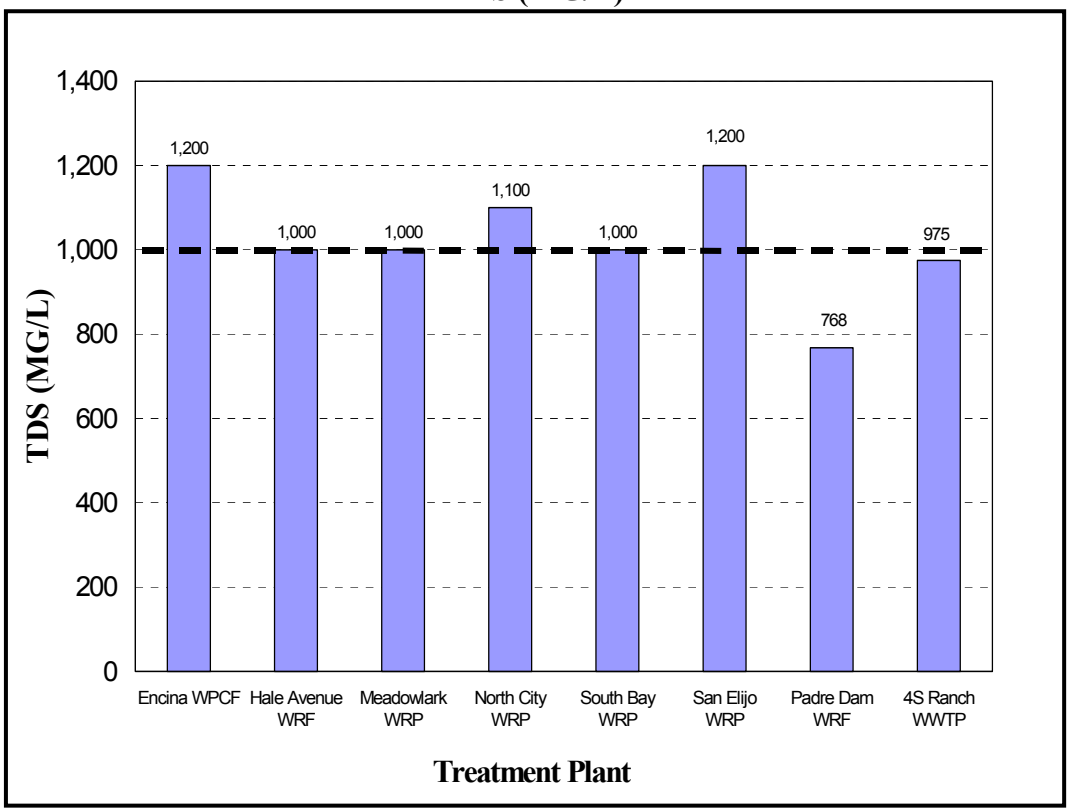
MTBE presents a significant potential problem to local groundwater basins. Leaking underground storage tanks and poor fuel-handling practices at local gas stations may provide a large source of MTBE. Improved underground storage tank requirements and monitoring, and the phase-out of MTBE as a fuel additive, will probably decrease the likelihood of MTBE groundwater problems in the future.

7.5 RECYCLED WATER

Water quality, as it pertains to high salinity supplies, is a significant implementation issue for recycled water projects. High TDS source water poses a special problem for water recycling facilities because conventional treatment processes are designed to remove suspended particles, but not dissolved particles. TDS removal, or demineralization, requires an advanced treatment process, which can increase project costs significantly.

Residential use of water typically adds 200 to 300 mg/l of TDS to the wastewater stream. Self-regenerating water softeners can add another 60 to 100 mg/l. Infiltration of brackish groundwater into sewer lines can also cause an increase in TDS. If an area receives a water supply with TDS of more than 700 mg/l, and residents add 300 mg/l or more through normal use, the recycling facility will produce recycled water with a TDS concentration of 1,000 mg/l or higher. **Figure 7-1** shows the average TDS at several of the existing and projected water recycling treatment plants. In general, TDS concentrations over 1,000 mg/l become problematic for irrigation and industrial reuse customers. This problem greatly limits the potential uses and marketability of recycled water, particularly for agricultural purposes, because certain crops and nursery stock cannot be irrigated with high-TDS water.

FIGURE 7-1
TREATMENT PLANT AVERAGE EFFLUENT
TDS (MG/L)



7.6 SEAWATER DESALINATION

The feedwater source for the proposed regional seawater desalination project at the Encina Power Station in Carlsbad is the Pacific Ocean. The salinity of the Pacific Ocean in San Diego County is fairly stable, with a TDS concentration around 34,000 mg/l. To address TDS concentrations at this level, the desalination facility will use a RO membrane treatment process to reduce the TDS to less than 350 mg/l resulting in approximately 99 percent removal of TDS and a supply that meets drinking water standards.

Prior to the RO process, the feedwater will be pretreated to remove suspended solids, including organic material. The RO process will then remove the dissolved solids. Next, the product water will be post-treated to prevent corrosion in the distribution system and improve the aesthetic quality of the water. This process generally involves adding alkalinity to the treated water. The final step, a disinfection process, provide disinfection residual in the treated water.

A single-pass RO process of seawater generally results in about 50 percent recovery of treated water. The remaining 50 percent is discharged as concentrate, with about twice the salinity of the original feedwater. The concentrate will be diluted with cooling water from the power station to avoid negative impacts to the marine environment from the elevated salinity levels at the point of discharge.

SECTION 8 – WATER SUPPLY RELIABILITY

As stated in the Act, every urban water supplier shall include, as part of its plan, an assessment of the reliability of its water supply. The water supply and demand assessment must compare the total projected water use with the expected water supply over the next 20 years in 5-year increments. This reliability assessment is required for normal, single dry-year and multiple dry water years. The assessment contained in the 2005 Plan projects reliability through the next 25 years to correspond with the growth forecast developed by SANDAG and ensure compliance with Senate Bills 610 and 221. In addition to the expected mix of resources utilized in the reliability assessment, a resources goal has been established. The goal includes the expected supplies plus other potential projects which are important to maximizing development of local resources, but are still in the conceptual phase. This section presents a summary of the water demands and supplies within the Water Authority's service area along with the reliability assessment and resources goal.

8.1 DEVELOPMENT OF PROJECTED WATER RESOURCES MIX

In summary, development of the projected mix of resources to meet future demands was based on the following factors:

- Local agency information on projected water recycling, groundwater, and surface water supplies (discussed in **Section 5**);
- Update of the Water Authority's 2000 Plan to reflect Board action taken over the last five years related to the following items:
  - Adoption of QSA related agreements (**Section 6.2.1**);
  - Fourth Amendment to the Transfer Agreement (**Section 4.1**);
  - Agreement between Metropolitan and the Water Authority regarding assignment of agreements related to the ACC and CC Lining Projects (**Section 4.2**); and
  - Commencement of Water Authority Seawater Desalination Program (**Section 4.3**)
    - Addition of regional seawater desalination project to Water Authority's CIP; and
    - Agreement with Carlsbad to establish a framework for cooperation regarding the development of a regional seawater desalination project at the Encina Power Station.

8.2 NORMAL WATER YEAR ASSESSMENT

Table 8-1 shows the normal year assessment, summarizing the total water demands for the Water Authority through the year 2030 along with the supplies necessary to meet demands under normal conditions. **Section 2** contains a discussion of the normal year water demands in the Water Authority's service area. If the Water Authority and member agency supplies are developed as planned, along with implementation of Metropolitan's IRP, no shortages are anticipated within the Water Authority's service area in a normal year through 2030.

TABLE 8-1
NORMAL WATER YEAR SUPPLY AND DEMAND ASSESSMENT (AF/YR)

	2010	2015	2020	2025	2030
Water Authority Supplies					
Regional Seawater Desalination at Encina	0	56,000	56,000	56,000	56,000
IID Water Transfer	70,000	100,000	190,000	200,000	200,000
ACC and CC Lining Projects	77,700	77,700	77,700	77,700	77,700
Sub-Total	147,700	233,700	323,700	333,700	333,700
Member Agency Supplies					
Surface Water	59,649	59,649	59,649	59,649	59,649
Water Recycling	33,668	40,662	45,548	46,492	47,584
Groundwater	17,175	18,945	19,775	19,775	19,775
Groundwater Recovery	11,400	11,400	11,400	11,400	11,400
Sub-Total	121,892	130,656	136,372	137,316	138,408
Metropolitan Water District Supplies	445,858	378,544	311,438	324,624	356,922
TOTAL PROJECTED SUPPLIES	715,450	742,900	771,510	795,640	829,030
TOTAL ESTIMATED DEMANDS w/ Conservation	715,450	742,900	771,510	795,640	829,030

8.3 DRY WATER YEAR ASSESSMENT

In addition to a normal water year assessment, the Act requires an assessment to compare supply and demands under single dry and multiple dry water years over the next 20 years, in five-year increments. **Section 2** describes the derivation of the dry water year demands. **Table 8-2** shows the single dry-year assessment. The projected groundwater and surface water yields shown in the table are based on historic 1991 supplies during the 1987-1992 drought years. The supplies available from projected recycling and groundwater recovery projects are assumed to experience little, if any, reduction in a dry-year. The Water Authority's existing and planned supplies from the IID transfer, canal lining projects, and seawater desalination are also considered "drought-proof" supplies as discussed in **Section 4**. Therefore, estimated normal yields from these supplies are also included in the analysis.

TABLE 8-2
SINGLE DRY WATER YEAR SUPPLY AND DEMAND ASSESSMENT
FIVE YEAR INCREMENTS
(AF/YR)

	2010	2015	2020	2025	2030
Water Authority Supplies					
Regional Seawater Desalination at Encina	0	56,000	56,000	56,000	56,000
IID Water Transfer	70,000	100,000	190,000	200,000	200,000
ACC and CC Lining Projects	77,700	77,700	77,700	77,700	77,700
Sub-Total	147,700	233,700	323,700	333,700	333,700
Member Agency Supplies					
Surface Water	22,284	22,284	22,284	22,284	22,284
Water Recycling	33,668	40,662	45,548	46,492	47,584
Groundwater	10,838	10,838	10,838	10,838	10,838
Groundwater Recovery	11,400	11,400	11,400	11,400	11,400
Sub-Total	78,190	85,184	90,070	91,014	92,106
Metropolitan Water District Supplies	541,760	477,086	411,790	423,896	457,224
TOTAL PROJECTED SUPPLIES	767,650	795,970	825,560	848,610	883,030
TOTAL ESTIMATED DEMANDS w/ Conservation	767,650	795,970	825,560	848,610	883,030

In accordance with the Act, **Tables 8-3, 8-4, 8-5, 8-6,** and **8-7** show the multiple dry water year assessments in five-year increments. The member agencies' surface and groundwater yields shown in these tables are reflective of supplies available during the 1987-92 drought in years 1990, 1991 and 1992.

MULTIPLE DRY WATER YEAR SUPPLY AND DEMAND ASSESSMENT
FIVE-YEAR INCREMENTS
(AF/YR)

TABLE 8-3

	2006	**2007**	**2008**
Water Authority Supplies	40,000	71,500	71,500
Member Agencies	56,670	60,230	80,900
Metropolitan Supplies	647,850	618,050	602,630
Total Estimated Supplies	744,520	749,780	755,030
Total Estimated Demands	744,520	749,780	755,030

TABLE 8-4

	2011	2012	2013
Water Authority Supplies	213,700	223,700	233,700
Member Agencies	81,580	80,660	96,860
Metropolitan Supplies	476,130	472,920	452,590
Total Estimated Supplies	771,410	777,280	783,150
Total Estimated Demands	771,410	777,280	783,150

TABLE 8-5

	2016	2017	2018
Water Authority Supplies	233,700	233,700	263,700
Member Agencies	88,150	86,810	102,580
Metropolitan Supplies	479,180	486,640	446,990
Total Estimated Supplies	801,030	807,150	813,270
Total Estimated Demands	801,030	807,150	813,270

TABLE 8-6

	2021	2022	2023
Water Authority Supplies	333,700	333,700	333,700
Member Agencies	92,250	90,120	105,110
Metropolitan Supplies	404,730	412,020	402,200
Total Estimated Supplies	830,680	835,840	841,010
Total Estimated Demands	830,680	835,840	841,010

TABLE 8-7

	2026	2027	2028
Water Authority Supplies	333,700	333,700	333,700
Member Agencies	93,220	91,120	106,140
Metropolitan Supplies	431,560	440,810	432,930
Total Estimated Supplies	858,480	865,630	872,770
Total Estimated Demands	858,480	865,630	872,770

As shown in the above tables, if the projected Water Authority and member agency supplies are developed as planned, along with implementation of Metropolitan's IRP, no shortages are anticipated within the Water Authority's service area under single dry-year or multiple dry water years through 2030. However, the Water Authority is at risk for shortages should the supplies identified in Metropolitan's IRP not be developed as planned or a Metropolitan member agency such as the City of Los Angeles invoke its Section 135, Preferential Right to Water (discussed in **Section 6.1.1**). To alleviate this risk, the Water Authority is pursuing the following options: 1) the development of additional storage; and 2) development of additional seawater desalination. Storage opportunities include local carryover storage facilities to accumulate and store water during periods of availability, as well as the acquisition of out-of-the-region conjunctive-use facilities to develop additional groundwater storage. (Refer to **Section 1.5.1** for discussion on Water Authority's proposed carryover storage project.) A combination of storage and new supply appears to provide the most reliable solution to alleviating risks during a dry-period.

8.4 RELIABILITY OF SUPPLY

The above sections identify the diverse mix of resources planned to meet future demands in both a normal and dry-year. Implementation of this regional resource mix will require development of projects and programs by the Water Authority, its member agencies, and Metropolitan. The Water Authority coordinated with its member agencies and Metropolitan during preparation of the 2005 Plan on the future demands and supplies projected for the region. The steps being taken by the member agencies and Metropolitan to develop supplies are addressed in their respective urban water management plans. **Section 4** contains the steps taken and remaining actions necessary to develop and maintain the Water Authority supplies (Colorado River transfers and seawater desalination).

The Act requires that, for any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, that the agency describe, to the extent practicable, plans to replace that source with alternative sources or water demand management measures. As stated throughout the 2005 Plan, the Water Authority and its member agencies are planning to develop a diverse supply of resources. The unavailability of any one supply source will be buffered because of the diversity of the supplies: the region is not reliant on a single source. To replace or supplement an existing supply, the Water Authority could take steps to increase development of transfers or seawater desalination. Member agencies could also further maximize development of recycled water and groundwater. With a successful conservation program already in place, the Water Authority and its member agencies could effectively implement extraordinary conservation measures to assist in ensuring reliability. Another element of reliability is Metropolitan's IRP planning buffer, described in **Section 6.1.2**, which identifies an additional increment of water that could be potentially developed if other supplies are not implemented as planned. A combination of these resources would be necessary to ensure a reliable supply.

As stated in **Section 4.3.1**, the Regional Seawater Desalination Project at Encina, identified in the resource mix, is currently in the environmental review and planning phase. Decisions relating to implementation are currently scheduled for 2006, based on a construction completion date of 2011. Because there are a number of factors that could affect implementation of seawater desalination, alternative options are being considered. This includes accelerating construction of an additional imported water conveyance pipeline, Pipeline 6, that would allow for additional supply deliveries from Metropolitan. With a regional seawater desalination project in place, Pipeline 6 would not be needed until approximately 2025. To meet demands without seawater desalination, preliminary results from Metropolitan's draft *System Overview Study* show that Pipeline 6 would be needed by 2018 and that it would take an estimated nine years to construct. A decision on implementation of a seawater desalination project prior to 2009 would allow adequate time to construct the facility. Activities associated with implementation of Pipeline 6 include the following:

* Metropolitan is currently constructing the first seven-mile portion of its approximately 18-mile section of the pipeline, with completion expected in 2006;
* An alignment for the entire approximately 30-mile pipeline was identified in the original 1993 Environmental Impact Report. Metropolitan is considering minor modifications to their alignment that will require further CEQA review;
* Both Metropolitan and the Water Authority are purchasing property along the alignment; and

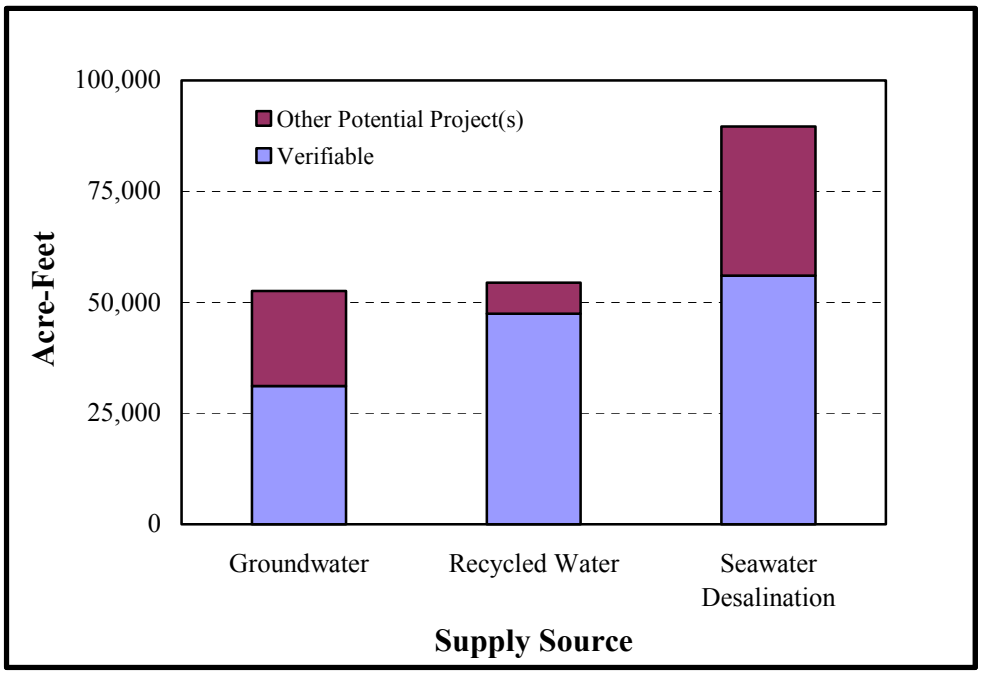
* Coordination between Metropolitan and Water Authority regarding construction of the pipeline are ongoing.

8.5 REGIONAL WATER SUPPLY GOALS

As stated in **Sections 4 and 5**, those projects with adequate documentation regarding implementation or existing projects already planned for expansion were considered for inclusion in the assessments discussed in **Sections 8.2 and 8.3**. In addition to these verifiable projects, the Water Authority and its member agencies have conceptually identified other potential projects. Combining the verifiable projects and these conceptual projects forms the regional water supply goals.

These supply goals are critical to the region for a number of reasons. The Water Authority and member agencies must continue to strive to develop cost-effective local resources that can further diversify the region's supplies and reduce demands for imported water from Metropolitan. They provide objectives for the region to work towards by resolving any funding, regulatory, and other constraints associated with implementation. **Figure 8-1** shows the water supply goals for recycled water, groundwater, and seawater desalination.

FIGURE 8-1
2030 WATER SUPPLY GOALS



The Water Authority worked with its member agencies to determine the verifiable supplies to be included in the assessment and those projects to be included in the supply goals. Including the verifiable supplies contained in the assessment, the regional groundwater production goal is 52,575 AF/YR by 2030. The recycled water goal is 54,413 AF/YR by 2030. The specific local projects are listed in **Table F-2** and **F-4** in **Appendix F**.

As mentioned in **Section 4.3**, the Water Authority's current CIP identifies development of up to 89,600 AF/YR of desalinated seawater within the San Diego region by 2030. The Water Authority is currently focusing its efforts on implementing a 56,000 AF/YR seawater desalination facility at the Encina Power Station. The additional increment of seawater desalination supply may be developed through potential projects at San Onofre, South County or expansion of the 50-mgd planned at Encina Power Station. The 89,600 AF/YR serves as the Water Authority's 2030 seawater desalination goal.

SECTION 9 – SHORTAGE CONTINGENCY ANALYSIS

The Act requires that urban water agencies conduct a water shortage contingency analysis as part of their 2005 plan. This section includes the Water Authority's analysis, which addresses a catastrophic shortage situation and drought management.

9.1 CATASTROPHIC WATER SHORTAGE

A catastrophic water shortage occurs when a disaster, such as an earthquake, results in insufficient available water to meet the region's needs or eliminates access to imported water supplies. The following section describes the Water Authority's Emergency Response Plan (ERP) and the ESP, both developed to protect public health and safety and to prevent or limit economic damage that could occur from a severe shortage of water supplies.

9.1.1 Emergency Response Plan

The Water Authority's ERP provides staff with the information necessary to respond to an emergency that causes severe damage to the Water Authority's water distribution system or impedes the Water Authority's ability to provide reliable water service to its member agencies. The ERP describes the situations and incidents that will trigger the activation of the Water Authority's ERP and Emergency Operations Center (EOC). It also provides direction and strategies for responding to a crisis. The Water Authority's ERP includes:

- Authorities, policies, and procedures associated with emergency response activities;
- EOC activities - including EOC activation and deactivation guidelines;
- Multi-agency and multi-jurisdictional coordination, particularly between the Water Authority, its member agencies, and Metropolitan in accordance with Standardized Emergency Management System (SEMS) guidelines;
- Emergency staffing, management, and organization required to assist in mitigating any significant emergency or disaster;
- Mutual Aid Agreements and covenants that outline the terms and conditions under which mutual aid assistance will be provided;
- Pre-emergency planning and emergency operations procedures.

In addition, the Water Authority's ERP Manual uses a step-by-step approach to emergency response planning by providing such procedural tools as action checklists, resource and information lists, personnel rosters, and listings of established policies and procedures. The Water Authority's plan parallels many of the same plan components contained in the Unified San Diego County Emergency Services Organization's "Operational Area Emergency Plan" (OAEP). In turn, the OAEP serves to support and supplement the Water Authority's ERP.

9.1.2 Water Authority's Emergency Storage Project

In June, 1998, the Water Authority's Board authorized implementation of the ESP to reduce the risk of potential catastrophic damage that could result from a prolonged interruption of imported water due to earthquake, drought, or other disasters.

The ESP is a system of reservoirs, pipelines, and other facilities that will work together to store and move water around the county in the event of a natural disaster. The facilities are located throughout San Diego County and are being constructed in phases. The entire project is expected to be complete by 2012. Its initial phase includes the recently completed 318-foot-high Olivenhain Dam and accompanying 24,364 AF Olivenhain Reservoir. When completed, the ESP will provide 90,100 AF of stored water for emergency purposes to meet the county's needs through at least 2030.

In sizing the ESP, the Water Authority assumed a 75 percent level of service to all Water Authority member agencies during an outage and full implementation of the water conservation BMPs. The following steps from the final draft of the August 2002 Emergency Water Delivery Plans show the methodology for calculating the allocation of ESP supplies to member agencies in a prolonged outage situation without imported supplies:

1. Estimate the duration of the emergency (i.e. time needed to repair damaged pipelines);
2. Determine each member agency's net demand during the emergency period by adding M&I water demands and agricultural water demands and then subtracting recycled water supplies;
3. Determine each member agency's useable local supplies during the emergency period (local supplies include surface water and groundwater);
4. Determine each member agency's level of service based on usable local supplies and net demand;
5. Adjust the allocation of ESP supplies based on a member agency's participation in the IAWP. IAWP customers will be required to take a reduction in deliveries during a water shortage due to an emergency at double the system-wide reduction up to a maximum of 90%. Water not delivered to IAWP customers will be redistributed to member agencies based on the "system-wide" level of service targets;
6. Determine the amount of local supplies that can be transferred between member agencies, with transfers occurring only after a member agency has a level of service greater than 75% based on their usable local supplies; and
7. Allocate delivery of useable ESP storage supplies and Metropolitan supplies to member agencies with the goal of equalizing the level of service among the member agencies; and

The Board of Directors may authorize that supplies from the ESP be used in a prolonged drought situation where imported and local supplies do not meet 75 percent of the Water Authority's member agencies M&I demands.

9.2 DROUGHT MANAGEMENT PLANNING

9.2.1 Introduction

The last major drought in California occurred between 1987 and 1992 and caused severe water supply shortages throughout the state. During early March 1991, at the peak of the drought, Metropolitan's SWP supplies were reduced by 90 percent. Subsequently, Metropolitan voted to impose a 50 percent reduction in imported deliveries to the Water Authority. The results of Metropolitan's cutback would have been devastating to the Water Authority's businesses and residents except for the miracle March rainfall that occurred later that month. These rains allowed the SWP to reduce its level of cutback to 80 percent, and Metropolitan later rolled back its call for reduction from 50 to 31 percent. Even at this level the Water Authority was impacted more than other Metropolitan members because of its high dependence upon imported supplies from Metropolitan.

Since the 1987-1992 drought, the Water Authority and its member agencies have developed plans and implemented projects to reduce reliance on a single supply source. As mentioned in **Section 8**, if projected supplies are developed as planned and Metropolitan's IRP is fully implemented, no shortages are anticipated within the Water Authority's service area through 2030. While the region has plans to provide a high level of reliability, there will always be some level of uncertainty associated with maintaining and developing local and imported supplies. Therefore, the Water Authority is developing a comprehensive Drought Management Plan (DMP) in the event that the region does face supply shortages due to drought conditions. The sections below describe the process to develop the DMP, achievements to date, and the schedule for completion.

In 1999, Metropolitan adopted the Water Surplus and Drought Management Plan (WSDM Plan) to integrate planned operational actions with respect to both surplus and shortage situations. (For further details on the WSDM Plan actions, refer to Metropolitan's 2005 RUWMP.) The WSDM Plan final action, to be taken in an extreme shortage stage, is the implementation of an allocation plan. An allocation plan was not developed as part of the WSDM Plan, and it is not known when Metropolitan will consider and adopt such a plan. In developing the DMP described below, the Water Authority made assumptions regarding the Metropolitan supplies available during drought stages. The Water Authority will adjust the DMP as necessary following Metropolitan's adoption of an allocation plan.

One of the requirements of the shortage contingency analysis included in the Act is an estimate of the minimum supplies available during each of the next three years. **Table 8-3** of **Section 8.3** shows this estimate. The sections below address other requirements of the Act applicable to the Water Authority.

9.2.2 DMP Purpose

The DMP will provide the Water Authority and its member agencies with a series of actions to take when faced with a shortage of imported water supplies from Metropolitan due to drought conditions. The potential actions will help the region minimize the impacts of shortages and ensure equitable allocation of supplies.

The DMP will include a drought response matrix containing actions to be taken by the Water Authority at different drought stages. One of the actions, if warranted, is an allocation of available supplies. The Water Authority is currently developing an allocation methodology to include in the DMP. This methodology will determine supplies available to member agencies and how local resources will be handled. A communication strategy will also be prepared to help the Water Authority and its member agencies implement the DMP actions. When ultimately faced with a supply shortage, there may be factors unknown at this time that could influence the actions taken. The DMP will provide guidance on how to move forward and minimize the impacts of a shortage situation.

9.2.3 DMP Technical Advisory Committee

Preparing and implementing a DMP for the San Diego region requires input and support from the Water Authority's member agencies. Recognizing the importance of member agency involvement, the Water Authority formed a TAC – Technical Advisory Committee – to provide input on development of the DMP. The TAC includes a representative from each of the member agencies. The meetings are facilitated to ensure full involvement from all participants.

To gain an initial understanding of the TAC members' positions on the DMP elements, each member completed a questionnaire. Results from this questionnaire provided valuable information used to develop a set of principles for preparing the DMP. The TAC will continue to meet and provide input until the DMP report is complete.

Proposed elements of the DMP that have been initially developed through the DMP TAC meetings are presented in **Sections 9.2.4, 9.2.5,** and **9.2.6**. The information contained in these sections is draft and subject to change during development and final Board of Director's approval of the DMP.

9.2.4 DMP Principles

The TAC developed principles to provide guidance to the Water Authority and its member agencies in developing and implementing the DMP. The principles are grouped below under elements of the DMP:

<u>Overall Plan</u>

1. The DMP will be developed in cooperation with the member agencies and include all aspects of drought planning – including steps to avoid rationing, drought response stages, allocation methodology, pricing, and communication strategy.

Communication Strategy

2. An on-going, coordinated and regional public outreach program shall be developed by the Water Authority that provides a clear and consistent message to the public regarding water supplies and specific conservation measures. The outreach program will also recognize and support member agency communication efforts that address specific retail level allocations.

3. A Drought Coordination Team, made up of one representative from each member agency, will be established to assist the Water Authority in implementation of the DMP. This includes items such as formulation and implementation of the public outreach program, timing of drought stages, selection of drought supply actions, and addressing potential issues surrounding implementation of the shortage allocation methodology.

4. The drought management plan should specify actions and timing of communications.

Drought Supply Augmentation

5. The Water Authority and its member agencies will work cooperatively to avoid and/or minimize rationing during droughts through supply augmentation and voluntary demand reduction measures.

6. Future Water Authority carryover storage supplies will be managed and utilized to assist in meeting demands during drought periods. Member agencies will be encouraged to develop carryover storage.

7. The Water Authority will consider securing option and/or spot water transfers to meet the reliability goal set by the Board. The cost of this regional supply will be melded into the Water Authority's supply costs for all classes of service that benefit.

8. Subject to the Water Authority's wheeling policy, if a member agency purchases transfer water from a source other than the Water Authority, the full cost of the transfer, including, but not limited to, purchase costs, wheeling costs, and administrative costs, will be borne by said member agency.

9. ESP supplies may be available when any member agency's non-interruptible firm demands drop below a 75 percent service level.

10. The quantities of supplies from the ESP to be removed from storage will be based on a minimum amount necessary to meet essential health, safety, and firefighting needs, and maximum amount based on the need to ensure adequate supplies remain for a catastrophic event (e.g. earthquake).

Drought Response Stages

11. Develop drought response stages, which at a minimum, accomplish the following:

    - Can be easily communicated to the public;
    - Flexible to handle unexpected changes in demand and supply conditions;
    - Includes percent reduction (voluntary or mandatory) per stage; and
    - Includes both supply augmentation and emergency demand reduction methods.

12. Targets for achieving the emergency demand reduction measures should take into account the region's already aggressive long-term water conservation program.

13. The decision on when, and in which sequence drought augmentation supplies will be utilized during different stages will include consideration of the following factors:

    - Location – Out-of-region supplies will be utilized in the earlier stages, prior to in-county storage, because these supplies are more vulnerable to implementation risks such as seismic events;
    - Cost – Priority will be given to maximizing supply reliability and at the same time using the most cost-effective supplies; and
    - Limitations – Potential restrictions on the use of drought augmentation supplies is a factor in determining supply availability (e.g. potential restrictions on ESP supplies).

Allocation Methodology

14. The allocation methodology will be equitable, easy to administer, contain financial penalties and pricing signals, and a communication strategy to ensure member agencies and the public are informed and understand the need to conserve.

15. In order to protect the economic health of the entire region, it is very important for the allocation methodology to avoid large, uneven retail impacts across the region. The methodology should include a minimum level of retail agency reliability to ensure equitable allocation among the member agencies.

16. With the exception of allocating water from the ESP, the Water Authority shall make no distinction among customers paying the same M&I rate (e.g. non-Interim Agricultural Water Program (IAWP) agriculture, residential, commercial, and industrial).

17. Additional IAWP cutbacks beyond the initial 30 percent faced by IAWP customers should be equally applied to both IAWP and M&I customers.

18. A member agency that has developed local projects and instituted conservation measures should not be penalized in the computation of allocations.

19. To help balance out the financial costs and risks associated with development of local resources, the shortage allocation methodology should provide an incentive to those member agencies that have developed local supplies.

20. The base-year, upon which allocations will be derived, will be based on historic demands. Adjustments to the base-year will be made for demographic changes, growth, local supplies, demand hardening, and supplies allocated under interruptible service programs.

21. A member agency's base-year will be adjusted to reflect the regional financial contribution from the Water Authority for development of local projects. The adjustment will take into account the risks associated with developing the local projects.

22. A member agency will not be able to market its unused allocation to other agencies within the Water Authority's service area at a cost higher than the Water Authority's charges for those supplies.

23. Penalty rates, along with other demand reduction measures, will be used by the Water Authority to encourage conservation during a drought.

9.2.5 Drought Response Matrix

The Act requires information on the stages of action to be undertaken in response to water supply shortages, including up to a 50 percent reduction in water supply. To meet the requirements, the Water Authority, with input from the TAC, developed a regional drought response matrix. The matrix provides guidance to the Water Authority and member agencies in selecting potential regional actions to lessen the severity of shortage conditions. Member agencies will independently adopt retail-level actions to manage potential shortages.

As shown in **Table 9-1**, the matrix proposes three main stages and identifies potential actions available to the Water Authority at each stage. To determine the specific actions that should be taken at each stage, the Water Authority and its member agencies will evaluate conditions specific to the timing and supply availability along with other pertinent variables. Numerous variables can influence the reduction levels adopted during a drought. These variables include, but are not limited to, SWP allocation, conditions on the Colorado River, Water Authority supplies, local storage, local demands and timing.

TABLE 9-1
DROUGHT RESPONSE MATRIX – FIRM DEMANDS

STAGES:	Voluntary	SDCWA Supply Augmentation	Mandatory Cutbacks (includes 50% cutback)
POTENTIAL SDCWA DROUGHT ACTIONS:	∗ Ongoing BMP implementation ∗ Monthly monitoring of supply conditions and storage levels ∗ Call for voluntary conservation ∗ Draw from planned SDCWA carryover storage	∗ Secure transfer option contracts ∗ Buy phase 1 spot transfers (cost at or below Tier 2 rate) ∗ Call transfer options contracts ∗ Draw from planned SDCWA carryover storage ∗ Buy phase 2 spot transfers (cost at or above Tier 2 rate)	∗ Implement allocation plan ∗ Utilize ESP supplies

Matrix Stages and Actions

Three drought stages have been identified in the matrix. The first stage is considered voluntary, where actions initiated at this stage include calling for voluntary conservation, monthly monitoring of supplies, and utilizing a prudent amount of supplies from Water Authority planned carryover storage. These actions would continue throughout the drought stages.

The second stage occurs when the reduction in Metropolitan supplies causes the Water Authority Board to take actions to augment supplies. The matrix includes suggested actions to be considered by the Board. In the event of a drought, the actual actions selected will depend on a number of conditions, including availability of supplies and cost.

The final stage follows once the Board has exhausted supply augmentation options due to lack of supplies and/or increasing costs and mandatory cutbacks are required. The actions taken at this stage include implementation of the allocation plan and potential utilization of ESP supplies. As stated in the DMP Principles, ESP supplies may be available when any member agency's non-interruptible firm demands drop below a 75 percent service level. In addition, the quantities of supplies utilized from ESP storage will be based on a minimum amount necessary to meet essential health, safety, and firefighting needs, and maximum amount based on the need to ensure adequate supplies remain for a catastrophic event (e.g. earthquake).

9.2.6 Supply Allocation Plan

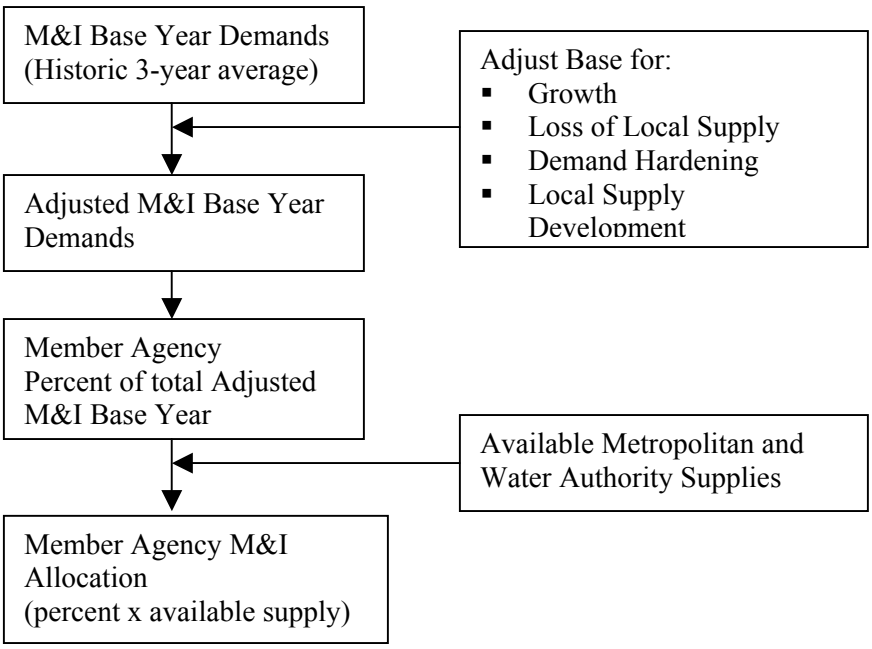
With the implementation of the member agencies local projects, the Water Authority's core supplies, and potential drought supply augmentation supplies, the impact from supply shortages from Metropolitan on M&I customers will be reduced and potentially avoided. Preparing a supply allocation methodology is important in order to be prepared for situations that warrant an allocation of supplies to the member agencies. Implementing a supply allocation plan is part of the Water Authority's drought response matrix.

Starting with the accepted principles listed in **Section 9.2.3**, the Water Authority has been working with the TAC to develop a methodology that is equitable and that recognizes the investments made by agencies that have developed local supplies. The Water Authority's current rate structure notes two classes of service, M&I and IAWP. They receive different levels of service based on the rate paid and are managed separately in the allocation methodology.

IAWP customers have agreed to a reduced level of service in exchange for a discounted supply rate from Metropolitan. Metropolitan has prepared draft IAWP Reduction Guidelines that state that IAWP customers will be cut by 30 percent prior to cutbacks to M&I customers. The guidelines do not specify stages and/or levels of cutbacks beyond the 30 percent. Based on the guidelines and Principle 17, up to a 30 percent cut will be made to the IAWP base prior to M&I cutbacks. Beyond 30 percent, supplies will be allocated equally between IAWP and M&I. In preparing the allocation methodology for the DMP, the Water Authority incorporated the conditions included in the guidelines.

The Water Authority is currently developing a separate allocation methodology for those customers paying the M&I rate. They include residential, commercial, industrial, and non-IAWP agricultural customers. **Figure 9-1** provides the general approach currently proposed to allocate supplies to M&I customers in a shortage situation.

FIGURE 9-1
DRAFT M&I SUPPLY ALLOCATION METHODOLOGY



The elements of the proposed allocation methodology:

Historical Base Year

M&I demands over the most recently completed three fiscal years prior to the year in which the decision to implement the proposed allocation methodology occurs will be averaged to determine the base year period. This base year demand is fixed for the duration of the allocation period. Based on Metropolitan's draft IAWP Reduction Guidelines, the base year for IAWP demands will be the most recently completed fiscal year.

Adjustments

The M&I base will be adjusted to ensure equity in the allocation of supplies. The M&I base will be adjusted upward for growth that may occur within the member agencies' service area from the historic base year period to the time that allocations are made. An adjustment will also be given if a member agency loses a local supply production between the historical base year and allocation period. The M&I base will also be adjusted for demand hardening that results from member agency conservation savings. A local supply development adjustment will also be provided to develop recycling and brackish groundwater recovery projects that provide a regional benefit during a drought conditions.

Adjusted Base Year

Adjustments are applied to a member agencies M&I base year to calculate an adjusted base year. No adjustments are made to the IAWP base year.

Allocation of Available Supplies

To determine the amount of the Water Authority and Metropolitan supplies that will be available to each member agency, a member agency's percent share of the total M&I adjusted base year is calculated. This percent is then applied to supplies available for M&I demands to derive an allocation for each member agency. For IAWP customers, a percent share of the total IAWP base year demands is calculated. This percent is applied to the IAWP supplies available following the initial 30 percent cutback and subsequent cutbacks to calculate an allocation of IAWP supplies for each member agency.

The Water Authority and TAC members are working to finalize the details and calculations of the allocation methodology and appropriate pricing signals associated with cutback requirements. The methodology is scheduled to be complete and adopted by the Water Authority Board in March 2006 as part of the DMP.

9.2.7 Revenue Impacts

The Water Authority has taken significant steps to reduce potential revenue impacts resulting from fluctuating water sales. In FY 1990, the Water Authority created a Rate Stabilization Fund (RSF) to provide funds that would mitigate the need for rate increases in the event of an unexpected decline in water sales. The RSF is structured in accordance with Board policy to maintain a minimum balance of at least 25 percent of the Water Authority's net water sales revenue. RSF is constrained by a maximum balance of 100 percent of the average annual water sales projected over a four-year period. As a result, the RSF is a crucial water rate management tool.

Additionally, on January 1, 2003, the Water Authority implemented a new rate structure that substantially increased the percentage of water revenues generated from fixed charges. This increase replaced the previous variable "postage stamp" rate, which historically generated as much as 80 percent or more of total annual revenues, with two fixed charges, and one variable rate. These new fixed charges – Customer Service and Storage – are key components to the Water Authority's future revenue stability.

9.2.8 Adoption of DMP

The TAC and Water Authority staff is expected to have a draft DMP to the Water Authority Board for adoption in March 2006. Elements of the DMP required by the Act that are applicable to the Water Authority have been addressed in the sections above. The final DMP will provide the region a comprehensive plan on the actions to be taken by the Water Authority and its member agencies in drought situations to reduce and potentially element the impacts of shortages.

9.3 SUMMARY

The shortage contingency analysis included in this section demonstrates that the Water Authority and its member agencies, through the ERP and ESP, are taking actions to prepare for and appropriately handle a catastrophic interruption of water supplies. The analysis also describes the coordinated development of a DMP for the San Diego region. The DMP will identify the actions to be taken by the Water Authority to minimize the impacts of a supply shortage due to a drought and include an allocation methodology to be used if cutbacks are necessary. The analysis addresses appropriate requirements of the Act that are applicable to the Water Authority.

Appendix C

Resolution Adopting Olivenhain Municipal Water District's 2005 Urban Water Management Plan

PASSED, ADOPTED AND APPROVED by the Board of Directors of the Olivenhain Municipal Water District at a regular meeting held on December 7, 2005 by the following roll call vote:

AYES:	Directors Gano, Muir, Varty, and Topolovac
NOES:	None
ABSTAIN:	None
ABSENT:	Director Miller

Robert F. Topolovac, President
Board of Directors
Olivenhain Municipal Water District

ATTEST:

Mark A. Muir, Secretary
Board of Directors
Olivenhain Municipal Water District

APPENDIX D

Olivenhain Municipal Water Drought Response Ordinance 204

ORDINANCE NO. 204

AN ORDINANCE OF THE BOARD OF DIRECTORS OF
THE OLIVENHAIN MUNICIPAL WATER DISTRICT
IMPOSING WATER CONSERVATION MEASURES

BE IT ORDAINED by the Board of Directors of the Olivenhain Municipal Water District as follows:

SECTION 1: Declaration of Policy. Water Code Section 71640 et seq., authorizes the District to impose water conservation measures and to restrict the use of water during any emergency caused by drought or other threatened or existing water shortage. The Board of Directors hereby establishes a comprehensive water conservation plan pursuant to Water Code Sections 71640 et seq., based upon an existing water shortage.

SECTION 2: Findings. The Board of Directors finds and determines that a water shortage exists based upon the following facts:

(a) The Governor has declared that precipitation in the State of California, for this water year to date, is approximately 50% of average.

(b) Unprecedented weather conditions have resulted in five consecutive years (1987, 1988, 1989, 1990, 1991) of below normal precipitation and run-off resulting in a statewide water shortage.

(c) The District is dependent upon water distributed through the California Aqueduct system and the Colorado River aqueduct by the Metropolitan Water District and the San Diego County Water Authority to provide water service to its customers. This is the sole source of supply to the District. The Metropolitan Water District of Southern California has notified the District that existing water demand will require a 30% reduction in water presently being provided to the San Diego County Water Authority.

(d) The San Diego County Water Authority has notified the District that a drought condition exists and that effective April 11, 1991, a reduction in deliveries to member agencies of 20% of 1989-1990 deliveries, subject to minor adjustments for prior conservation efforts and growth, shall be invoked.

(e) It is considered critical for the well being of the citizens within the Olivenhain Municipal Water District that existing water supplies be husbanded and future supplies be uniformly allocated so that water, essential for domestic use, sanitation, and fire protection, will remain available throughout the duration of the drought.

(f) On April 11, 1991, the San Diego County Water Authority determined that in order to achieve the savings necessary to comply with reductions in deliveries, that the Water Authority recommends that each member agency implement conservation programs substantially equivalent to those set forth in the Authority's Drought Response Plan of February 14, 1991.

(g) The District has solicited and received advice and direction from the San Diego County Water Authority, the Metropolitan Water District of Southern California, the State Department of Water Resources, other member agencies of the Water Authority, the Cities of San Diego, Carlsbad and Encinitas, customers, businesses, professional organizations, members of the public, and other entities at various meetings and through numerous communications both written and oral, including a public meeting held on February 21, 1991, at 10:00 a.m., a public meeting held on March 21, 1991 at 9:00 a.m., and a public meeting held on April 18, 1991 at the District's Administration Office.

(h) It is considered critical that mandatory restrictions on the use of water by District customers to conserve remaining water supplies be adopted. Experience of other agencies within California facing severe limitations on water supplies has demonstrated that prohibitions of certain uses, pricing structures, and limitations on deliveries have been found necessary to preserve

water supplies for essential services and to allocate remaining supplies in a fair and uniform manner, with particular regard for domestic, sanitation, and fire protection.

SECTION 3: CEQA Exemption. The District finds that this action is the result of the unexpected occurrences, above described, which involve clear and imminent danger demanding immediate action to mitigate damage to life, health and property from the loss of an essential public service - the delivery of public water supplies, and, therefore, it is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Sections 21080 (b) (4), 21060.3 Title 14, California Code of Regulations, Section 15269 (c).

SECTION 4: Declaration of Water Shortage and Application. It is hereby determined and declared that, based upon the foregoing facts, the District is unable to provide sufficient water supplies to meet the ordinary demands and requirements of its customers without depleting available water supplies to the extent that insufficient water would be available for all needs of the District's customers.

The provisions of this Ordinance shall apply to all persons, customers, and property served by the District wherever situated and for all imported water being provided by the District.

SECTION 5: Authorization. Upon adoption of this Ordinance, the District's General Manager, or his designated representative, is hereby authorized and directed to implement the provisions of this Ordinance based upon his determination that such implementation is necessary to protect the public health, safety, and welfare. The declaration of each water conservation stage and/or water emergency shall be deemed implemented upon publication two (2) times in a newspaper of general circulation in the District.

SECTION 6: Definitions for Potable Water Use Prohibitions

(a) "Potable Water" means filtered or unfiltered water delivered by the District which meets drinking water standards or upon disinfection meets drinking water standards, i.e. raw water.

(b) "Active public park and school ground areas" means areas designated by public agencies and private schools for specific sporting and recreational activities and those areas traditionally used for active play or recreation where turf is an integral part of the activity.

(c) "Reclaimed water" means water which, as a result of treatment of wastewater, is suitable for a direct beneficial use or controlled use that would not otherwise occur. (See Water Code Section 13050(n).)

(d) "Greywater" is household wastewater other than toilet water, i.e., water from laundry, shower, tub, bathroom and kitchen sinks. Its use is presently prohibited by the San Diego County Department of Health Services. The exception mentioned for greywater in this Ordinance depends solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations.

(e) "Micro irrigation systems/equipment" means low pressure, low volume methods of water application. These devices include drip emitters, T-tape, microsprayers, mini-sprinklers, twirlers, and spaghetti tubing. Pop-up sprinklers are not considered low-volume, low pressure irrigation systems/equipment.

(f) "Normal Water Demand" means the expected water use for the use or development requiring the meter during times of unrestricted water deliveries.

(g) "Recreational and Ornamental Lakes and Ponds" are those bodies of water which are not swimming pools, water storage reservoirs for the purpose of drinking water, or irrigation supply, or pool which maintain rare plant or animal species.

(h) "Conservation offset" means the implementation of proven conservation techniques which, when installed, will result in a reduction equal to demand of the proposed use. Calculation of demand and saving shall be performed or verified by the General Manager based upon non-drought conditions (normal conditions).

(i) "Fire Protection" means actions for prevention of suppression of fires as directed by the Fire Marshall or Fire Prevention offices with jurisdiction over the local area involved.

(j) "Ground Cover" means continuous homologous, cultivated planting(s) other than grass, turf, lawn or "weeds", utilized for decorative purposes, erosion control, fire protection or a combination of the above uses.

SECTION 7: Water Conservation Stages. During the period this Ordinance is effective, no customer of the District shall knowingly make, cause, use, or permit the use of water supplied by the District for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this Ordinance, in an amount in excess of the amounts authorized by this Ordinance or during any period of time other than the periods of time specified in this Ordinance.

(A) Stage 1. Normal Supply Level Available. Stage 1 applies during periods when a normal supply and distribution capacity is available, while at the same time demand levels are not expected to significantly increase in the immediate future. Elements of Stage 1 include:

(1) Implementation of the District's adopted Urban Water Management Plan and Conservation Program.

(2) Adoption of a District policy which is an action plan for implementation of water conservation techniques. (All elements shall apply as in Stage 2, but voluntary basis only.)

(3) The failure to repair a controllable leak is defined as "waste of water" and is prohibited at all times.

(4) All new indoor meter applicants must provide a plan indicating installation of 2.5 gpm showerheads and 1.6 gallon flush toilets.

(5) All new meters that will be used wholly or partially for landscape irrigation shall not be issued without the submittal of appropriate plans incorporating principles of low water use landscaping and irrigation systems.

(6) Changes to existing landscaping and turf areas or the addition of new landscaping or turf areas shall utilize principles of low water use landscaping and irrigation systems.

(B) Stage 2. Mandatory Compliance - Water Alert. Stage 2 applies during periods when the probability exists that the District will not be able to meet all of the water demands of its customers. Implementation of Stage 2 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 10%. During Stage 2, the following water conservation measures shall apply except when reclaimed water is used:

(1) Lawn watering and landscape irrigation is permitted only on designated irrigation days and only between the evening hours of 6:00 p.m. and 9:00 a.m. the following morning. Watering is permitted at any time if a hand-held hose equipped with a positive shut-off nozzle is used, a hand-held, faucet-filled bucket of five (5) gallons or less is used, or a drip irrigation system is used. Properties with addresses ending in an even number may use water on Monday, Thursday, and Saturday evenings until the following

morning. Addresses ending in an odd number may use water on Tuesday, Friday, and Sunday evenings until the following morning.

(2) Agricultural users and commercial nurseries as defined in the Metropolitan Water District Code are exempt from Stage 2 irrigation restrictions, but will be required to curtail all non-essential water use. The watering of livestock and irrigation of propagation beds are permitted at any time.

(3) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited except on designated irrigation days. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shut-off nozzle for quick rinses. Washing is permitted at any time on the immediate premises of a commercial car wash. Further, such washing is exempted from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables.

(4) Filling or refilling swimming pools, spas, ponds, and artificial lakes is permitted only on designated irrigation days.

(5) Watering golf courses, parks, school grounds, and recreational fields is permitted only between the hours of 6:00 p.m. and 9:00 a.m. the following morning, except golf course greens and propagation beds.

(6) The use of water from fire hydrants shall be limited to fire fighting and related activities, for construction activities, or other activities necessary to maintain the health, safety, and welfare of the public.

(7) Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire, safety, or sanitation hazard.

(8) Restaurants shall serve water to their customers only when specifically requested.

(9) The operation of any non-recirculating ornamental fountain or similar structure is prohibited.

(C) Stage 3. Mandatory Compliance - Watering Warning. Stage 3 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 3 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 15%. During Stage 3, the following water conservation measures shall apply except when reclaimed water is used:

(1) Lawn watering and landscape irrigation is permitted only on designated irrigation days and only between the evening hours of 4:00 p.m. to 9:00 a.m. the following morning. Watering is permitted at any time if a hand-held hose equipped with a positive shut-off nozzle is used, a hand-held, faucet-filled bucket of five (5) gallons or less is used, or a micro-irrigation system/equipment is used. A "designated irrigation day" is determined by the last digit in the street address. Properties with addresses ending in an even number may use water on Tuesday and Saturday evenings until the following morning and addresses ending in an odd number may use water on Sunday and Thursday evenings until the following morning.

(2) Agricultural users and commercial nurseries shall reduce water use by an amount to be determined at the time of declaration. The watering of livestock and irrigation of propagation beds are permitted at any time.

(3) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited except on designated irrigation days. Such washing, when allowed, shall be done with a

hand-held bucket or a hand-held hose equipped with a positive shut-off nozzle for quick rinses. Washing is permitted at any time on the immediate premises of a commercial car wash. The use of water by all types of commercial car washes not using partially reclaimed or recycled water shall be reduced in volume by an amount to be determined at the time of declaration. Further, such washing is exempted from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables.

(4) Filling or refilling of swimming pools and spas is permitted only on designated irrigation days between the hours of 4:00 p.m. and 9:00 a.m. the following morning. The filling or refilling of ornamental lakes and ponds is prohibited. Irrigation reservoirs may be exempted when specifically requested.

(5) Watering golf courses, parks, school grounds, and recreational fields is permitted only between the hours of 4:00 p.m. and 9:00 a.m. the following morning, except golf course greens.

(6) The use of water from fire hydrants shall be limited to fire fighting and related activities, for construction activities, or other activities necessary to maintain the health, safety, and welfare of the public.

(7) Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire or sanitation hazards.

(8) Restaurants shall serve water to their customers only when specifically requested.

(9) The operation of any ornamental, non-recirculating fountain or similar structure is prohibited.

(10) New construction meters or permits for unmetered service shall not exceed the existing number of currently authorized meters. A new meter shall be issued only when an old meter is returned. Construction projects requiring water from a construction meter or a water truck shall not use water unnecessarily for any purposes other than those required by regulatory agencies.

(D) Stage 4. Mandatory Compliance Water Warning. Stage 4 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 4 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 20%. During Stage 4, the following water conservation measures shall apply, including all provisions and conditions of Stage 3, except when reclaimed water is used:

(1) All water users shall minimize water use.

(2) Shower and sink warm up water shall be captured with a bucket and used outdoors or to flush toilets.

(3) All golf courses, parks, school grounds, and recreational fields must reduce from their base 1989-1990 usage by a volume of not less than 20% at the time of declaration, or for new projects a base allocation to be determined by the General Manager.

(4) Agricultural users and commercial nurseries shall reduce water use by an amount not less than 20%.

(5) The use of potable water for commercial, industrial, manufacturing, processing purposes, resorts, hotels, motels and restaurants may be reduced in volume by an amount to be determined by the General Manager.

(E) Stage 5. Mandatory Compliance Water Warning. Stage 5 applies during periods when the District will not be able to meet all

of the water demands of its customers. Implementation of Stage 5 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 30%. During Stage 5, the following water conservation measures shall apply, including all provisions and conditions of Stage 4, except when reclaimed water is used:

(1) All lawn and turf watering, other than golf courses, shall be limited to one day per week between the hours 6:00 p.m. and 9:00 a.m. the following morning. Properties with addresses ending in an even number may use water on Saturday evenings until the following morning and addresses ending in an odd number may use water on Sunday evenings until the following morning. All Homeowners Associations may use water on Wednesday evenings until the following morning.

(2) All construction water must be reclaimed or from a non- imported source unless the District determines in its sole discretion that those sources are not reasonably available.

(3) Washing at home of autos, trucks, trailers, boats, airplanes and other types of mobile equipment is prohibited except with water captured from sink and bath warm-up water or other recovered water in a handheld bucket.

(4) All new meter applicants must mitigate their specific impact upon the water supply by participating in a toilet/showerhead retrofit program or contributing to a reclaimed water project such that an off-setting supply of "new" water capacity is created, prior to the District's issuing a new water meter(s).

(5) All golf courses, hotels, motels, and resorts must reduce a minimum of 30% from their 1989-1990 base usage or for new projects a base allocation to be determined by the General Manager.

(F) Stage 6. Mandatory Compliance. Stage 6 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 6 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 40%. During Stage 6, the following water conservation measures shall apply, including all provisions and conditions of Stage 5, except when reclaimed water is used:

(1) No outdoor watering shall occur between 9:00 a.m. and 4:00 p.m. except when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations) or private well water. Anyone using such water at other than a private residence shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet along public rights-of-way where such water is being used noticing such usage.

(2) Washing of personal vehicles other than in commercial carwashes or commercial vehicles for reasons of public health and safety is prohibited except when water used has been salvaged from indoor use, i.e., warmup water from showers, sinks, and/or lavatories.

(3) There shall be no filling of new pools, new spas, or new fountains from imported sources.

(4) Golf courses shall reduce water use by 40%.

(G) Mandatory Compliance - Water Emergency. A Water Emergency applies when a major failure of any supply or distribution facility, whether temporary or permanent, occurs in the water distribution system of the State Water Project, Metropolitan Water District, San Diego County Water Authority, or District facilities, when the District determines that a water shortage exists for any reason, requiring use reductions of 50% or more. It is anticipated that these measures will result in a reduction of water use from a base allocation to be

determined at the time of declaration by a volume of not less than 50%. During a Water Emergency, the following potable water use prohibitions shall apply, including all provisions and conditions of Stage 6, except when reclaimed water or well water is used.

(1) General Requirement

(a) All water users are expected to minimize water use for the duration of the drought emergency. All classes of water, including agricultural use, are expected to achieve a fifty percent reduction in use from the base allocation, as determined by the General Manager, except where specifically relieved of such reduction by the Board of Directors. Indoor uses will, in general, be reduced by such practices as fewer and shorter showers and baths, no running water while brushing teeth and shaving, full loads in dish and clothes washers, avoidance of unnecessary toilet flushing, frequent checking and repairing of leaks, and other conservation practices.

(2) Potable Water Use Prohibitions.

(a) Irrigation of Turf. Irrigation of turf with potable water is prohibited except under the following circumstances:

1. for active public park and school ground areas no more than twice weekly;

2. at day care centers where required by license no more than twice weekly;

3. for purposes of maintaining public safety (such as fire protection); and

4. when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations), or private well water.

5. at public parks, where trees and shrubs are interspersed amidst turf supported by the same irrigation system, provided the area of irrigation is within the drip line of each tree or shrub and irrigation is no more than once every two weeks.

(b) Irrigation of Ground Cover. Irrigation of ground cover with potable water is prohibited except under the following circumstances:

1. for fire protection;

2. where trees and shrubs are interspersed amidst ground cover supported by the same irrigation system; and

3. for preservation of existing ground cover which is designed to stabilize slopes.

Irrigation of ground cover under this Section is restricted to once every 14 days.

(c) Irrigation of Trees, Shrubs, Including Certified Agricultural Production Outside irrigation of trees, shrubs, and other plants which are not turf or ground cover, is allowed only by hand-held hose with positive shut-off nozzle, bucket, or micro irrigation systems/equipment. Sprinkler systems may only be used for certified agricultural production, watering active public park and school ground areas, maintenance of ground cover in accordance with this Ordinance and for purposes of maintaining public safety such as, fire protection.

(d) Irrigation Water Hours. No outdoor irrigation shall occur between 9:00 a.m. and 4:00 p.m., except when using a micro irrigation system/equipment, or for certified agricultural production, or when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations), or private well water. Anyone

using reclaimed water at other than a private residence shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet along public rights-of-way where such water is being used noticing such usage.

(e) Hosing or Spraying of Paved or Hard Surfaces. Hosing paved or hard surfaces including, but not limited to, sidewalks, driveways, patios, streets and parking areas is prohibited except for compelling public health and safety reasons. Allowed hosing activities shall be done only with a hose equipped with a positive shut-off nozzle.

Spraying hard surfaces during irrigation activities is prohibited.

(f) Runoff and Repairing of Leaks. All runoff from outside water usage from property is prohibited. Leaks to irrigation and plumbing systems shall be immediately repaired.

(g) Filling of Pools and Spas. Filling of new pools and spas is prohibited except under the following circumstances:

1. where the owner can produce and demonstrate a conservation offset; or,

2. where the owner can produce evidence that private well water meeting public health standards will be utilized.

Draining of existing pools is prohibited except under orders of the appropriate local health or building official.

(h) Recreational and Ornamental Lakes and Ponds. Recreational and ornamental lakes and ponds may not be filled or refilled except with reclaimed water or private well water. Lakes and ponds utilizing reclaimed water at other than a private residence shall post signs around the lakes and ponds of where such water is being used noticing such usage.

(i) Golf Course Irrigation. Golf courses may use potable water supplied by the District only to irrigate tees and greens. Irrigation of fairways and roughs with potable water or any blend thereof is prohibited. Golf courses irrigating with reclaimed water shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet where such water is being used noticing such usage.

(j) Restaurants. Restaurants shall serve water only upon request.

(k) Ornamental Fountains. Operation of ornamental fountains is prohibited except when private well water or reclaimed water is used. Ornamental fountains utilizing reclaimed water at other than a private residence, shall post signs around the ornamental fountain of where such water is being used, noticing such usage.

(l) Washing of Vehicles. Washing of vehicles is prohibited except:

1. in commercial car washes;

2. commercial vehicles for reasons of public health and safety;

3. where water has been salvaged from indoor use, e.g. warmup water from showers, sinks, and/or lavatories; or

4. by a mobile high-pressure/low volume service.

(m) New Services. Except as to property for which a building permit has been heretofore issued, no new potable water shall be provided, no new temporary meters or permanent meters shall be provided and no commitments (such as, will serve letters, certificates or letters of availability) to provide potable water service shall be issued, except for the following circumstances:

1. the commitment includes a notice that a water shortage emergency prevails, resulting in a water moratorium and no water service is

currently available;

2. for projects necessary to protect the public's health, safety, and welfare;

3. when it can be demonstrated that no net increase in potable water use will occur; or

4. when a conservation offset is provided.

(n) Certified agricultural irrigation shall reduce 50% from the 1989-1990 base year. Certified agricultural irrigation may be discontinued for varying durations, as determined necessary by the District's General Manager depending upon the circumstances of the water emergency.

(o) The use of potable water for commercial, industrial, manufacturing, processing purposes, resorts, hotels, motels, and restaurants shall be reduced in volume by 50% from the base allocation for that user. These users shall be monitored by the District to ensure compliance with the 50% reduction. Any such user who exceeds their 50% reduction by 10% or more during any period monitored by the District shall have a flow restrictor installed at the user's expense until the user's total use for the year no longer exceeds a 50% reduction from that users base allocation. All fees and charges for the removal of the restrictor shall be paid by the user.

SECTION 8: Grounds for Appeal. A customer may file with the General Manager a written request for review of issue(s) regarding the restriction and use of water and/or the mandatory prohibitions on the use of potable water. No customer of the District shall be entitled to appeal any restriction on potable water usage unless the customer can demonstrate that the customer's allocation is insufficient for health, sanitary, or fire protection purposes. Appeals seeking increased allocations for other purposes shall be summarily rejected and will not be considered by the General Manager. A customer may, following review of the appeal by the General Manager, request a hearing by the Board of Directors. The hearing shall be scheduled at the Board's next regular meeting or at a special meeting scheduled for that hearing. The customer may appear before the Board or present written testimony and documentation considered appropriate for proper understanding and evaluation of the claim and basis for appeal. The District shall mail written notice of the hearing to the customer before the date of said hearing.

SECTION 9: Mandatory Conservation Phase Implementation. The Superintendent of Maintenance and Operations shall monitor the projected supply and demand for water by its customers on a daily basis during periods of emergency or drought and shall recommend to the General Manager the extent of the conservation required through the implementation and/or termination of particular conservation stages in order for the Water Operations Department to prudently plan for and supply water to its customers. Thereafter, the General Manager may order that the appropriate phase of water conservation be implemented or terminated in accordance with the applicable provisions of this Ordinance. Said order shall be made by public announcement and shall be published once a month for three months or until the Stage Alert has been lifted, whichever is the least amount of time, in a daily newspaper of general circulation and shall become effective immediately upon such publication.

SECTION 10: Violation of Stage 2 through Stage 6 and/or a Water Emergency. Any customer of the District who violates any provision of a Stages 2 through Stage 6 and/or a Water Emergency shall receive a warning letter on the first violation accompanied by a copy of the appropriate section(s) of this Ordinance. Any customer who commits a second violation of any provision of Stage 2 through Stage 6 and/or a Water Emergency shall pay a fine of $50 for each violation of Stage 2 or Stage 3; $75 for each violation of Stage 4 or Stage 5; and $100 for each violation of Stage 6 and/or a Water Emergency. Any customer of the District committing a third violation shall pay a fine of $100 for each violation of Stage 2 or Stage 3; $150 for each violation of Stage

4 or Stage 5; and $200 for each violation of Stage 6 and/or a Water Emergency. Any customer of the District who violates a Stage 2 through Stage 6 and/or a Water Emergency more than three (3) times shall pay a fine of $200 for each violation of Stage 2 or Stage 3; $300 for each violation of Stage 4 or Stage 5; and $400 for each violation of Stage 6 and/or a Water Emergency. In addition, where a customer of the District has violated any Stage 2 through Stage 6 and/or a Water Emergency restrictions more than three times, the Board of Directors shall conduct a hearing and may, in its discretion, order either (a) installation of a flow restrictor in the meter or (b) discontinuance of water service for such period of time as the Board of Directors determines appropriate under the circumstances. The District shall, at least ten (10) days before the date set for hearing, mail an appropriate written notice of the hearing to the affected customer. The decision of the Board of Directors of the District shall be final and not subject to further appeal. The failure of any customer to pay a fine levied by this Ordinance shall be grounds for termination of water service. Termination notices shall be given in accordance with the termination procedures utilized by the District for nonpayment of water bills. Customers whose water service has been restricted or terminated as a result of violation of this Ordinance shall be required to pay all fees and charges established by the District from time to time to reinstate full service.

SECTION 11: Violation of Water Emergency. During periods of a water emergency, water consumption may be limited and allocated with penalties imposed for usage above one's allocation. The District's General Manager shall determine the allocation rate for every service connection in the District, based upon an assessment of the current and projected water supply and the availability of this supply to the community. The rate shall be determined as far in advance as possible and shall be applied fairly and equitably to all classes of water service. Notification of each customer's allocation shall be given by letter to The last known address of the customer as shown on District records and shall be effective beginning with the last billing period following the date the letter is mailed.

SECTION 12: Allocation Violations. In addition to the penalties for violation of potable water use prohibitions, as set forth in Section 9, a customer who exceeds an
established allocation shall be subject to the following penalties:

(a) A customer who exceeds an established allocation shall pay a surcharge rate of five (5) times the rate for the highest tier established in the Water Rate Ordinance per HCF (Hundred Cubic Feet) of water for all water used in excess of the allowable allocation during a first billing period in which the excess occurs.

(b) A customer who exceeds the customer's allocation for two or more billing periods shall pay a surcharge of ten (10) times the rate for the highest tier established in the Water Rate Ordinance rate, per HCF, for water in excess of the allowable allocation during the second and subsequent billing periods. As used herein, "excess water" means the amount of water delivered in excess of the allocation rate as set by the General Manager.

(c) If a customer continues to exceed the established allocation for two or more consecutive billing periods, the Board of Directors shall conduct a hearing and may, in its discretion, order either (a) installation of a flow restrictor in the meter or (b) termination of water service for such period of time as the District determines appropriate under the circumstances. The District shall, at least ten (10) days before the date set for hearing, mail an appropriate written notice of the hearing to the affected customer. The decision of the Board of Directors shall be final and not subject to further appeal. The failure of any customer to pay the surcharges shall be grounds for termination of water service. Termination notices shall be given in accordance with the termination procedures utilized by the District for nonpayment of water bills. Customers whose service is terminated shall be required to pay all fees and charges established by the District from time to time to reinstate full service.

SECTION 13: No Tampering With Flow Restrictors. A flow restrictor or other device, once installed by the District, may not be removed or tampered with in any manner or for any purpose by other than authorized District personnel acting with the authority of the General Manager. Tampering or removing of such a fixture without authorization will result in the immediate discontinuance of service at the customer's expense and until the articles and provisions of this Ordinance as herein set forth are fully complied with.

SECTION 14: Authority to Enter Premises. Authority and permission to enter upon private premises, for the purpose of inspecting outside water systems as to compliance with the articles and provisions of this Ordinance, shall be granted to authorized water district personnel upon presentation of official identification and clear statement of purpose to conduct water conservation enforcement activities. Those authorized personnel on official business shall be allowed free access at all reasonable hours to any premises supplied with the District water. Any owner or occupant of any premises who refuses admittance to, or hinders or prevents inspection by, an authorized employee of the Water District may, after , written notice setting a hearing date before the Board of Directors, have all water service discontinued. At the hearing, the customer shall be entitled to introduce testimony and evidence justifying denial of the right to inspect and any medical hardships caused by the termination.

SECTION 15: No Unauthorized Use of District Identification. No unauthorized person shall possess, carry, wear, or exhibit any badge or other official identification of the Water District, nor shall any person, whether or not possession is authorized, display, exhibit, or cause to be exhibited any badge or other official identification of the Water District at any time, place, or in any manner or for any purpose which is not authorized by the General Manager.

SECTION 16: Effective Date and Repeal. This Ordinance shall take effect immediately upon adoption. Within ten (10) days after adoption, this Ordinance shall be published one (1) time in a newspaper of general circulation in the District. This Ordinance shall remain effective until repeal by the Board of Directors of the Olivenhain Municipal Water District. Ordinance No. 203 is hereby repealed.

PASSED, ADOPTED, AND APPROVED by the Board of Directors of the Olivenhain Municipal Water District at the regular Board meeting held on April 18, 1991, by the following roll call vote:

AYES: Directors Miller, Golem, Gano, Peay, Denk
NOES: None
ABSTAIN: None
ABSENT: None

_____
Harold L. Gano, President
Board of Directors
Olivenhain Municipal Water District

ATTEST:

_____
Harley L. Denk, Secretary
Board of Directors
Olivenhain Municipal Water District

APPENDIX E

California Urban Water Conservation Council Best Management Practices Memorandum of Understanding

EXHIBIT 1

1. WATER SURVEY PROGRAMS FOR SINGLE-FAMILY RESIDENTIAL AND MULTI-FAMILY RESIDENTIAL CUSTOMERS

A. Implementation

Implementation shall consist of at least the following actions:

a) Develop and implement a strategy targeting and marketing water use surveys to single-family residential and multi-family residential customers.

b) Directly contact via letter or telephone not less than 20% of single-family residential customers and 20% of multi-family residential customers each reporting period.

c) Surveys shall include indoor and outdoor components, and at minimum shall have the following elements:

Indoor

i) Check for leaks, including toilets, faucets, and meter check

ii) Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, as necessary

iii) Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as necessary; replace leaking toilet flapper, as necessary

Outdoor

iv) Check irrigation system and timers

v) Review or develop customer irrigation schedule

Recommended but not required

vi) Measure currently landscaped area

vii) Measure total irrigable area

d) Provide customer with evaluation results and water saving recommendations; leave information packet with customer.

e) Track surveys offered, surveys completed, survey results, and survey costs.

B. Implementation Schedule

a) Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 1998.

b) Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the year following the year the agency signed or became subject to the MOU.

c) Agencies shall develop and implement a strategy targeting and marketing water use surveys to single-family residential and multi-family residential customers by the end of the first reporting period following the date implementation was to commence.

d) The coverage requirement for this BMP, as specified in Section C of this Exhibit, shall be realized within 10 years of the date implementation was to commence.

C. Coverage Requirements

a) Not less than 15% of single-family residential accounts to receive water use surveys within 10 years of the date implementation was to commence. For the purposes of calculating coverage, 15% of single-family residential accounts means the number of accounts equal to 15% of single-family accounts in 1997 or the year the agency signed the MOU, whichever is later.

b) Not less than 15% of multi-family residential units to receive water use surveys within 10 years of the date implementation was to commence. For the purposes of calculating coverage, 15% of multi-family residential units means the number of units equal to 15% of multi-family units in 1997 or the year the agency signed the MOU, whichever is later.

D. Requirements for Documenting BMP Implementation

a) Number of single-family residential accounts in service area.

b) Number of multi-family residential accounts in service area.

c) Number of single-family residential surveys offered during reporting period.

d) Number of single-family residential surveys completed during reporting period.

e) Number of multi-family residential surveys offered during reporting period.

f) Number of multi-family residential surveys completed during reporting period.

E. Criteria to Determine BMP Implementation Status

a) Agency has developed and implemented a strategy targeting and marketing water use surveys to single-family residential and multi-family residential customers by the end of the first reporting period following the date implementation was to commence.

b) Agency has directly contacted not less than 20% of single-family residential accounts and 20% of multi-family residential units during period being reported.

c) Agency is on schedule to complete surveys for 15% of single-family residential accounts and 15% of multi-family units within 10 years of the date implementation was to commence. Agencies will receive credit against the coverage requirement for previously completed residential water use surveys according to the following schedule*:

	% Credit
Before 1990	0.0%
1990	12.5%
1991	25.0%
1992	37.5%
1993	50.0%
1994	62.5%
1995	75.0%
1996	87.5%
1997	100.0%

d) Agencies will be considered on track if the percent of single-family accounts and the percent of multi-family accounts receiving water use surveys equals or exceeds the following: 1.5% by end of first reporting period following date implementation to commence; 3.6% by end of second reporting period; 6.3% by end of third reporting period; 9.6% by end of fourth reporting period; and 13.5% by end of fifth reporting period.

* * In its study "What is the Reliable Yield from Residential Home Water Survey Programs: The Experience of LADWP" (AWWA Conf. Proceedings, 1995), A & N Technical Services, Inc., found that the average level of savings from home water surveys decreased over time, reaching about 50% of initial yield by the fourth year following the survey, on average. The above decay schedule used for crediting past surveys utilizes these findings to recognize and account for the limited persistence of water savings over time from home water use surveys

F. Water Savings Assumptions

	Pre-1980 Construction	Post-1980 Construction
Low-flow showerhead retrofit	7.2 gcd	2.9 gcd
Toilet retrofit (five year life)	1.3 gcd	0.0 gcd
Leak repair	0.5 gcd	0.5 gcd
Landscape survey (outdoor use reduction)	10%	10%

2. RESIDENTIAL PLUMBING RETROFIT

A. Implementation

Implementation shall consist of at least the following actions:

a) Identify single-family and multi-family residences constructed prior to 1992. Develop a targeting and marketing strategy to distribute or directly install high-quality, low-flow showerheads (rated 2.5 gpm or less), toilet displacement devices (as needed), toilet flappers (as needed) and faucet aerators (rated 2.2 gpm or less) as practical to residences requiring them.

b) Maintain distribution and/or direct installation programs so that devices are distributed to not less than 10% of single-family connections and multi-family units each reporting period, or require through enforceable ordinance the replacement of high-flow showerheads and other water using fixtures with their low-flow counterparts, until it can be demonstrated in accordance with Section E of this Exhibit that 75% of single-family residences and 75% of multi-family units are fitted with high-quality, low-flow showerheads.

c) Track the type and number of retrofits completed, devices distributed, and program costs.

B. Implementation Schedule

a) Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 1998.

b) Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the year following the year the agency signed or became subject to the MOU.

c) Agencies shall develop and implement a strategy targeting the distribution and/or installation of high-quality, low-flow plumbing devices to single-family residential and multi-family residential customers by the end of the first reporting period following the date implementation was to commence.

d) An agency may elect to discontinue its device distribution programs without filing a formal budget or cost-effectiveness exemption when it can demonstrate that 75% of its single-family residences and 75% of its multi-family units constructed prior to 1992 are fitted with high-quality, low-flow showerheads.

C. Coverage Requirements

a) Plumbing device distribution and installation programs to be maintained at a level sufficient to distribute high-quality, low-flow showerheads to not less than 10% of single-family residences and 10% of multi-family units constructed prior to 1992 each reporting period; or the enactment of an enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts.

b) Plumbing device distribution and installation programs to be operated until it can be demonstrated in accordance with Section E of this Exhibit that 75% of single-family residences and 75% of multi-family units are fitted with high-quality, low-flow showerheads.

D. Requirements for Documenting BMP Implementation

a) The target population of pre-1992 single-family residences and multi-family units to be provided showerheads and other water saving devices.

b) The number of showerhead retrofit kits distributed during previous reporting period.

c) The number of device retrofits completed during the previous reporting period.

d) The estimated percentage of pre-1992 single-family residences and multi-family units in service area fitted with low-flow showerheads.

E. Criteria to Determine BMP Implementation Status

a) Agency has developed and implemented a strategy targeting and marketing water use surveys to single-family residential and multi-family residential customers by the end of the first reporting period following the date implementation was to commence.

b) Agency has tracked the type and number of retrofits completed, devices distributed, and program costs.

c) Agency EITHER

   i) has distributed or directly installed high-quality, low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family residences and 10% of multi-family units constructed prior to 1992 during the reporting period; and/or has enacted an ordinance requiring the

replacement of high-flow shower-heads and other water use fixtures with their low-flow counterparts.

OR

ii) can demonstrate through customer surveys with 95% statistical confidence and a ±10% error that 75% of single-family residences and 75% of multi-family units constructed prior to 1992 are fitted with low-flow showerheads.

F. Water Savings Assumptions

	Pre-1980 Construction	Post-1980 Construction
Low-flow showerhead retrofit	7.2 gcd	2.9 gcd
Toilet retrofit (five year life)	1.3 gcd	0.0 gcd

3. SYSTEM WATER AUDITS, LEAK DETECTION AND REPAIR

A. Implementation

Implementation shall consist of at least the following actions:

a) Annually complete a prescreening system audit to determine the need for a fullscale system audit. The prescreening system audit shall be calculated as follows:

   i) Determine metered sales;

   ii) Determine other system verifiable uses;

   iii) Determine total supply into the system;

   iv) Divide metered sales plus other verifiable uses by total supply into the system. If this quantity is less than 0.9, a fullscale system audit is indicated.

b) When indicated, agencies shall complete water audits of their distribution systems using methodology consistent with that described in AWWA's *Water Audit and Leak Detection Guidebook.*

c) Agencies shall advise customers whenever it appears possible that leaks exist on the customer's side of the meter; perform distribution system leak detection when warranted and cost-effective; and repair leaks when found.

B. Implementation Schedule

a) Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 1998.

b) Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the year following the year the agency signed or became subject to the MOU.

C. Coverage Requirements

a) Agency shall maintain an active distribution system auditing program.

b) Agency shall repair identified leaks whenever cost-effective.

D. Requirements for Documenting BMP Implementation

a) Prescreening audit results and supporting documentation;

b) Maintain in-house records of audit results or the completed AWWA Audit Worksheets for each completed audit period.

E. Criteria to Determine BMP Implementation Status

a) Agency has annually completed a pre-screening distribution system audit.

b) Agency has conducted a full system audit consistent with methods described by AWWA's *Manual of Water Supply Practices, Water Audits and Leak Detection* whenever indicated by a pre-screening audit.

F. Water Savings Assumptions

Unaccounted water losses assumed to be no more than 10% of total water into the water supplier's system.

4. METERING WITH COMMODITY RATES FOR ALL NEW CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS

A. Implementation

Implementation shall consist of at least the following actions:

a) Requiring meters for all new connections and billing by volume of use.

b) Establishing a program for retrofitting existing unmetered connections and billing by volume of use.

c) Identifying intra- and inter-agency disincentives or barriers to retrofitting mixed use commercial accounts with dedicated landscape meters, and conducting a feasibility study to assess the merits of a program to provide incentives to switch mixed use accounts to dedicated landscape meters.

B. Implementation Schedule

a) Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 1999.

b) Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the second year following the year the agency signed or became subject to the MOU.

c) A plan to retrofit and bill by volume of use existing unmetered connections to be completed by end of the first reporting period following the date implementation was to commence.

d) A feasibility study examining incentive programs to move landscape water uses on mixed-use meters to dedicated landscape meters to be completed by end of the first reporting period following the date implementation was to commence.

C. Coverage Requirements

100% of existing unmetered accounts to be metered and billed by volume of use within 10 years of date implementation was to commence.

D. Requirements for Documenting BMP Implementation

a) Confirmation that all new connections are metered and are being billed by volume of use.

b) Number of unmetered accounts in the service area. For the purposes of evaluation, this shall be defined as the baseline meter retrofit target, and shall be used to calculate the agency's minimum annual retrofit requirement.

c) Number of unmetered connections retrofitted during the reporting period.

d) Number of CII accounts with mixed-use meters.

e) Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period.

E. Criteria to Determine BMP Implementation Status

a) Agency with existing unmetered connections has completed a meter retrofit plan by end of first reporting period following the date implementation was to commence.

b) Agency has completed a feasibility study examining incentive programs to move landscape water uses on mixed-use meters to dedicated landscape meters by end of first reporting period following the date implementation was to commence.

c) Agency with existing unmetered connections is on track to meter these connections within 10 years of the date implementation was to commence. An agency will be considered on track if the percent of unmetered accounts retrofitted with meters equals or exceeds the following: 10% by end of first reporting period following date implementation to commence; 24% by end of second reporting period; 42% by end of third reporting period; 64% by end of fourth reporting period; and 90% by end of fifth reporting period.

F. Water Savings Assumptions

Assume meter retrofits will result in a 20% reduction in demand by retrofitted accounts.

5. LARGE LANDSCAPE CONSERVATION PROGRAMS AND INCENTIVES

A. Implementation

Implementation shall consist of at least the following actions:

Customer Support, Education and Assistance

a) Agencies shall provide non-residential customers with support and incentives to improve their landscape water use efficiency. This support shall include, but not be limited to, the following:

Accounts with Dedicated Irrigation Meters

a) Identify accounts with dedicated irrigation meters and assign ETo-based water use budgets equal to no more than 100% of reference evapotranspiration per square foot of landscape area in accordance with the schedule given in Section B of this Exhibit.

b) Provide notices each billing cycle to accounts with water use budgets showing the relationship between the budget and actual consumption in accordance with the schedule given in Section B of this Exhibit; agencies may choose not to notify customers whose use is less than their water use budget.

Commercial/Industrial/Institutional Accounts with Mixed-Use Meters or Not Metered

a) Develop and implement a strategy targeting and marketing large landscape water use surveys to commercial/industrial/institutional (CII) accounts with mixed-use meters. Each reporting period, directly contact via letter or telephone not less than 20% of CII accounts with mixed-use meters and offer water use surveys. (Note: CII surveys that include both indoor and outdoor components can be credited against coverage requirements for both BMP 5 and BMP 9.)

b) Unmetered service areas will actively market landscape surveys to existing accounts with large landscapes, or accounts with landscapes which have been determined by the purveyor not to be water efficient.

c) Offer the following measures when cost-effective:

   i) Landscape water use analysis/surveys

ii) Voluntary water use budgets

iii) Installation of dedicated landscape meters

iv) Training (multi-lingual where appropriate) in landscape maintenance, irrigation system maintenance, and irrigation system design.

v) Financial incentives to improve irrigation system efficiency such as loans, rebates, and grants for the purchase and/or installation of water efficient irrigation systems.

vi) Follow-up water use analyses/surveys consisting of a letter, phone call, or site visit where appropriate.

d) Survey elements will include: measurement of landscape area; measurement of total irrigable area; irrigation system check, and distribution uniformity analysis; review or develop irrigation schedules, as appropriate; provision of a customer survey report and information packet.

e) Track survey offers, acceptance, findings, devices installed, savings potential, and survey cost.

New or Change of Service Accounts

Provide information on climate-appropriate landscape design, efficient irrigation equipment/management to new customers and change-of-service customer accounts.

Recommended

a) Install climate appropriate water efficient landscaping at water agency facilities, and dual metering where appropriate.

b) Provide customer notices prior to the start of the irrigation season alerting them to check their irrigation systems and make repairs as necessary. Provide customer notices at the end of the irrigation season advising them to adjust their irrigation system timers and irrigation schedules.

B. Implementation Schedule

a) Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 1999.

b) Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the second year following the year the agency signed or became subject to the MOU.

c) Develop ETo-based water use budgets for all accounts with dedicated irrigation meters by the end of the second reporting period from the date implementation was to commence.

d) Develop and implement a plan to target and market landscape water use surveys to CII accounts with mixed-use meters by the end of the first reporting period from the date implementation was to commence.

e) Develop and implement a customer incentive program by the end of the first reporting period from the date implementation was to commence.

C. Coverage Requirements

a) ETo-based water use budgets developed for 90% of CII accounts with dedicated irrigation meters by the end of the second reporting period from the date implementation was to commence.

b) Not less than 20% of CII accounts with mixed-use meters contacted and offered landscape water use surveys each reporting period.

c) Irrigation water use surveys completed for not less than 15% of CII accounts with mixed-use meters within 10 years of the date implementation was to commence. (Note: CII surveys that include both indoor and outdoor components can be credited against coverage requirements for both BMP 5 and BMP 9.) For the purposes of calculating coverage, 15% of CII accounts means the number of accounts equal to 15% of CII accounts with mixed-use meters in 1997 or the year the agency signed the MOU, whichever is later.

D. Requirements for Documenting BMP Implementation

Dedicated Landscape Irrigation Accounts

Agencies shall preserve water use records and budgets for customers with dedicated landscape irrigation accounts for a period of not less than two reporting periods. This information may be used by the Council to verify the agency's reporting on this BMP.

a) Number of dedicated irrigation meter accounts.

b) Number of dedicated irrigation meter accounts with water budgets.

c) Aggregate water use for dedicated landscape accounts with budgets.

d) Aggregate budgeted water use for dedicated landscape accounts with budgets.

Mixed Use Accounts

a) Number of mixed use accounts.

b) Number, type, and dollar value of incentives, rebates, and no, or low interest loans offered to, and received by, customers.

c) Number of surveys offered.

d) Number of surveys accepted.

e) Estimated annual water savings by customers receiving surveys and implementing recommendations.

E. Criteria to Determine BMP Implementation Status

a) Agency has developed water use budgets for 90% of accounts with dedicated irrigation meters by end of second reporting period from date implementation was to commence.

b) Agency has implemented irrigation water use survey program for CII accounts with mixed-use meters, and directly contacts and offers surveys to not less than 20% of accounts each reporting period. (A program to retrofit mixed-use accounts with dedicated landscape meters and assigning water use budgets, or a program giving mixed-use accounts ETo-based budgets for irrigation uses satisfies this criterion.)

c) Agency is on track to provide water use surveys to not less than 15% of CII accounts with mixed-use meters within 10 years of the date implementation was to commence. Agency may credit 100% of the number of landscape water use surveys for CII accounts with mixed-use meters completed prior to July 1, 1996, that have received a follow-up inspection against the coverage requirement; and 50% of surveys that have not received follow-up inspections. Agency may credit 100% of the number of landscape water use surveys completed for CII accounts with mixed-use meters after July 1, 1996 against the coverage requirement. (A program to retrofit mixed-use accounts with dedicated landscape accounts, or a program giving mixed-use accounts ETo-based budgets for irrigation uses satisfy this criterion.)

d) An agency will be considered on track if the percent of CII accounts with mixed-use meters receiving a landscape water use survey equals or exceeds the following: 1.5% by end of first reporting period following date implementation to commence; 3.6% by end of second reporting period; 6.3% by end of third reporting period; 9.6% by end of fourth reporting period; and 13.5% by end of fifth reporting period. (A program to retrofit mixed-use accounts with dedicated landscape accounts, or a program giving mixed-use accounts ETo-based budgets for irrigation uses satisfy this criterion.)

e) Agency has implemented and is maintaining customer incentive program(s) for irrigation equipment retrofits.

F. Water Savings Assumptions

Assume landscape surveys will result in a 15% reduction in demand for landscape uses by surveyed accounts.

6. HIGH-EFFICIENCY WASHING MACHINE REBATE PROGRAMS

(This version expires June 30, 2004)

A. Implementation

Implementation shall consist of at least the following actions:

Council Actions and Responsibilities

a) Within 6 months from the adoption of this BMP, the Council will develop interim estimates of reliable water savings attributable to the use of high-efficiency washing machines based on the results of the THELMA Study and other available data. Water purveyors may defer implementing this BMP until the Council has adopted these interim estimates. [NOTE: INTERIM ESTIMATE OF RELIABLE WATER SAVINGS ADOPTED BY COUNCIL PLENARY APRIL 8, 1998, SEE SECTION F.]

b) Within two years from the adoption of this BMP, the Council will complete studies quantifying reliable savings attributable to the use of high-efficiency washing machines.

c) At the end of two years following the adoption of this BMP, the Council will appoint a committee to evaluate the effectiveness of triggering high-efficiency washing machine financial incentive programs operated by MOU signatories with programs operated by energy service providers. This committee will consist of 2 group 1 representatives, 2 group 2 representatives, and the Council Administrator or Executive Director or his/her designee. This BMP will be modified by the appointed committee to require agencies to implement financial incentive programs for high-efficiency washing machines whenever cost-effective and regardless of the absence of a program operated by an energy service provider if the committee concludes from available evidence the following:

    i) the Council has verified that significant water savings are available from high-efficiency washing machines;

    ii) there is widespread product availability; and

    iii) financial incentive programs offered by energy service providers in California have either not materialized, been largely discontinued or significantly scaled back.

Water Purveyor Responsibilities

a) In conjunction with the Council, support local, state, and federal legislation to improve efficiency standards for washing machines.

b) If an energy service provider or waste water utility within the service territory is offering a financial incentive for the purchase of high-efficiency washing machines, then the water agency shall also offer a cost-effective financial incentive based on the marginal benefits of the water savings. Incentive levels shall be calculated by using methods found in *A Guide to Customer Incentives for Water Conservation* prepared by Barakat and Chamberlain for the CUWA, CUWCC, and US EPA, February 1994. A water purveyor is not required to implement a financial incentive program if the maximum cost-effective rebate is less than $50.

B. Implementation Schedule

a) Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 1999.

b) Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the second year following the year the agency signed or became subject to the MOU.

C. Coverage Requirements

Cost-effective customer incentive for the purchase of high-efficiency washing machine offered if incentives are being offered by local energy service providers or waste water utility.

D. Requirements for Documenting BMP Implementation

a) Customer incentives to purchase high-efficiency washing machines being offered by local energy service providers, if any.

b) Customer incentives to purchase high-efficiency washing machines being offered by agency, if any.

E. Criteria to Determine BMP Implementation Status

a) Agency has determined if energy service providers or waste water utilities operating within service territory offer financial incentives for the purchase of high-efficiency washing machines.

b) If energy service provider or waste water utility operating within agency's service territory is offering financial incentives, agency has calculated cost-effective customer incentive using methods found in *A Guide to Customer Incentives for Water Conservation* prepared by Barakat and Chamberlain for the CUWA, CUWCC, and US EPA, February 1994, and is offering this incentive to customers in service territory.

F. Water Savings Assumptions

The interim estimate of reliable annual water savings per replacement of a low-efficiency washing machine with a high-efficiency washing machine is 5,100 gallons, which is the mean yearly water savings derived from THELMA study data on water savings and washing machine load frequencies. Signatory water suppliers may use an estimate of annual water savings exceeding 5,100 gallons at their discretion, and may also select a lower estimate, so long as it is not below 4,600 gallons per year per retrofit, and there is a data supported reason for adopting an estimate lower than 5,100 gallons.

6. HIGH-EFFICIENCY CLOTHES WASHING MACHINE FINANCIAL INCENTIVE PROGRAMS

(This version adopted March 10, 2004 and effective July 1, 2004)

A. Implementation

Implementation shall consist of at least the following actions:

1. Until January 1, 2007, the water agency shall offer a financial incentive, if cost effective, for the purchase of high-efficiency clothes washing machines (HEWS) meeting a water factor value of 9.5 or less.

2. Any financial incentive offered shall be not less than the marginal benefits of the water savings, reduced by the necessary expense of administering the incentive program. Incentive levels shall be calculated by using methods found in *A Guide to Customer Incentives for Water Conservation* prepared by Barakat and Chamberlain for the CUWA, CUWCC, and US EPA, February 1994. A water agency is not required to implement a financial incentive program if the maximum cost-effective financial incentive is less than $50.

The Council shall begin to review this BMP before July 1, 2005. This review shall determine appropriate agency implementation activities after 2007. The purpose of this review is to revise this BMP to account for potential Federal and State standards, the market share of HEWs with various water factors, further advances in washer efficiency, funding partner activities, and consumer participation.

B. Implementation Schedule

1. For Agencies signing the MOU prior to July 1, 2003, implementation shall commence no later than July 1, 2004.

2. For Agencies signing the MOU or becoming subject to the MOU after July 1, 2003, implementation shall commence no later than July 1 of the second year following the year the agency signed or became subject to the MOU.

C. Coverage Requirements

Overview

The Council's objective is to transform the clothes washer market by increasing sales of HEWs. The Council anticipates this interim program will have a positive and long-lasting effect on the market share of HEWs; thus decreasing the future efforts needed by the Council and its members to achieve water efficiency in this sector.

The goal for this BMP is to at least triple the market share of HEWs purchased for use inside residential dwelling units, where no incentive program exists. For purposes of determining coverage requirements, the Council's estimates a non-incentive market share of HEWs at 12% of all clothes washing machine sales (derived from year 2000 Energy Star data). The coverage requirements are based upon the goal of increasing the market share of HEWs to thirty-six percent (36%) of all clothes washing machine sales.

Coverage Goal

The Council developed a Coverage Goal (CG) system to more easily determine coverage progress, and allow agencies to obtain additional credit for promoting the purchase of ultra high efficiency machines with water factor values of 8.5 or less. The CG is based on the total quantity of dwelling units (single-family and multi-family) in each agency's service territory. The Council chose to use the quantity of both single-family and multi-family dwelling units because US Census data on in-home clothes washing machines includes both types of dwelling units.

Agency determines its CG by the following calculation:

CG = Total Dwelling Units x 80% x 6.67% x 12% x 3 x 2.5

Where: CG = Coverage Goal
Dwelling Units = total SF and MF dwelling units in agency service territory
80% = percentage of all dwelling units with in-home clothes washers
6.67% = percentage of washers requiring replacement each year
12% = Average HEW market share when no incentives exist
3 = tripling non-incentive market share
2.5 = years of program activity from July-2004 to January-2007

Simplified Formula: CG = Total Dwelling Units x 0.048

Agencies may request an adjusted CG where US Census data or other statistically valid surveys prove that less than 80% of all dwelling units (single-family and multi-family) in their service territory include a clothes washing machine. Agencies signing the MOU after July 1, 2003, shall use a prorated CG based on implementation period of less than 2.5 years.

Coverage Points

Agency shall earn points towards its Coverage Goal for the purchase and installation of HEWs in its service territory where agency provides a financial incentive of $25 or more per HEW. In efforts to transform the market place towards ultra-high efficiency washers, agency may earn additional points for HEWs with water factor values of 8.5 or less.

1. Agency shall earn 1 point for each HEW incentive issued on or after July 1, 2004, which results in the purchase and installation of a HEW with a water factor value greater than 8.5 but not exceeding 9.5.

2. Agency shall earn 2 points for each HEW incentive issued on or after July 1, 2004 resulting in the purchase and installation of a HEW with a water factor value greater than 6.0 but not exceeding 8.5.

3. Agency shall earn 3 points for each HEW incentive issued on or after July 1, 2004 resulting in the purchase and installation of a HEW with a water factor value of 6.0 or less.

Past Credit Points

Agency shall have the option to receive points towards its Coverage Goal for past efforts (efforts prior to July 1, 2004) by one of the following methods of agency's choosing:

1. Agencies shall earn points according to point scale described above in "Coverage Points; 1, 2 and 3" for each HEW incentive issued before July 1, 2004, resulting from agency incentive program, where agency has documentation of participation. Agency shall not receive any credit for HEWs with water factors greater than 9.5. Agencies shall not receive credit for any HEW sales or installations where the agency did not materially and substantially participate in the incentive program, and agency did not provide a financial incentive of $25 or more.

OR

2. Agencies shall earn 1 point for each HEW incentive issued before July 1, 2004, resulting from agency incentive program, where agency has documentation of participation. Agencies shall not receive credit for any HEW sales or installations where the agency did not materially and substantially participate in the incentive program, and agency did not provide a financial incentive of $25 or more.

D. Requirements for Documenting BMP Implementation

1. Agency shall provide documentation for all of the following items:

   a) The quantity of single-family and multi-family dwelling units in the agency service area and the calculated Coverage Goal.

   b) The quantity and value of financial incentives issued for HEWs with water factor values greater than 8.5, but not exceeding 9.5.

c) The quantity and value of financial incentives issued HEWs with water factor values greater than 6.0 but not exceeding 8.5.

d) The quantity and value of financial incentives issued for HEWs with water factors of 6.0 or less.

e) Average or estimated administration and overhead costs to operate the program.

f) To receive credit for past programs, agency shall provide: quantity and value of financial incentives, water factor values and date of incentives issued for high-efficiency clothes washers installed before July 1, 2004.

2. Agency shall retain records of each participant of the incentive program, including: name, address and telephone number of participant; water account number of building or dwelling unit; make and model of HEW purchased; water factor value; dollar amount of the agency's financial incentive; dollar amount of program partner's financial incentive (if applicable); and name of program partner(s).

E. Criteria to Determine BMP Implementation Status

Agency is offering a financial incentive to customers in its service territory for the purchase of high-efficiency clothes washing machines with water factors of 9.5 or less, and agency is meeting the coverage requirement as stated in this BMP.

Agency shall be considered on-track to meet its coverage requirements according to the following table:

Implementation Status Schedule	
Date	Percent of Points Earned Towards Coverage Goal
January 1, 2005	10%
July 1, 2005	30%
January 1, 2006	50%
July 1, 2006	75%
January 1, 2007	100%

Agencies signing the MOU after July 1, 2003, shall have a prorated Implementation Status Schedule, based on implementation period of less than 2.5 years.

F. Water Savings Assumptions

Gross water savings (gallons) from financial incentive programs that result in the purchase and installation of High Efficiency Washing Machines with water factors equal to or less than 9.5 shall be calculated using the following formula:

$$GWS = 14 \text{ yr.} \times \sum_i N_i \times (13.3 - i) \times 1{,}170 \ \frac{\text{gal.}}{\text{yr.}}$$

Where: N_i is the number of machines replaced with water factor i (i < 9.5)

13.3 is the Baseline WF for washers sold in 1994, as supplied to DOE by the Association of Home Appliance Manufacturers (AHAM).

14 yr. is the assumed average useful life of residential washers. (Based on information from the Bern Kansas study)

1,170 gallons/year is the average change in water use for a unit change in water factor. This value was developed by the California Energy Commission.

Net water savings (gallons) from financial incentive programs shall be calculated using the following formula:

$$NWS = GWS \times (1 - FR),$$

Where: FR is the estimated rate of free ridership for the BMP 6 financial incentive program.

7. PUBLIC INFORMATION PROGRAMS

A. Implementation

Implementation shall consist of at least the following actions:

a) Implement a public information program to promote water conservation and water conservation related benefits.

b) Program should include, but is not limited to, providing speakers to employees, community groups and the media; using paid and public service advertising; using bill inserts; providing information on customers' bills showing use in gallons per day for the last billing period compared to the same period the year before; providing public information to promote water conservation practices; and coordinating with other government agencies, industry groups, public interest groups, and the media.

B. Implementation Schedule

a) Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 1998.

b) Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the first year following the year the agency signed or became subject to the MOU.

C. Coverage Requirements

Agencies shall maintain an active public information program to promote and educate customers about water conservation.

D. Requirements for Documenting BMP Implementation

a) Number of public speaking events relating to conservation during reporting period.

b) Number of media events relating to conservation during reporting period.

c) Number of paid or public service announcements relating to conservation produced or sponsored during reporting period.

d) Types of information relating to conservation provided to customers.

e) Annual budget for public information programs directly related to conservation.

E. Criteria to Determine BMP Implementation Status

Agency has implemented and is maintaining a public information program consistent with BMP 7's definition.

F. Water Savings Assumptions

Not quantified.

8. SCHOOL EDUCATION PROGRAMS

A. Implementation

Implementation shall consist of at least the following actions:

a) Implement a school education program to promote water conservation and water conservation related benefits.

b) Programs shall include working with school districts and private schools in the water suppliers' service area to provide instructional assistance, educational materials, and classroom presentations that identify urban, agricultural, and environmental issues and conditions in the local watershed. Education materials shall meet the state education framework requirements, and grade appropriate materials shall be distributed to grade levels K-3, 4-6, 7-8, and high school.

B. Implementation Schedule

a) Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 1998.

b) Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the first year following the year the agency signed or became subject to the MOU.

C. Coverage Requirements

Agencies shall maintain an active school education program to educate students in the agency's service areas about water conservation and efficient water uses.

D. Requirements for Documenting BMP Implementation

a) Number of school presentations made during reporting period.

b) Number and type of curriculum materials developed and/or provided by water supplier, including confirmation that curriculum materials meet state education framework requirements and are grade-level appropriate.

c) Number of students reached.

d) Number of in-service presentations or teacher's workshops conducted during reporting period.

e) Annual budget for school education programs related to conservation.

E. Criteria to Determine BMP Implementation Status

Agency has implemented and is maintaining a school education program consistent with BMP 8's definition.

F. Water Savings Assumptions

Not quantified.

9. CONSERVATION PROGRAMS FOR COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL (CII) ACCOUNTS

A. Implementation

Implementation shall consist of at least the following actions:

BOTH (a) AND (b)

(a) **CII Accounts**

Identify and rank commercial, industrial, and institutional (CII) accounts (or customers if the agency chooses to aggregate accounts) according to water use. For purposes of this BMP, CII accounts are defined as follows:

Commercial Accounts: any water use that provides or distributes a product or service, such as hotels, restaurants, office buildings, commercial businesses or other places of commerce. These do not include multi-family residences, agricultural users, or customers that fall within the industrial or institutional classifications.

Industrial Accounts: any water users that are primarily manufacturers or processors of materials as defined by the Standard Industrial Classifications (SIC) Code numbers 2000 through 3999.

Institutional Accounts: any water-using establishment dedicated to public service. This includes schools, courts, churches, hospitals, and government facilities. All facilities serving these functions are to be considered institutions regardless of ownership.

(b) **3-Year Interim CII ULFT Program**

Implementation shall consist of at least the following actions:

i) A program to accelerate replacement of existing high-water-using toilets with ultra-low- flush (1.6 gallons or less) toilets in commercial, industrial, and institutional facilities.

ii) *Programs shall be at least as effective as facilitating toilet replacements over a 3-year implementation period, commencing July 1, 2001, sufficient to produce cumulative water savings over 10 years equal to 3% of Total Water Savings Potential, as defined by Exhibit 8 of this MOU.*

iii) Annual reporting to the Council of all available information described in Section D, subsection (b) of this BMP. The Council shall develop and provide agencies with a concise reporting form by March 31, 2001.

iv) By July 1, 2004, a committee selected by the Steering Committee shall complete for submittal to the Steering Committee a written evaluation of the interim program, including an assessment of program designs, obstacles to implementation, program costs, estimated water savings, and cost-effectiveness. By August 2004, the Steering Committee will reconvene to review the evaluation and recommend to the Plenary the next course of action on BMP 9 targets for CII toilet replacement programs.

AND EITHER (c) OR (d)

(c) **CII Water-Use Survey and Customer Incentives Program**

Implement a CII Water-Use Survey and Customer Incentives Program. Develop a customer targeting and marketing strategy to provide water use surveys and customer incentives to CII accounts such that 10% of each CII sector's accounts are surveyed within 10 years of the date implementation is to commence. Directly contact (via letter, telephone, or personal visit) and offer water use surveys and customer incentives to at least 10% of each CII sector on a repeating basis. Water use surveys must include a site visit, an evaluation of all water-using apparatus and processes, and a customer report identifying recommended efficiency measures, their expected payback period and available agency incentives. Within one year of a completed survey, follow-up via phone or site visit with customer regarding facility water use and water saving improvements. Track customer contacts, accounts (or customers) receiving surveys, follow-ups, and measures implemented. The method for crediting water use surveys completed prior to the revision of this BMP is described in Section E.

(d) **CII Conservation Performance Targets**

Achieve a water use reduction in the CII sectors equaling or exceeding the CII Conservation Performance Target. Implement programs to achieve annual water use savings by CII accounts by an amount equal to 10% of the baseline use of CII accounts in the agency's service area over a ten-year period. The target amount of annual water use reduction in CII accounts is a static value calculated from the baseline amount of annual use. Baseline use is defined as the use by CII accounts in 1997. Water purveyors may justify to the Council the use of an alternative baseline year.

B. Implementation Schedule

(a) For agencies signing the MOU prior to December 31, 1997, implementation other than CII ULFTs shall commence no later than July 1, 1999. Implementation of Section A (b) --CII ULFTs -- shall commence July 1, 2001.

(b) For agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation other than the 3-Year Interim CII ULFT Program shall commence no later than July 1 of the second year following the year the agency signed or became subject to the MOU. Implementation of Section A (b) -- CII ULFTs -- shall commence July 1, 2001. Agencies signing the MOU or becoming subject to the MOU after July 1, 2001 shall not be subject to the Coverage Requirements set forth in Section C, subsection (a) -- 3-Year Interim CII ULFT Program.

(c) The coverage requirement for this BMP, as specified in Section C of this Exhibit, with the exception of CII ULFTs, shall be realized within10 years of the date implementation was to commence.

C. Coverage Requirements

(a) **3-Year CII ULFT Program**

CII ULFT program water savings equal to 3% of Total Water Savings Potential, as defined by Exhibit 8 of this MOU, by July 1, 2004.

EITHER

(b) **CII Water Use Survey and Customer Incentives Program**

10% of each of the CII sector's accounts to accept a water use survey within 10 years of the date implementation is to commence. For the purposes of calculating coverage, 10% of CII accounts means the number of accounts equal to 10% of CII accounts in 1997 or the year the agency signed the MOU, whichever is later.

OR

(c) **CII Conservation Performance Targets**

Reduce annual water use by CII accounts by an amount equal to 10% of the annual baseline water use within 10 years of the date implementation is to commence, including savings resulting from implementation of section A (b) -- CII ULFTs.

D. Requirements for Documenting BMP Implementation

(a) **CII Accounts**

The number of accounts (or customers) and amount of water use within each of the CII sectors.

(b) **3-Year Interim CII ULFT Replacement Program**

(1) Customer participant information, including retail water utility account ID's, primary contact information, facility address, facility type, number of toilets being replaced, number of toilets in facility (if available), primary reasons for toilet replacement and program participation (if available).

(2) Number of CII ULFTs replaced or distributed by CII sub sector by year.

(3) Total program cost by year, including administration and overhead, labor (staff salaries and benefits), marketing, outside services, incentives, and implementation (agency installation, rebate, permitting and remedial costs), and any required evaluation and reporting by the Council. Costs for program development and program operation shall be reported separately.

(4) Total program budget by year.

(5) Program funding sources by year, including intra-agency funding mechanisms, inter-agency cost-sharing, and state/federal financial assistance sources.

(6) Description of program design and implementation, such as types of incentives, marketing, advertising methods and levels, customer targeting methods, customer contact methods, use of outside services (e.g., consultants or community-based organizations), and participant tracking and follow up.

(7) Description of program acceptance or resistance by customers, any obstacles to implementation, and other issues affecting program implementation or effectiveness.

(8) General assessment of program effectiveness.

AND EITHER (c) OR (d)

(c) **CII Water Use Survey and Customer Incentives Program**

1) The number of CII accounts (or customers) offered water use surveys during the reporting period.

2) The number of new water use surveys completed during the reporting period.

3) The number of follow-ups completed during the reporting period.

4) The type and number of water saving recommendations implemented.

5) Agency's program budget and actual program expenditures.

(d) **CII Conservation Performance Target**

The estimated reduction in annual water use for all CII accounts due to agency programs, interventions, and actions. Agencies must document how savings were realized and the method and calculations for estimating savings, including the savings resulting from agency-assisted CII ULFTs replacements under section A (b).

E. Criteria to Determine BMP Implementation Status

(a) **CII Accounts**

Agency has identified and ranked by water use its CII accounts.

(b) **CII ULFTs**

Agency is on schedule to meet the coverage requirement for section A (b) within 3 years of the start of implementation. An agency will be considered on track if by the end of the first year of implementation the 10-year cumulative water savings equals or exceeds 0.5% of Total Savings Potential; by the end of the second year of implementation the 10-year cumulative water savings equals 1.5% of Total Savings Potential; and by the end of the third year of implementation the 10-year cumulative water savings equals or exceeds 3.0% of Total Savings Potential.

During the 3-year interim implementation period, cumulative savings from CII ULFT replacement programs occurring prior to January 1, 2001, may not be applied towards the interim coverage requirement. However, cumulative savings from *all* previous agency CII ULFT replacement programs may be applied toward any long-term CII ULFT coverage requirement.

AND EITHER (c) OR (d) OR (e)

(c) **CII Water Use Survey and Customer Incentives Program**

1) Agency has developed and implemented a strategy targeting and marketing water use surveys to CII accounts (or customers) by the end of the first reporting period following the date implementation is to commence.

2) Agency is on schedule to complete surveys for 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of the date implementation is to commence. Agencies may credit 50% of the number of surveys completed prior to July 1, 1996 that have not received follow-up verification of implementation, and 100% of the number of surveys completed prior to July 1, 1996 that have received a follow-up survey. Agencies may credit 100% of the number of surveys completed after July 1, 1996 against the coverage requirement.

3) Agencies will be considered on track if the percent of CII accounts receiving a water use survey, in aggregate, equals or exceeds the following: 0.5% of the total number of surveys required by end of first reporting period following date implementation is to commence; 2.4% by end of second reporting period; 4.2% by end of third reporting period; 6.4% by end of fourth reporting period; and 9.0% by end of fifth reporting period.

(d) **CII Conservation Performance Targets**

1) Agency is on schedule to reduce water use by CII accounts by an amount equal to 10% of baseline use (as defined in Section A) for CII accounts within 10 years of the date implementation is to commence.

2) Agencies will be considered on track if estimated savings as a percent of baseline water use equals or exceeds the following: 0.5% by end of first reporting period following date implementation is to commence; 2.4% by end of second reporting period; 4.2% by end of third reporting period; 6.4% by end of fourth reporting period; and 9.0% by end of fifth reporting period.

3) Credited water savings must be realized through agency actions performed to increase water use efficiency within the CII sector. Agencies may credit 100% of estimated annual savings of interventions since 1991 that have been site verified, and 25% of estimated annual savings of interventions that have not been site verified.

4) Agencies may claim the estimated savings for regulations, ordinances, or laws intended to increase water use efficiency by the CII sector, subject to the review and approval of the savings estimates by the Council. To avoid double counting, agencies justifying savings on the basis of rate structure

changes may not claim savings from any other actions undertaken by CII customers, third parties, or the agency.

(e) Combined Targets

Agencies may choose different tracks for different CII sectors, and will be considered in compliance with this BMP if they are on track to meet each applicable coverage requirement for each sector. In addition, agencies may implement both tracks for a given CII sector, and will be considered in compliance with this BMP if the percent of surveys completed and the percent of water savings realized, when added together, equals or exceeds the applicable compliance requirement. For example, at the end of the second reporting cycle an agency would be considered on track to meet the coverage requirement if the percent of surveys completed and the percent of water savings achieved, when added together, equaled or exceeded 2.4%. Agencies may combine tracks only if they make a convincing demonstration that savings attributable to counted surveys are not also included in their estimate of water savings for meeting the water savings performance track.

F. Water Savings Assumptions

Commercial water reduction results from Best Management Practices such as Interior and Landscape Water Surveys, Plumbing Codes, and Other Factors (Includes savings accounted for in other BMPs.) Estimated reduction in gallons per employee per day in year 2000 use occurring over the period 1980-2000: 12%.

Industrial water reduction results from Best Management Practices, Waste Discharge Fee, New Technology, Water Surveys, Plumbing Codes and Other Factors (Includes savings accounted for in other BMPs.) Estimated reduction in gallons per employee per day in year 2000 use occurring over the period 1980-2000: 15%.

10. WHOLESALE AGENCY ASSISTANCE PROGRAMS

(Version adopted March 10, 2004 and effective July 1, 2004)

A. Implementation

Implementation shall consist of at least the following actions:

Financial Support

1. Wholesale water suppliers will provide financial incentives, or equivalent resources, as appropriate, beneficial, and mutually agreeable to their retail water agency customers to advance water conservation efforts and effectiveness.

2. All BMPs implemented by retail water agency customers that can be shown to be cost-effective in terms of avoided cost of water from the wholesaler's perspective, using Council cost-effectiveness analysis procedures, will be supported.

Technical Support

Wholesale water agencies shall provide conservation-related technical support and information to all retail agencies for whom they serve as a wholesale supplier. At a minimum this requires:

3. Conducting, funding or promoting workshops addressing the following topics:

   a) Council procedures for calculating program savings, costs and cost-effectiveness;

   b) Retail agencies' BMP implementation reporting requirements; and

   c) The technical, programmatic, strategic or other pertinent issues and developments associated with water conservation activities in each of the following areas: ULFT replacement; residential retrofits; commercial, industrial and institutional surveys; residential and large turf irrigation; and conservation-related rates and pricing.

4. Having the necessary staff or equivalent resources available to respond to retail agencies' technical and programmatic questions involving the Council's BMPs and their associated reporting requirements.

Program Management

Wholesale and retail agencies will retain maximum local flexibility in designing and implementing locally cost-effective BMP conservation programs. Cooperatively designed regional programs are encouraged.

5. When mutually agreeable and beneficial, the wholesaler may operate all or any part of the conservation-related activities which a given retail supplier is obligated to implement under the BMP's cost-effectiveness test. The inability or unwillingness of the wholesaler to perform this function, however, in no way relieves or reduces the retailer's obligation to fully satisfy the requirements of all BMPs which are judged cost-effective from the retailer's perspective.

Water Shortage Allocations

6. Wholesale agencies shall work in cooperation with their customers to identify and remove potential disincentives to long-term conservation created by water shortage allocation policies; and to identify opportunities to encourage and reward cost-effective investments in long-term conservation shown to advance regional water supply reliability and sufficiency.

B. Implementation Schedule

1. Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 1999.

2. Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the second year following the year the agency signed or became subject to the MOU.

C. Coverage Requirements

1. Cost-effectiveness assessments completed for each BMP the wholesale agency is potentially obligated to support. The methodology used will conform to Council standards and procedures, and the information reported will be sufficient to permit independent verification of the cost-effectiveness calculations and of any exemptions claimed on cost-effectiveness grounds. Any subset of the BMPs being directly implemented by a wholesale agency will be reported.

   All other BMPs supportable by the retailers located in a wholesaler's service area will be considered for financial and technical support, and will be dependent on agreement between the wholesaler and its retailers.

2. Agency avoided cost per acre-foot of new water supplies. The methodology used will conform to Council standards and procedures, and the information reported will be sufficient to permit independent verification of the avoided cost calculations.

3. The total monetary amount of financial support, incentives, staff support and equivalent resources provided to retail members to assist, or to otherwise support, the implementation of BMPs.

4. The total amount of verified water savings achieved by each wholesaler-assisted BMP.

5. At each reporting cycle, wholesale agencies shall provide a written offer of support to each of their retailers, and request a response from each retailer. Verification of such offers and responses shall be submitted to the Council at each regular reporting cycle via the “notes” section in the BMP reporting database.

   It is recognized that wholesale agencies have limited control over retail agencies that they serve, and must act in cooperation with those retail agencies on implementation of BMPs. Thus, wholesale agencies cannot be held responsible for levels of implementation by individual retailers in their wholesale service areas.

6. Wholesale agencies will receive full credit and acknowledgement for previous BMP implementation.

D. Requirements for Documenting BMP Implementation

1. The total monetary amount of financial incentives and equivalent resources provided to retail members to assist, or to otherwise support, the implementation of BMPs, subtotaled by BMP.

2. The total amount of verified water savings achieved by each wholesaler-assisted BMP.

E. Criteria to Determine BMP Implementation Status

1. Timely and complete reporting of all information as provided for above under "Reporting and Record Keeping Requirements."

2. Offering workshops covering all topics listed above under "Technical Support."

3. Timely reconciliation of wholesaler and retailer BMP reports as provided for above under "BMP Reporting."

F. Water Savings Assumptions

Not quantified. Wholesalers shall use the Council's Cost and Savings Document to assess the total amount of water savings achieved by each wholesaler-supported BMP.

11. CONSERVATION PRICING

A. Implementation

Implementation methods shall be at least as effective as eliminating non-conserving pricing and adopting conserving pricing. For signatories supplying both water and sewer service, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make good faith efforts to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.

a) Non-conserving pricing provides no incentives to customers to reduce use. Such pricing is characterized by one or more of the following components: rates in which the unit price decreases as the quantity used increases (declining block rates);rates that involve charging customers a fixed amount per billing cycle regardless of the quantity used; pricing in which the typical bill is determined by high fixed charges and low commodity charges.

b) Conservation pricing provides incentives to customers to reduce average or peak use, or both. Such pricing includes: rates designed to recover the cost of providing service; and billing for water and sewer service based on metered water use. Conservation pricing is also characterized by one or more of the following components: rates in which the unit rate is constant regardless of the quantity used (uniform rates) or increases as the quantity used increases (increasing block rates); seasonal rates or excess-use surcharges to reduce peak demands during summer months; rates based upon the longrun marginal cost or the cost of adding the next unit of capacity to the system.

c) Adoption of lifeline rates for low income customers will neither qualify nor disqualify a rate structure as meeting the requirements of this BMP.

CUWCC Rate Impact Study

Within one year of the adoption of this BMP revision, the Council shall undertake a study to determine the relative effect of conservation rate structure influence on landscape and indoor water use. The study shall develop sample areas that incorporate varying rate structure environments (e.g., low, uniform commodity rates,; high uniform commodity rates; increasing block rates, etc.). As practical, the study shall utilize direct metering of customer end uses, and shall control for weather, climate, land use patterns, income, and other factors affecting water use patterns. If the study shows significant potential savings, as determined by a balanced committee of voting Council representatives, a revised pricing BMP containing numeric targets or other appropriate standards shall be developed for a Council vote.

B. Implementation Schedule

a) Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 1998.

b) Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the first year following the year the agency signed or became subject to the MOU.

C. Coverage Requirements

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing.

D. Requirements for Documenting BMP Implementation

a) Report annual revenue requirement by customer class for the reporting period.

b) Report annual revenue derived from commodity charges by customer class for the reporting period.

c) Report rate structure by customer class for water service and sewer service if provided.

E. Criteria to Determine BMP Implementation Status

Agency rate design shall be consistent with the BMP 11's definition of conservation pricing.

F. Water Savings Assumptions

Not quantified.

12. CONSERVATION COORDINATOR

A. Implementation

Implementation shall consist of at least the following actions:

a) Designation of a water conservation coordinator and support staff (if necessary), whose duties shall include the following:

   i) Coordination and oversight of conservation programs and BMP implementation;

   ii) Preparation and submittal of the Council BMP Implementation Report;

   iii) Communication and promotion of water conservation issues to agency senior management; coordination of agency conservation programs with operations and planning staff; preparation of annual conservation budget; participation in the Council, including regular attendance at Council meetings; and preparation of the conservation elements of the agency's Urban Water Management Plan.

b) Agencies jointly operating regional conservation programs are not expected to staff duplicative and redundant conservation coordinator positions.

B. Implementation Schedule

a) Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 1998.

b) Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the first year following the year the agency signed or became subject to the MOU.

C. Coverage Requirements

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

D. Requirements for Documenting BMP Implementation

a) Conservation Coordinator name, staff position, and years on job.

b) Date Conservation Coordinator position created by agency.

c) Number of Conservation Coordinator staff.

d) Duties of Conservation Coordinator and staff.

E. Criteria to Determine BMP Implementation Status

a) Creating and staffing a Conservation Coordinator position within the agency organization.

b) Providing the Conservation Coordinator with the necessary resources to implement cost-effective BMPs and prepare and submit Council BMP Implementation Reports.

F. Water Savings Assumptions

Not quantified.

13. WATER WASTE PROHIBITION

A. Implementation

Implementation methods shall be enacting and enforcing measures prohibiting gutter flooding, single pass cooling systems in new connections, non-recirculating systems in all new conveyer car wash and commercial laundry systems, and non-recycling decorative water fountains.

Signatories shall also support efforts to develop state law regarding exchange-type water softeners that would: (1) allow the sale of only more efficient, demand-initiated regenerating (DIR) models; (2) develop minimum appliance efficiency standards that (a) increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used; and (b) implement an identified maximum number of gallons discharged per gallon of soft water produced; (3) allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply.

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

B. Implementation Schedule

a) Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 1998.

b) Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the first year following the year the agency signed or became subject to the MOU.

C. Coverage Requirements

Agency shall adopt water waste prohibitions consistent with the provisions for this BMP specified in Section A of this Exhibit.

D. Requirements for Documenting BMP Implementation

Description of water waste prohibition ordinances enacted in service area.

E. Criteria to Determine BMP Implementation Status

Agency's water waste prohibition ordinances meet the requirements of the BMP definition.

F. Water Savings Assumptions

Not quantified.

14. RESIDENTIAL ULFT REPLACEMENT PROGRAMS

A. Implementation

Implementation shall consist of at least the following actions:

a) Implementation of programs for replacing existing high-water-using toilets with ultra-low- flush (1.6 gallons or less) toilets in single-family and multi-family residences.

b) Programs shall be at least as effective as requiring toilet replacement at time of resale; program effectiveness shall be determined using the methodology for calculating water savings in Exhibit 6 of this MOU.

After extensive review, on July 30 1992, the Council adopted Exhibit 6, "ASSUMPTIONS AND METHODOLOGY FOR DETERMINING ESTIMATES OF RELIABLE WATER SAVINGS FROM THE INSTALLATION OF ULF TOILETS." Exhibit 6 provides a methodology for calculating the level of effort required to satisfy BMP 14.

B. Implementation Schedule

a) Agencies signing the MOU prior to December 31, 1997, implementation shall commence no later than July 1, 1998.

b) Agencies signing the MOU or becoming subject to the MOU after December 31, 1997, implementation shall commence no later than July 1 of the first year following the year the agency signed or became subject to the MOU.

c) The coverage requirement for this BMP, as specified in Section C of this Exhibit, shall be realized within 10 years of the date implementation was to commence.

C. Coverage Requirements

Water savings from residential ULFT replacement programs to equal or exceed water savings achievable through an ordinance requiring the replacement high-water-using toilets with ultra-low-flow toilets upon resale, and taking effect on the date implementation of this BMP was to commence and lasting ten years.

D. Requirements for Documenting BMP Implementation

a) The number of single-family residences and multi-family units in service area constructed prior to 1992.

b) The average number of toilets per single-family residence; the average number of toilets per multi-family unit.

c) The average persons per household for single-family residences; the average persons per household for multi-family residences.

d) The housing resale rate for single-family residences in service area; the housing resale rate for multi-family residences in service area.

e) The number of ULFT installations credited to the agency's replacement program, by year.

f) Description of ULFT replacement program

g) Estimated cost per ULFT replacement.

h) Estimated water savings per ULFT replacement

E. Criteria to Determine BMP Implementation Status

Calculated ULFT replacement program water savings at the end of each reporting period are within 10% of calculated retrofit-on-resale water savings, using Exhibit 6 methodology and water savings estimates.

F. Water Savings Assumptions

See Exhibit 6.

EXHIBIT 1

POTENTIAL BEST MANAGEMENT PRACTICES

This section contains Potential Best Management Practices (PBMPs) that will be studied. Where appropriate, demonstration projects will be carried out to determine if the practices meet the criteria to be designated as BMPs. Within one year of the initial signing of this MOU, the Council will develop and adopt a schedule for studies of these PBMPs.

1. Rate Structure and other Economic Incentives and Disincentives to Encourage Water Conservation.

This is the top priority PBMP to be studied. Such studies should include seasonal rates; increasing block rates; connection fee discounts; grant or loan programs to help finance conservation projects; financial incentives to change landscapes; variable hookup fees tied to landscaping; and interruptible water service to large industrial, commercial or public customers. Studies on this PBMP will be initiated within 12 months from the initial signing of the MOU. At least one of these studies will include a pilot project on incentives to encourage landscape water conservation.

2. Efficiency Standards for Water Using Appliances and Irrigation Devices

3. Replacement of Existing Water Using Appliances (Except Toilets and Showerheads Whose Replacements are Incorporated as Best Management Practices) and Irrigation Devices.

4. Retrofit of Existing Car Washes.

5. Graywater Use

6. Distribution System Pressure Regulation.

7. Water Supplier Billing Records Broken Down by Customer Class

8. Swimming Pool and Spa Conservation including Covers to Reduce Evaporation

9. Restrictions or Prohibitions on Devices that use Evaporation to Cool Exterior Spaces.

10. Point of Use Water Heaters, Recirculating Hot Water Systems and Hot Water Pipe Insulation.

11. Efficiency Standards for New Industrial and Commercial Processes.

APPENDIX F

Olivenhain Municipal Water District's Best Management Practices Reports

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2001**

A. Implementation

1. Based on your signed MOU date, 09/05/1991, your Agency STRATEGY DUE DATE is:	09/04/1993
2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys?	yes
a. If YES, when was it implemented?	7/1/1995
3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys?	yes
a. If YES, when was it implemented?	7/1/1995

B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	3018	49
2. Number of surveys completed:	26	0
Indoor Survey:		
3. Check for leaks, including toilets, faucets and meter checks	yes	yes
4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	yes	yes
5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary	yes	yes
Outdoor Survey:		
6. Check irrigation system and timers	yes	yes
7. Review or develop customer irrigation schedule	yes	yes
8. Measure landscaped area (Recommended but not required for surveys)	yes	yes
9. Measure total irrigable area (Recommended but not required for surveys)	yes	yes
10. Which measurement method is typically used (Recommended but not required for surveys)		Pacing
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	yes	yes
12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?	yes	yes
a. If yes, in what form are surveys tracked?		database
b. Describe how your agency tracks this information.		

Contractor tracks number of surveys through database. We offer surveys through bill messages, newsletter articles, flyers in lobby and events, recomendations through customer service calls and direct mailing to top 20%water users.

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	2698	2049
2. Actual Expenditures	600	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Reported as of 10/1

BMP 02: Residential Plumbing Retrofit

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2001**

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? yes
3. Estimated percent of single-family households with low-flow showerheads: 75%
4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? yes
5. Estimated percent of multi-family households with low-flow showerheads: 75%
6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

   The San Diego County Water Authority and its member agencies distributed over 500,000 showerheads between 1991 and 2002. The average rate of natural replacemebnt is 4.0%, while housing demolition is .5%. Effective January 1, 1994, showerheads manufactured in the United States must be 2.5 gpm maximum. OMWD continues to distribute showerheads in its lobby and at community events. This year it distributed 102.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes

   a. If YES, when did your agency begin implementing this strategy? 1/1/1996

   b. Describe your targeting/ marketing strategy.

   Marketing includes the following: - residential survey distribution - direct distribution to customers (lobby) - community event distribution - by customer request

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	102	0
3. Number of toilet-displacement devices distributed:	30	0
4. Number of toilet flappers distributed:	7	0
5. Number of faucet aerators distributed:	500	0

6. Does your agency track the distribution and cost of low-flow devices? no

   a. If YES, in what format are low-flow devices tracked?

   b. If yes, describe your tracking and distribution system :

We distribute devices purchased or left over from the previous year at community events and in our lobby throughout the year, but do not ask customers if they are single or multi-family so I have put all devices under single-family. We also do not monitor how many each customer takes. We simply restock every year on items such as hose nozzles, aerators, showerheads, dye tablets, rain gauges and sprinkler timers. I also was able to take showerheads from SDCWA and the City of Escondido. Whatever amount I receive is what we distribute. This year I found a box from the past that I used at a community event.

C. Low-Flow Device Distribution Expenditures

	This Year	Next Year
1. Budgeted Expenditures	700	1000
2. Actual Expenditures	709.94	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

SDCWA and its member agencies believe the region has satisfied the 75% saturation level and is pursuing grant money to fund a saturation study. OMWD continues to distribute showerheads and other devices.

E. Comments

Reported as of 10/1

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2001**

A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year?	yes
2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:	
a. Determine metered sales (AF)	18036
b. Determine other system verifiable uses (AF)	0
c. Determine total supply into the system (AF)	18586
d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required.	0.97
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production?	yes
4. Did your agency complete a full-scale audit during this report year?	no
5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit?	yes
6. Does your agency operate a system leak detection program?	yes

a. If yes, describe the leak detection program:

The District uses a leak detection engineering firm to investigate suspected leaks, pinpoint the source and repair immediately. With our soils, even small water leaks manifest as all water comes to the top. We have such small water loss in the system that there is no cost benefit to perform another full audit.

B. Survey Data

1. Total number of miles of distribution system line.	318
2. Number of miles of distribution system line surveyed.	318

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	3000	3000
2. Actual Expenditures	2225.4	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Reported as of 10/1

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2001**

A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use? yes

2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? no

   a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed?

   b. Describe the program:

   Since OMWD was formed, all customers of the District have metered accounts and are billed by volume-of-use. We retrofit on a case by case basis.

3. Number of previously unmetered accounts fitted with meters during report year. 0

B. Feasibility Study

1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? no

   a. If YES, when was the feasibility study conducted? (mm/dd/yy)

   b. Describe the feasibility study:

2. Number of CII accounts with mixed-use meters. 20

3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. 0

C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

   a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

OMWD only installs landscape meters at the customer's request. All meters are billed by volume of use. We are mostly residential with few commercial meters.

Reported as of 10/1

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2001**

A. Water Use Budgets

1. Number of Dedicated Irrigation Meter Accounts:	503
2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:	0
3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):	0
4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):	0
5. Does your agency provide water use notices to accounts with budgets each billing cycle?	no

B. Landscape Surveys

1. Has your agency developed a marketing / targeting strategy for landscape surveys?	yes
a. If YES, when did your agency begin implementing this strategy?	8/10/1990

b. Description of marketing / targeting strategy:

Our contractor prescreens potential customers by reviewing usage data records and comparing typical patterns of other industry or SIC water usage. Customers that exhibit unusaully high water usage relative to the size of the property are sent a letter and a program brochure, inviting them to participate in the program. Dispersal of brochures to a variety of candidates, home owner's associations as well as large turf customers. Customers actually refer others to the program. All new customers are offered a survey.

2. Number of Surveys Offered.	100
3. Number of Surveys Completed.	4
4. Indicate which of the following Landscape Elements are part of your survey:	
a. Irrigation System Check	yes
b. Distribution Uniformity Analysis	yes
c. Review / Develop Irrigation Schedules	yes
d. Measure Landscape Area	yes
e. Measure Total Irrigable Area	yes
f. Provide Customer Report / Information	yes
5. Do you track survey offers and results?	yes
6. Does your agency provide follow-up surveys for previously completed surveys?	yes

a. If YES, describe below:

All customers receive an offer for a follow-up survey.

C. Other BMP 5 Actions

1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program.	no

Does your agency provide mixed-use accounts with landscape budgets?

2. Number of CII mixed-use accounts with landscape budgets. 0

3. Do you offer landscape irrigation training? yes

4. Does your agency offer financial incentives to improve landscape water use efficiency? yes

Type of Financial Incentive:	Budget (Dollars/ Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates	0	0	0
b. Loans	0	0	0
c. Grants	0	0	0

5. Do you provide landscape water use efficiency information to new customers and customers changing services? yes

a. If YES, describe below:

New customer mailings include all conservation programs. Offer new customers use of videos Include article in customer newsletter. Water Awareness Month celebration advertising. Press releases to various newspapers.

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? yes

7. Do you provide customer notices at the start of the irrigation season? yes

8. Do you provide customer notices at the end of the irrigation season? yes

D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	1500	1000
2. Actual Expenditures	1325	

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

F. Comments

Reported as of 10/1

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2001

A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? yes

   a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

   San Diego Gas & Electric provided $75 rebates on qualified high-efficiency clothes washers in their service area.

2. Does your agency offer rebates for high-efficiency washers? yes
3. What is the level of the rebate? 125
4. Number of rebates awarded. 44

B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	1525	3266
2. Actual Expenditures	1100	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

   a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

This agency provides vouchers and not rebates.

Reported as of 10/1

BMP 07: Public Information Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2001

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

On-hold telephone message, website, newsletter, bill messages, video library available, landscaping classes held at the District, lobby brochures and giveaways, press releases, speaker's bureau, and community events and meetings are all a part of our program.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	no	0
b. Public Service Announcement	yes	1
c. Bill Inserts / Newsletters / Brochures	yes	8
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	no	
f. Special Events, Media Events	yes	3
g. Speaker's Bureau	yes	3
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	30000	33000
2. Actual Expenditures	30850	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

SDCWA has a regional program that includes: advertising in local newspapers Public Service Announcements (PSA) Demonstration garden Community Events Monthly Public Information Officer's Meeting Speaker's Bureau Water Awareness Month Regional Recycled Water Certification Workshops

Reported as of 10/1

BMP 08: School Education Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2001

A. Implementation

1.Has your agency implemented a school information program to promote water conservation? yes

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	yes	0	0	0
Grades 4th-6th	yes	9	229	0
Grades 7th-8th	yes	3	76	0
High School	yes	0	0	0

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 9/9/1990

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	3000	2000
2. Actual Expenditures	1060	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

OMWD brinsg the Splash Science Mobile Lab to schools within its district. It provides classroom presentations for all ages. Lessons are given at its recreational park. It takes part in a water awareness campaign for San Diego's North County. It participates in the CSDA scholarship for high school seniors. It provides adult education classes on landscaping and conservation. SDCWA provides educational programs including magic shows, traveling libraries, and experiments for teachers to use.

Reported as of 10/1

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2001**

A. Implementation

1. Has your agency identified and ranked COMMERCIAL customers according to use?	yes
2. Has your agency identified and ranked INDUSTRIAL customers according to use?	yes
3. Has your agency identified and ranked INSTITUTIONAL customers according to use?	yes

Option A: CII Water Use Survey and Customer Incentives Program

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option?	no

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	0	0	0
b. Number of New Surveys Completed	0	0	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	no	no	no
f. Evaluation of all water-using apparatus and processes	no	no	no
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	no	no	no

Agency CII Customer Incentives	Budget ($/Year)	No. Awarded to Customers	Total $ Amount Awarded
h. Rebates	0	0	0
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	0	0	0

Option B: CII Conservation Program Targets

5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option?	yes
6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	yes
7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991.	21.94
8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991.	0

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	600	641
2. Actual Expenditures	641	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

OMWD takes part in the regional program through SDCWA. It markets the programs through newsletters, bill messages and at community events.

Reported as of 10/1

BMP 09a: CII ULFT Water Savings

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2001**

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10. — Yes

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.
   - Service area zones
   - CII Sector or subsector

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

   Our CII voucher incentive program contractor, HDMC has been a significant player in the promotion of water-efficient products in San Diego County. Working in cooperation wiht WSA marketing and communicaitons firm, HDMC has conducted extensive educaiton, outreach, public relations, advertising and direct marketing activities. HDMC have created relationships wiht the owners, maanagers and related customer service sdupervisors and staff and watre-efficient product suppliers from valley Cenetr to San Yisidro for the past five years. Partnerships have been established wiht business owners, as well as employees at wholesale and retail supliers. Understanding fo supplier's business profiles, sales operations and accoutnign policies and procedures are key to the success of the program. Working relatiuonships and/or quality data has been gathered on over 200 plumbers. Dealers soign contracts each year in order to participate in a program that is responsible for increasing their sales substantially.

2. How does your agency advertise this program? Check all that apply.
   - Bill insert
   - Bill message
   - Newsletter
   - Telephone
   - Web page
   - Newspapers
   - Trade publications
   - Other print media
   - Trade shows and events

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

   Reationships with the retail/wholesale outlets displaying marketing materials and knowing the program details. Adds in newspapers are also effective.

B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) — Yes

2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? — Yes

3. What is the total number of customer accounts participating in the program during the last year ? 5

CII Subsector	Number of Toilets Replaced			
4.	Standard Gravity Tank	Air Assisted	Valve Floor Mount	Valve Wall Mount
a. Offices	0	0	0	0
b. Retail / Wholesale	4	0	0	0
c. Hotels	0	0	0	0
d. Health	0	0	0	0
e. Industrial	0	0	0	0
f. Schools: K to 12	0	0	0	0
g. Eating	1	0	0	0
h. Govern-ment	0	0	0	0
i. Churches	0	0	0	0
j. Other	0	0	0	0

5. Program design.

Rebate or voucher

6. Does your agency use outside services to implement this program? Yes

a. If yes, check all that apply.

Consultant
Plumbing contractors/subcontracts

7. Participant tracking and follow-up.

Letter
Telephone
Site Visit

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

a. Disruption to business	4
b. Inadequate payback	5
c. Inadequate ULFT performance	3
d. Lack of funding	5
e. American's with Disabilities Act	2
f. Permitting	2
g. Other. Please describe in B. 9.	0

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

The Regional CII voucher Incentive Program continues to incraese in popularity in the San Diego region. Extensive marketing by our contractor, coupled wiht member agnecy support, has proven successful.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

Contrator does a great job in marketing. District does not have adequate staff to market the program at teh agency level. Woudl like to incraese involvement, althoguht the majority of our Distrcit is single-family homes.

C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor	0	0
b. Materials	0	0
c. Marketing & Advertising	0	0
d. Administration & Overhead	0	0
e. Outside Services	0	0
f. Total	0	0

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution	220
b. State agency contribution	0
c. Federal agency contribution	0
d. Other contribution	150
e. Total	370

D. Comments

SDG&E contribution in other

Reported as of 10/1

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2001**

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$14768668
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$16065755

2. Commercial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Increasing Block
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

3. Industrial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Increasing Block
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

4. Institutional / Government

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Increasing Block
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

5. Irrigation

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Increasing Block
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

6. Other

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0

d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	10000
2. Actual Expenditures	7074	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

We cannot differentiate sales.

Reported as of 10/1

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2001**

A. Implementation

1. Does your Agency have a conservation coordinator?	yes
2. Is this a full-time position?	no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ?	yes
4. Partner agency's name:	San Diego County Water Authority
5. If your agency supplies the conservation coordinator:	
a. What percent is this conservation coordinator's position?	20%
b. Coordinator's Name	Teresa Chase
c. Coordinator's Title	Community Services Rep/Administrative Assistant
d. Coordinator's Experience and Number of Years	4 years
e. Date Coordinator's position was created (mm/dd/yyyy)	1/1/1992
6. Number of conservation staff, including Conservation Coordinator.	1

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	5700	3800
2. Actual Expenditures	6495	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 10/1

BMP 13: Water Waste Prohibition

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2001**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? — no

a. If YES, describe the ordinance:

We had an ordinace after the drought was declared in the early nineties, but do not have the jurisdiction to prohibit certain water uses as we are a municipal water district.

2. Is a copy of the most current ordinance(s) on file with CUWCC? — yes

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

City of Encinitas, City of Carlsbad, City of San Diego	The City of Carlsbad has a "Carlsbad Warer Ethic" that makes recomendations for on watering hours, sweeping instead of hosing, etc. There are no water waste ordinances for our area.

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

a. Gutter flooding	no
b. Single-pass cooling systems for new connections	no
c. Non-recirculating systems in all new conveyor or car wash systems	no
d. Non-recirculating systems in all new commercial laundry systems	no
e. Non-recirculating systems in all new decorative fountains	no
f. Other, please name	no

2. Describe measures that prohibit water uses listed above:

OMWD does not have jurisdiction to prohibit any water uses, it can only make recomendations.

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

a. Allow the sale of more efficient, demand-initiated regenerating DIR models.	no
b. Develop minimum appliance efficiency standards that:	
i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used.	no
ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced.	no

c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply.	no
4. Does your agency include water softener checks in home water audit programs?	no
5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models?	yes

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Ordinance 204, adopted during drought of late eighties, early nineties. AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE OLIVENHAIN MUNICIPAL WATER DISTRICT IMPOSING WATER CONSERVATION MEASURES BE IT ORDAINED by the Board of Directors of the Olivenhain Municipal Water District as follows: SECTION 1: Declaration of Policy. Water Code Section 71640 et seq., authorizes the District to impose water conservation measures and to restrict the use of water during any emergency caused by drought or other threatened or existing water shortage. The Board of Directors hereby establishes a comprehensive water conservation plan pursuant to Water Code Sections 71640 et seq., based upon an existing water shortage. SECTION 2: Findings. The Board of Directors finds and determines that a water shortage exists based upon the following facts: (a) The Governor has declared that precipitation in the State of California, for this water year to date, is approximately 50% of average. (b) Unprecedented weather conditions have resulted in five consecutive years (1987, 1988, 1989, 1990, 1991) of below normal precipitation and run-off resulting in a statewide water shortage. (c) The District is dependent upon water distributed through the California Aqueduct system and the Colorado River aqueduct by the Metropolitan Water District and the San Diego County Water Authority to provide water service to its customers. This is the sole source of supply to the District. The Metropolitan Water District of Southern California has notified the District that existing water demand will require a 30% reduction in water presently being provided to the San Diego County Water Authority. (d) The San Diego County Water Authority has notified the District that a drought condition exists and that effective April 11, 1991, a reduction in deliveries to member agencies of 20% of 1989-1990 deliveries, subject to minor adjustments for prior conservation efforts and growth, shall be invoked. (e) It is considered critical for the well being of the citizens within the Olivenhain Municipal Water District that existing water supplies be husbanded and future supplies be uniformly allocated so that water, essential for domestic use, sanitation, and fire protection, will remain available throughout the duration of the drought. (f) On April 11, 1991, the San Diego County

Water Authority determined that in order to achieve the savings necessary to comply with reductions in deliveries, that the Water Authority recommends that each member agency implement conservation programs substantially equivalent to those set forth in the Authority's Drought Response Plan of February 14, 1991. (g) The District has solicited and received advice and direction from the San Diego County Water Authority, the Metropolitan Water District of Southern California, the State Department of Water Resources, other member agencies of the Water Authority, the Cities of San Diego, Carlsbad and Encinitas, customers, businesses, professional organizations, members of the public, and other entities at various meetings and through numerous communications both written and oral, including a public meeting held on February 21, 1991, at 10:00 a.m., a public meeting held on March 21, 1991 at 9:00 a.m., and a public meeting held on April 18, 1991 at the District's Administration Office. (h) It is considered critical that mandatory restrictions on the use of water by District customers to conserve remaining water supplies be adopted. Experience of other agencies within California facing severe limitations on water supplies has demonstrated that prohibitions of certain uses, pricing structures, and limitations on deliveries have been found necessary to preserve water supplies for essential services and to allocate remaining supplies in a fair and uniform manner, with particular regard for domestic, sanitation, and fire protection. SECTION 3: CEQA Exemption. The District finds that this action is the result of the unexpected occurrences, above described, which involve clear and imminent danger demanding immediate action to mitigate damage to life, health and property from the loss of an essential public service - the delivery of public water supplies, and, therefore, it is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Sections 21080 (b) (4), 21060.3 Title 14, California Code of Regulations, Section 15269 (c). SECTION 4: Declaration of Water Shortage and Application. It is hereby determined and declared that, based upon the foregoing facts, the District is unable to provide sufficient water supplies to meet the ordinary demands and requirements of its customers without depleting available water supplies to the extent that insufficient water would be available for all needs of the District's customers. The provisions of this Ordinance shall apply to all persons, customers, and property served by the District wherever situated and for all imported water being provided by the District. SECTION 5: Authorization. Upon adoption of this Ordinance, the District's General Manager, or his designated representative, is hereby authorized and directed to implement the provisions of this Ordinance based upon his determination that such implementation is necessary to protect the public health, safety, and welfare. The declaration of each water conservation stage and/or water emergency shall be deemed implemented upon publication two (2) times in a newspaper of general circulation in the District. SECTION 6: Definitions for Potable Water Use Prohibitions (a) "Potable Water" means filtered or unfiltered water delivered by the District which meets drinking water standards or upon disinfection meets drinking water standards, i.e. raw water. (b) "Active public park and school ground areas" means areas designated by public agencies and private schools for specific sporting and recreational activities and those areas traditionally used for active play or recreation where turf is an integral part of the activity. (c) "Reclaimed water" means water which, as a result of treatment of wastewater, is suitable for a direct beneficial use or controlled use that would not otherwise occur. (See Water Code Section 13050(n).) (d) "Greywater" is household wastewater other than toilet water, i.e., water from laundry, shower, tub, bathroom and kitchen sinks. Its use is presently prohibited by the San Diego County Department of Health Services. The exception mentioned for greywater in this Ordinance depends solely upon approval of such

use by the County of San Diego Health Services according to issued rules and regulations. (e) "Micro irrigation systems/equipment" means low pressure, low volume methods of water application. These devices include drip emitters, T-tape, microsprayers, mini-sprinklers, twirlers, and spaghetti tubing. Pop-up sprinklers are not considered low-volume, low pressure irrigation systems/equipment. (f) "Normal Water Demand" means the expected water use for the use or development requiring the meter during times of unrestricted water deliveries. (g) "Recreational and Ornamental Lakes and Ponds" are those bodies of water which are not swimming pools, water storage reservoirs for the purpose of drinking water, or irrigation supply, or pool which maintain rare plant or animal species. (h) "Conservation offset" means the implementation of proven conservation techniques which, when installed, will result in a reduction equal to demand of the proposed use. Calculation of demand and saving shall be performed or verified by the General Manager based upon non-drought conditions (normal conditions). (i) "Fire Protection" means actions for prevention of suppression of fires as directed by the Fire Marshall or Fire Prevention offices with jurisdiction over the local area involved. (j) "Ground Cover" means continuous homologous, cultivated planting(s) other than grass, turf, lawn or "weeds", utilized for decorative purposes, erosion control, fire protection or a combination of the above uses. SECTION 7: Water Conservation Stages. During the period this Ordinance is effective, no customer of the District shall knowingly make, cause, use, or permit the use of water supplied by the District for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this Ordinance, in an amount in excess of the amounts authorized by this Ordinance or during any period of time other than the periods of time specified in this Ordinance. (A) Stage 1. Normal Supply Level Available. Stage 1 applies during periods when a normal supply and distribution capacity is available, while at the same time demand levels are not expected to significantly increase in the immediate future. Elements of Stage 1 include: (1) Implementation of the District's adopted Urban Water Management Plan and Conservation Program. (2) Adoption of a District policy which is an action plan for implementation of water conservation techniques. (All elements shall apply as in Stage 2, but voluntary basis only.) (3) The failure to repair a controllable leak is defined as "waste of water" and is prohibited at all times. (4) All new indoor meter applicants must provide a plan indicating installation of 2.5 gpm showerheads and 1.6 gallon flush toilets. (5) All new meters that will be used wholly or partially for landscape irrigation shall not be issued without the submittal of appropriate plans incorporating principles of low water use landscaping and irrigation systems. (6) Changes to existing landscaping and turf areas or the addition of new landscaping or turf areas shall utilize principles of low water use landscaping and irrigation systems. (B) Stage 2. Mandatory Compliance - Water Alert. Stage 2 applies during periods when the probability exists that the District will not be able to meet all of the water demands of its customers. Implementation of Stage 2 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 10%. During Stage 2, the following water conservation measures shall apply except when reclaimed water is used: (1) Lawn watering and landscape irrigation is permitted only on designated irrigation days and only between the evening hours of 6:00 p.m. and 9:00 a.m. the following morning. Watering is permitted at any time if a hand-held hose equipped with a positive shut-off nozzle is used, a hand-held, faucet-filled bucket of five (5) gallons or less is used, or a drip irrigation system is used. Properties with addresses ending in an even number may use water on Monday, Thursday, and Saturday evenings until the

following morning. Addresses ending in an odd number may use water on Tuesday, Friday, and Sunday evenings until the following morning. (2) Agricultural users and commercial nurseries as defined in the Metropolitan Water District Code are exempt from Stage 2 irrigation restrictions, but will be required to curtail all non-essential water use. The watering of livestock and irrigation of propagation beds are permitted at any time. (3) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited except on designated irrigation days. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shut-off nozzle for quick rinses. Washing is permitted at any time on the immediate premises of a commercial car wash. Further, such washing is exempted from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables. (4) Filling or refilling swimming pools, spas, ponds, and artificial lakes is permitted only on designated irrigation days. (5) Watering golf courses, parks, school grounds, and recreational fields is permitted only between the hours of 6:00 p.m. and 9:00 a.m. the following morning, except golf course greens and propagation beds. (6) The use of water from fire hydrants shall be limited to fire fighting and related activities, for construction activities, or other activities necessary to maintain the health, safety, and welfare of the public. (7) Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire, safety, or sanitation hazard. (8) Restaurants shall serve water to their customers only when specifically requested. (9) The operation of any non-recirculating ornamental fountain or similar structure is prohibited. (C) Stage 3. Mandatory Compliance - Watering Warning. Stage 3 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 3 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 15%. During Stage 3, the following water conservation measures shall apply except when reclaimed water is used: (1) Lawn watering and landscape irrigation is permitted only on designated irrigation days and only between the evening hours of 4:00 p.m. to 9:00 a.m. the following morning. Watering is permitted at any time if a hand-held hose equipped with a positive shut-off nozzle is used, a hand-held, faucet-filled bucket of five (5) gallons or less is used, or a micro-irrigation system/equipment is used. A "designated irrigation day" is determined by the last digit in the street address. Properties with addresses ending in an even number may use water on Tuesday and Saturday evenings until the following morning and addresses ending in an odd number may use water on Sunday and Thursday evenings until the following morning. (2) Agricultural users and commercial nurseries shall reduce water use by an amount to be determined at the time of declaration. The watering of livestock and irrigation of propagation beds are permitted at any time. (3) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited except on designated irrigation days. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shut-off nozzle for quick rinses. Washing is permitted at any time on the immediate premises of a commercial car wash. The use of water by all types of commercial car washes not using partially reclaimed or recycled water shall be reduced in volume by an amount to be determined at the time of declaration. Further, such washing is exempted from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport

food and perishables. (4) Filling or refilling of swimming pools and spas is permitted only on designated irrigation days between the hours of 4:00 p.m. and 9:00 a.m. the following morning. The filling or refilling of ornamental lakes and ponds is prohibited. Irrigation reservoirs may be exempted when specifically requested. (5) Watering golf courses, parks, school grounds, and recreational fields is permitted only between the hours of 4:00 p.m. and 9:00 a.m. the following morning, except golf course greens. (6) The use of water from fire hydrants shall be limited to fire fighting and related activities, for construction activities, or other activities necessary to maintain the health, safety, and welfare of the public. (7) Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire or sanitation hazards. (8) Restaurants shall serve water to their customers only when specifically requested. (9) The operation of any ornamental, non-recirculating fountain or similar structure is prohibited. (10) New construction meters or permits for unmetered service shall not exceed the existing number of currently authorized meters. A new meter shall be issued only when an old meter is returned. Construction projects requiring water from a construction meter or a water truck shall not use water unnecessarily for any purposes other than those required by regulatory agencies. (D) Stage 4. Mandatory Compliance Water Warning. Stage 4 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 4 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 20%. During Stage 4, the following water conservation measures shall apply, including all provisions and conditions of Stage 3, except when reclaimed water is used: (1) All water users shall minimize water use. (2) Shower and sink warm up water shall be captured with a bucket and used outdoors or to flush toilets. (3) All golf courses, parks, school grounds, and recreational fields must reduce from their base 1989-1990 usage by a volume of not less than 20% at the time of declaration, or for new projects a base allocation to be determined by the General Manager. (4) Agricultural users and commercial nurseries shall reduce water use by an amount not less than 20%. (5) The use of potable water for commercial, industrial, manufacturing, processing purposes, resorts, hotels, motels and restaurants may be reduced in volume by an amount to be determined by the General Manager. (E) Stage 5. Mandatory Compliance Water Warning. Stage 5 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 5 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 30%. During Stage 5, the following water conservation measures shall apply, including all provisions and conditions of Stage 4, except when reclaimed water is used: (1) All lawn and turf watering, other than golf courses, shall be limited to one day per week between the hours 6:00 p.m. and 9:00 a.m. the following morning. Properties with addresses ending in an even number may use water on Saturday evenings until the following morning and addresses ending in an odd number may use water on Sunday evenings until the following morning. All Homeowners Associations may use water on Wednesday evenings until the following morning. (2) All construction water must be reclaimed or from a non- imported source unless the District determines in its sole discretion that those sources are not reasonably available. (3) Washing at home of autos, trucks, trailers, boats, airplanes and other types of mobile equipment is prohibited except with water captured from sink and bath warm-up water or other

recovered water in a handheld bucket. (4) All new meter applicants must mitigate their specific impact upon the water supply by participating in a toilet/showerhead retrofit program or contributing to a reclaimed water project such that an off-setting supply of "new" water capacity is created, prior to the District's issuing a new water meter(s). (5) All golf courses, hotels, motels, and resorts must reduce a minimum of 30% from their 1989-1990 base usage or for new projects a base allocation to be determined by the General Manager. (F) Stage 6. Mandatory Compliance. Stage 6 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 6 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 40%. During Stage 6, the following water conservation measures shall apply, including all provisions and conditions of Stage 5, except when reclaimed water is used: (1) No outdoor watering shall occur between 9:00 a.m. and 4:00 p.m. except when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations) or private well water. Anyone using such water at other than a private residence shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet along public rights-of-way where such water is being used noticing such usage. (2) Washing of personal vehicles other than in commercial carwashes or commercial vehicles for reasons of public health and safety is prohibited except when water used has been salvaged from indoor use, i.e., warmup water from showers, sinks, and/or lavatories. (3) There shall be no filling of new pools, new spas, or new fountains from imported sources. (4) Golf courses shall reduce water use by 40%. (G) Mandatory Compliance - Water Emergency. A Water Emergency applies when a major failure of any supply or distribution facility, whether temporary or permanent, occurs in the water distribution system of the State Water Project, Metropolitan Water District, San Diego County Water Authority, or District facilities, when the District determines that a water shortage exists for any reason, requiring use reductions of 50% or more. It is anticipated that these measures will result in a reduction of water use from a base allocation to be determined at the time of declaration by a volume of not less than 50%. During a Water Emergency, the following potable water use prohibitions shall apply, including all provisions and conditions of Stage 6, except when reclaimed water or well water is used. (1) General Requirement (a) All water users are expected to minimize water use for the duration of the drought emergency. All classes of water, including agricultural use, are expected to achieve a fifty percent reduction in use from the base allocation, as determined by the General Manager, except where specifically relieved of such reduction by the Board of Directors. Indoor uses will, in general, be reduced by such practices as fewer and shorter showers and baths, no running water while brushing teeth and shaving, full loads in dish and clothes washers, avoidance of unnecessary toilet flushing, frequent checking and repairing of leaks, and other conservation practices. (2) Potable Water Use Prohibitions. (a) Irrigation of Turf. Irrigation of turf with potable water is prohibited except under the following circumstances: 1. for active public park and school ground areas no more than twice weekly; 2. at day care centers where required by license no more than twice weekly; 3. for purposes of maintaining public safety (such as fire protection); and 4. when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations), or private well water. 5. at public parks, where trees and shrubs are interspersed amidst turf supported by the same irrigation system, provided the area of irrigation is

within the drip line of each tree or shrub and irrigation is no more than once every two weeks. (b) Irrigation of Ground Cover. Irrigation of ground cover with potable water is prohibited except under the following circumstances: 1. for fire protection; 2. where trees and shrubs are interspersed amidst ground cover supported by the same irrigation system; and 3. for preservation of existing ground cover which is designed to stabilize slopes. Irrigation of ground cover under this Section is restricted to once every 14 days. (c) Irrigation of Trees, Shrubs, Including Certified Agricultural Production Outside irrigation of trees, shrubs, and other plants which are not turf or ground cover, is allowed only by hand-held hose with positive shut-off nozzle, bucket, or micro irrigation systems/equipment. Sprinkler systems may only be used for certified agricultural production, watering active public park and school ground areas, maintenance of ground cover in accordance with this Ordinance and for purposes of maintaining public safety such as, fire protection. (d) Irrigation Water Hours. No outdoor irrigation shall occur between 9:00 a.m. and 4:00 p.m., except when using a micro irrigation system/equipment, or for certified agricultural production, or when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations), or private well water. Anyone using reclaimed water at other than a private residence shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet along public rights-of-way where such water is being used noticing such usage. (e) Hosing or Spraying of Paved or Hard Surfaces. Hosing paved or hard surfaces including, but not limited to, sidewalks, driveways, patios, streets and parking areas is prohibited except for compelling public health and safety reasons. Allowed hosing activities shall be done only with a hose equipped with a positive shut-off nozzle. Spraying hard surfaces during irrigation activities is prohibited. (f) Runoff and Repairing of Leaks. All runoff from outside water usage from property is prohibited. Leaks to irrigation and plumbing systems shall be immediately repaired. (g) Filling of Pools and Spas. Filling of new pools and spas is prohibited except under the following circumstances: 1. where the owner can produce and demonstrate a conservation offset; or, 2. where the owner can produce evidence that private well water meeting public health standards will be utilized. Draining of existing pools is prohibited except under orders of the appropriate local health or building official. (h) Recreational and Ornamental Lakes and Ponds. Recreational and ornamental lakes and ponds may not be filled or refilled except with reclaimed water or private well water. Lakes and ponds utilizing reclaimed water at other than a private residence shall post signs around the lakes and ponds of where such water is being used noticing such usage. (i) Golf Course Irrigation. Golf courses may use potable water supplied by the District only to irrigate tees and greens. Irrigation of fairways and roughs with potable water or any blend thereof is prohibited. Golf courses irrigating with reclaimed water shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet where such water is being used noticing such usage. (j) Restaurants. Restaurants shall serve water only upon request. (k) Ornamental Fountains. Operation of ornamental fountains is prohibited except when private well water or reclaimed water is used. Ornamental fountains utilizing reclaimed water at other than a private residence, shall post signs around the ornamental fountain of where such water is being used, noticing such usage. (l) Washing of Vehicles. Washing of vehicles is prohibited except: 1. in commercial car washes; 2. commercial vehicles for reasons of public health and safety; 3. where water has been salvaged from indoor use, e.g. warmup water from showers, sinks, and/or lavatories; or 4. by a mobile high-pressure/low volume service. (m) New Services. Except as to property for which a building permit has been heretofore issued, no new potable

water shall be provided, no new temporary meters or permanent meters shall be provided and no commitments (such as, will serve letters, certificates or letters of availability) to provide potable water service shall be issued, except for the following circumstances: 1. the commitment includes a notice that a water shortage emergency prevails, resulting in a water moratorium and no water service is currently available; 2. for projects necessary to protect the public's health, safety, and welfare; 3. when it can be demonstrated that no net increase in potable water use will occur; or 4. when a conservation offset is provided. (n) Certified agricultural irrigation shall reduce 50% from the 1989-1990 base year. Certified agricultural irrigation may be discontinued for varying durations, as determined necessary by the District's General Manager depending upon the circumstances of the water emergency. (o) The use of potable water for commercial, industrial, manufacturing, processing purposes, resorts, hotels, motels, and restaurants shall be reduced in volume by 50% from the base allocation for that user. These users shall be monitored by the District to ensure compliance with the 50% reduction. Any such user who exceeds their 50% reduction by 10% or more during any period monitored by the District shall have a flow restrictor installed at the user's expense until the user's total use for the year no longer exceeds a 50% reduction from that users base allocation. All fees and charges for the removal of the restrictor shall be paid by the user. SECTION 8: Grounds for Appeal. A customer may file with the General Manager a written request for review of issue(s) regarding the restriction and use of water and/or the mandatory prohibitions on the use of potable water. No customer of the District shall be entitled to appeal any restriction on potable water usage unless the customer can demonstrate that the customer's allocation is insufficient for health, sanitary, or fire protection purposes. Appeals seeking increased allocations for other purposes shall be summarily rejected and will not be considered by the General Manager. A customer may, following review of the appeal by the General Manager, request a hearing by the Board of Directors. The hearing shall be scheduled at the Board's next regular meeting or at a special meeting scheduled for that hearing. The customer may appear before the Board or present written testimony and documentation considered appropriate for proper understanding and evaluation of the claim and basis for appeal. The District shall mail written notice of the hearing to the customer before the date of said hearing. SECTION 9: Mandatory Conservation Phase Implementation. The Superintendent of Maintenance and Operations shall monitor the projected supply and demand for water by its customers on a daily basis during periods of emergency or drought and shall recommend to the General Manager the extent of the conservation required through the implementation and/or termination of particular conservation stages in order for the Water Operations Department to prudently plan for and supply water to its customers. Thereafter, the General Manager may order that the appropriate phase of water conservation be implemented or terminated in accordance with the applicable provisions of this Ordinance. Said order shall be made by public announcement and shall be published once a month for three months or until the Stage Alert has been lifted, whichever is the least amount of time, in a daily newspaper of general circulation and shall become effective immediately upon such publication. SECTION 10: Violation of Stage 2 through Stage 6 and/or a Water Emergency. Any customer of the District who violates any provision of a Stages 2 through Stage 6 and/or a Water Emergency shall receive a warning letter on the first violation accompanied by a copy of the appropriate section(s) of this Ordinance. Any customer who commits a second violation of any provision of Stage 2 through Stage 6 and/or a Water Emergency shall pay a fine of $50 for each violation of Stage 2 or Stage 3; $75 for each violation of Stage 4 or Stage 5; and $100 for each

violation of Stage 6 and/or a Water Emergency. Any customer of the District committing a third violation shall pay a fine of $100 for each violation of Stage 2 or Stage 3; $150 for each violation of Stage 4 or Stage 5; and $200 for each violation of Stage 6 and/or a Water Emergency. Any customer of the District who violates a Stage 2 through Stage 6 and/or a Water Emergency more than three (3) times shall pay a fine of $200 for each violation of Stage 2 or Stage 3; $300 for each violation of Stage 4 or Stage 5; and $400 for each violation of Stage 6 and/or a Water Emergency. In addition, where a customer of the District has violated any Stage 2 through Stage 6 and/or a Water Emergency restrictions more than three times, the Board of Directors shall conduct a hearing and may, in its discretion, order either (a) installation of a flow restrictor in the meter or (b) discontinuance of water service for such period of time as the Board of Directors determines appropriate under the circumstances. The District shall, at least ten (10) days before the date set for hearing, mail an appropriate written notice of the hearing to the affected customer. The decision of the Board of Directors of the District shall be final and not subject to further appeal. The failure of any customer to pay a fine levied by this Ordinance shall be grounds for termination of water service. Termination notices shall be given in accordance with the termination procedures utilized by the District for nonpayment of water bills. Customers whose water service has been restricted or terminated as a result of violation of this Ordinance shall be required to pay all fees and charges established by the District from time to time to reinstate full service. SECTION 11: Violation of Water Emergency. During periods of a water emergency, water consumption may be limited and allocated with penalties imposed for usage above one's allocation. The District's General Manager shall determine the allocation rate for every service connection in the District, based upon an assessment of the current and projected water supply and the availability of this supply to the community. The rate shall be determined as far in advance as possible and shall be applied fairly and equitably to all classes of water service. Notification of each customer's allocation shall be given by letter to The last known address of the customer as shown on District records and shall be effective beginning with the last billing period following the date the letter is mailed. SECTION 12: Allocation Violations. In addition to the penalties for violation of potable water use prohibitions, as set forth in Section 9, a customer who exceeds an established allocation shall be subject to the following penalties: (a) A customer who exceeds an established allocation shall pay a surcharge rate of five (5) times the rate for the highest tier established in the Water Rate Ordinance per HCF (Hundred Cubic Feet) of water for all water used in excess of the allowable allocation during a first billing period in which the excess occurs. (b) A customer who exceeds the customer's allocation for two or more billing periods shall pay a surcharge of ten (10) times the rate for the highest tier established in the Water Rate Ordinance rate, per HCF, for water in excess of the allowable allocation during the second and subsequent billing periods. As used herein, "excess water" means the amount of water delivered in excess of the allocation rate as set by the General Manager. (c) If a customer continues to exceed the established allocation for two or more consecutive billing periods, the Board of Directors shall conduct a hearing and may, in its discretion, order either (a) installation of a flow restrictor in the meter or (b) termination of water service for such period of time as the District determines appropriate under the circumstances. The District shall, at least ten (10) days before the date set for hearing, mail an appropriate written notice of the hearing to the affected customer. The decision of the Board of Directors shall be final and not subject to further appeal. The failure of any customer to pay the surcharges shall be grounds for termination of water service. Termination

notices shall be given in accordance with the termination procedures utilized by the District for nonpayment of water bills. Customers whose service is terminated shall be required to pay all fees and charges established by the District from time to time to reinstate full service. SECTION 13: No Tampering With Flow Restrictors. A flow restrictor or other device, once installed by the District, may not be removed or tampered with in any manner or for any purpose by other than authorized District personnel acting with the authority of the General Manager. Tampering or removing of such a fixture without authorization will result in the immediate discontinuance of service at the customer's expense and until the articles and provisions of this Ordinance as herein set forth are fully complied with. SECTION 14: Authority to Enter Premises. Authority and permission to enter upon private premises, for the purpose of inspecting outside water systems as to compliance with the articles and provisions of this Ordinance, shall be granted to authorized water district personnel upon presentation of official identification and clear statement of purpose to conduct water conservation enforcement activities. Those authorized personnel on official business shall be allowed free access at all reasonable hours to any premises supplied with the District water. Any owner or occupant of any premises who refuses admittance to, or hinders or prevents inspection by, an authorized employee of the Water District may, after , written notice setting a hearing date before the Board of Directors, have all water service discontinued. At the hearing, the customer shall be entitled to introduce testimony and evidence justifying denial of the right to inspect and any medical hardships caused by the termination. SECTION 15: No Unauthorized Use of District Identification. No unauthorized person shall possess, carry, wear, or exhibit any badge or other official identification of the Water District, nor shall any person, whether or not possession is authorized, display, exhibit, or cause to be exhibited any badge or other official identification of the Water District at any time, place, or in any manner or for any purpose which is not authorized by the General Manager. SECTION 16: Effective Date and Repeal. This Ordinance shall take effect immediately upon adoption. Within ten (10) days after adoption, this Ordinance shall be published one (1) time in a newspaper of general circulation in the District. This Ordinance shall remain effective until repeal by the Board of Directors of the Olivenhain Municipal Water District. Ordinance No. 203 is hereby repealed. PASSED, ADOPTED, AND APPROVED by the Board of Directors of the Olivenhain Municipal Water District at the regular Board meeting held on April 18, 1991, by the following roll call vote: AYES: Directors Miller, Golem, Gano, Peay, Denk NOES: None ABSTAIN: None ABSENT: None

_____ Harold L. Gano, President
Board of Directors Olivenhain Municipal Water District ATTEST:

_____ Harley L. Denk, Secretary
Board of Directors Olivenhain Municipal Water District

Reported as of 10/1

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2001

A. Implementation

	Single-Family Accounts	Multi-Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes

Number of Toilets Replaced by Agency Program During Report Year

Replacement Method	SF Accounts	MF Units
2. Rebate	0	0
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	601	76
Total	**601**	**76**

6. Describe your agency's ULFT program for single-family residences.

Through this program, participating residential customers are offered a voucher redeemable for up to $75 off the purchase price. Voucher can only be used to replace toilets that are 3.5 gpf or more. The ULFT voucher incentive program has extensive marketing research.

7. Describe your agency's ULFT program for multi-family residences.

Same as above

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

City of San Diego	Retrofit upon resale ordinance

B. Residential ULFT Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	14958.74	16652
2. Actual Expenditures	13902.06	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 10/1

BMP Report
FY 2002

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2002**

A. Implementation

1. Based on your signed MOU date, 09/05/1991, your Agency STRATEGY DUE DATE is:	09/04/1993
2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys?	yes
a. If YES, when was it implemented?	7/1/1995
3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys?	yes
a. If YES, when was it implemented?	7/1/1995

B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	3158	53
2. Number of surveys completed:	37	0
Indoor Survey:		
3. Check for leaks, including toilets, faucets and meter checks	yes	yes
4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	yes	yes
5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary	yes	yes
Outdoor Survey:		
6. Check irrigation system and timers	yes	yes
7. Review or develop customer irrigation schedule	yes	yes
8. Measure landscaped area (Recommended but not required for surveys)	yes	yes
9. Measure total irrigable area (Recommended but not required for surveys)	yes	yes
10. Which measurement method is typically used (Recommended but not required for surveys)		Pacing
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	yes	yes
12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?	yes	yes
a. If yes, in what form are surveys tracked?		database
b. Describe how your agency tracks this information.		

Contractor tracks number of surveys through database. We offer surveys through bill messages, newsletter articles, flyers in lobby and events, recomendations through customer service calls and direct mailing to top 20%water users.

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	2049	2000
2. Actual Expenditures	1372.5	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Reported as of 10/1

BMP 02: Residential Plumbing Retrofit

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2002**

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? yes
3. Estimated percent of single-family households with low-flow showerheads: 75%
4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? yes
5. Estimated percent of multi-family households with low-flow showerheads: 75%
6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

   The San Diego County Water Authority and its member agencies distributed over 500,000 showerheads between 1991 and 2002. The average rate of natural replacemebnt is 4.0%, while housing demolition is .5%. Effective January 1, 1994, showerheads manufactured in the United States must be 2.5 gpm maximum. OMWD continues to distribute showerheads in its lobby and at community events.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes

   a. If YES, when did your agency begin implementing this strategy? 1/1/1996

   b. Describe your targeting/ marketing strategy.

   Marketing includes the following: - residential survey distribution - direct distribution to cusotmers (lobby) - community event distribution - by customer request

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	75	0
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	300	0

6. Does your agency track the distribution and cost of low-flow devices? no

   a. If YES, in what format are low-flow devices tracked?

   b. If yes, describe your tracking and distribution system :

We distribute devices purchased or left over from the previous year at community events and in our lobby throughout the year, but do not ask customers if they are single or multi-family so I have put all devices under single-family. We also do not monitor how many each customer takes. We simply restock every year on items such as hose nozzles, aerators, showerheads, dye tablets, rain gauges and sprinkler timers.

C. Low-Flow Device Distribution Expenditures

	This Year	Next Year
1. Budgeted Expenditures	1000	1000
2. Actual Expenditures	1009.08	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

SDCWA and its member agencies believe the region has satisfied the 75% saturation level and is pursuing grant money to fund a saturation study. OMWD conitues to distribute showerheads and other devices.

E. Comments

Reported as of 10/1

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2002**

A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year?	yes
2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:	
a. Determine metered sales (AF)	20227.1
b. Determine other system verifiable uses (AF)	0
c. Determine total supply into the system (AF)	21741
d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required.	0.93
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production?	yes
4. Did your agency complete a full-scale audit during this report year?	no
5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit?	yes
6. Does your agency operate a system leak detection program?	yes

a. If yes, describe the leak detection program:

The District uses a leak detection engineering firm to investigate suspected leaks, pinpoint the source and repair immediately. With our soils, even small water leaks manifest as all water comes to the top. We have such small water loss in the system that there is no cost benefit to perform another full audit.

B. Survey Data

1. Total number of miles of distribution system line.	318
2. Number of miles of distribution system line surveyed.	318

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	3000	3000
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Reported as of 10/1

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2002**

A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use?	yes
2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use?	no
a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed?	
b. Describe the program:	
All customers are required to have meters and are billed by volume of use. Retrofits are peformed on an as needed basis.	
3. Number of previously unmetered accounts fitted with meters during report year.	0

B. Feasibility Study

1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	no
a. If YES, when was the feasibility study conducted? (mm/dd/yy)	
b. Describe the feasibility study:	
2. Number of CII accounts with mixed-use meters.	20
3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period.	0

C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

Reported as of 10/1

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2002**

A. Water Use Budgets

1. Number of Dedicated Irrigation Meter Accounts:	532
2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:	0
3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):	0
4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):	0
5. Does your agency provide water use notices to accounts with budgets each billing cycle?	no

B. Landscape Surveys

1. Has your agency developed a marketing / targeting strategy for landscape surveys?	yes
a. If YES, when did your agency begin implementing this strategy?	8/10/1990

b. Description of marketing / targeting strategy:

Our contractor prescreens potential customers by reviewing usage data records and comparing typical patterns of other industry or SIC water usage. Customers that exhibit unusaully high water usage relative to the size of the property are sent a letter and a program brochure, inviting them to participate in the program. Dispersal of brochures to a variety of candidates, home owner's associations as well as large turf customers. Customers actually refer others to the program. All new customers are offered a survey.

2. Number of Surveys Offered.	106
3. Number of Surveys Completed.	3
4. Indicate which of the following Landscape Elements are part of your survey:	
a. Irrigation System Check	yes
b. Distribution Uniformity Analysis	yes
c. Review / Develop Irrigation Schedules	yes
d. Measure Landscape Area	yes
e. Measure Total Irrigable Area	yes
f. Provide Customer Report / Information	yes
5. Do you track survey offers and results?	yes
6. Does your agency provide follow-up surveys for previously completed surveys?	yes

a. If YES, describe below:

All participants are offered a follow-up survey.

C. Other BMP 5 Actions

1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program.	no

Does your agency provide mixed-use accounts with landscape budgets?	
2. Number of CII mixed-use accounts with landscape budgets.	0
3. Do you offer landscape irrigation training?	yes
4. Does your agency offer financial incentives to improve landscape water use efficiency?	yes

Type of Financial Incentive:	Budget (Dollars/ Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates	0	0	0
b. Loans	0	0	0
c. Grants	0	0	0

5. Do you provide landscape water use efficiency information to new customers and customers changing services?	yes

a. If YES, describe below:

New customer mailings include all conservation programs. Offer new customers use of videos. Include article in customer newsletter. Water Awareness Month celebration advertising. Press releases to various newspapers.

6. Do you have irrigated landscaping at your facilities?	yes
a. If yes, is it water-efficient?	yes
b. If yes, does it have dedicated irrigation metering?	yes
7. Do you provide customer notices at the start of the irrigation season?	yes
8. Do you provide customer notices at the end of the irrigation season?	yes

D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	1000	1000
2. Actual Expenditures	862.5	

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

F. Comments

Reported as of 10/1

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2002

A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? yes

   a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

   San Diego Gas & Electric provided $75 rebates on qualified high-efficiency clothes washers in their service area.

2. Does your agency offer rebates for high-efficiency washers? yes
3. What is the level of the rebate? 125
4. Number of rebates awarded. 138

B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	3266	5551
2. Actual Expenditures	4830	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

   a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

This agency provides vouchers rather than rebates.

Reported as of 10/1

BMP 07: Public Information Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2002

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

On-hold telephone message, website, newsletter, bill messages, video library available, landscaping classes held at the District, lobby brochures and giveaways, press releases, speaker's bureau, and community events and meetings are all a part of our program.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	no	
b. Public Service Announcement	yes	1
c. Bill Inserts / Newsletters / Brochures	yes	7
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	1
f. Special Events, Media Events	yes	3
g. Speaker's Bureau	yes	3
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	33000	34000
2. Actual Expenditures	33529	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

SDCWA has a regional program that includes: advertising in local newspapers Public Service Announcements (PSA) Demonstration garden Community Events Monthly Public Information Officer's Meeting Speaker's Bureau Water Awareness Month Regional Recycled Water Certification Workshops

Reported as of 10/1

BMP 08: School Education Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2002

A. Implementation

1.Has your agency implemented a school information program to promote water conservation? yes

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	yes	1	20	0
Grades 4th-6th	yes	8	203	0
Grades 7th-8th	yes	1	33	0
High School	yes	0	0	0

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 9/9/1990

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	2000	1200
2. Actual Expenditures	1120	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

OMWD brinsg the Splash Science Mobile Lab to schools within its district. It provides classroom presentations for all ages. Lessons are given at its recreational park. It takes part in a water awareness campaign for San Diego's North County. It participates in the CSDA scholarship for high school seniors. It provides adult education classes on landscaping and conservation. SDCWA provides educational programs including magic shows, traveling libraries, and experiments for teachers to use.

Reported as of 10/1

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2002**

A. Implementation

1. Has your agency identified and ranked COMMERCIAL customers according to use?	yes
2. Has your agency identified and ranked INDUSTRIAL customers according to use?	yes
3. Has your agency identified and ranked INSTITUTIONAL customers according to use?	yes

Option A: CII Water Use Survey and Customer Incentives Program

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option?	no

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	0	0	0
b. Number of New Surveys Completed	0	0	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	no	no	no
f. Evaluation of all water-using apparatus and processes	no	no	no
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	no	no	no

Agency CII Customer Incentives	Budget ($/Year)	No. Awarded to Customers	Total $ Amount Awarded
h. Rebates	0	0	0
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	0	0	0

Option B: CII Conservation Program Targets

5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option?	yes
6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	yes
7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991.	21.94
8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991.	0

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	600	4737
2. Actual Expenditures	641	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

OMWD takes part in the regional program through SDCWA. It markets the programs through newsletters, bill messages and at community events.

Reported as of 10/1

BMP 09a: CII ULFT Water Savings

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2002**

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10. — Yes

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.
   - Potential savings
   - CII Sector or subsector

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

   Our CII voucher incentive program contractor, HDMC has been a significant player in the promotion of water-efficient products in San Diego County. Working in cooperation wiht WSA marketing and communicaitons firm, HDMC has conducted extensive educaiton, outreach, public relations, advertising and direct marketing activities. HDMC have created relationships wiht the owners, maanagers and related customer service sdupervisors and staff and watre-efficient product suppliers from valley Cenetr to San Yisidro for the past five years. Partnerships have been established wiht business owners, as well as employees at wholesale and retail supliers. Understanding fo supplier's business profiles, sales operations and accoutnign policies and procedures are key to the success of the program. Working relatiuonships and/or quality data has been gathered on over 200 plumbers. Dealers soign contracts each year in order to participate in a program that is responsible for increasing their sales substantially.

2. How does your agency advertise this program? Check all that apply.
   - Direct letter
   - Newspapers
   - Trade publications
   - Other print media
   - Trade shows and events

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

   Relationships with the retail/wholesale outlets displaying marketing materials and knowing the program details. Adds in newspapers are also effective.

B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) — Yes
2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? — Yes
3. What is the total number of customer accounts participating in the program during the last year ? — 7

CII Subsector	Number of Toilets Replaced			
4.	Standard Gravity Tank	Air Assisted	Valve Floor Mount	Valve Wall Mount
a. Offices	2	0	0	0
b. Retail / Wholesale	4	0	0	0
c. Hotels	0	0	0	0
d. Health	0	0	0	0
e. Industrial	0	0	0	0
f. Schools: K to 12	0	0	0	0
g. Eating	1	0	0	0
h. Govern-ment	0	0	0	0
i. Churches	0	0	0	0
j. Other	0	0	0	0

5. Program design.

Rebate or voucher

6. Does your agency use outside services to implement this program? Yes

a. If yes, check all that apply.

Consultant

Plumbing contractors/subcontracts

7. Participant tracking and follow-up.

Letter

Telephone

Site Visit

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

a. Disruption to business	4
b. Inadequate payback	4
c. Inadequate ULFT performance	3
d. Lack of funding	5
e. American's with Disabilities Act	2
f. Permitting	2
g. Other. Please describe in B. 9.	0

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

The Regional CII voucher Incentive Program continues to increase in popularity in the San Diego region. Extensive marketing by our contractor, coupled with member agency support, has proven successful.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

Contractor does a great job in marketing. District does not have adequate staff to market the program at the agency level. Would like to increase involvement, although the majority of our District is single-family homes.

C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor	0	0
b. Materials	0	0
c. Marketing & Advertising	0	0
d. Administration & Overhead	500	227.5
e. Outside Services	0	0
f. Total	500	227.5

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution	647.5
b. State agency contribution	0
c. Federal agency contribution	0
d. Other contribution	0
e. Total	647.5

D. Comments

Reported as of 10/1

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2002**

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$16345376
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$20262500

2. Commercial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

3. Industrial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

4. Institutional / Government

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Increasing Block
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

5. Irrigation

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

6. Other

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0

d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources $0

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	10000	8000
2. Actual Expenditures	6891	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

We cannot differentiate rates.

Reported as of 10/1

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2002**

A. Implementation

1. Does your Agency have a conservation coordinator?	yes
2. Is this a full-time position?	no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ?	yes
4. Partner agency's name:	San Diego County Water Authority
5. If your agency supplies the conservation coordinator:	
a. What percent is this conservation coordinator's position?	20%
b. Coordinator's Name	Teresa Chase
c. Coordinator's Title	Community Services Representative/Administrative Assistant
d. Coordinator's Experience and Number of Years	4 years
e. Date Coordinator's position was created (mm/dd/yyyy)	1/1/1992
6. Number of conservation staff, including Conservation Coordinator.	1

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	3800	4800
2. Actual Expenditures	3846	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 10/1

BMP 13: Water Waste Prohibition

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2002**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? no

a. If YES, describe the ordinance:

We had an ordinace after the drought was declared in the early nineties, but do not have the jurisdiction to prohibit certain water uses.

2. Is a copy of the most current ordinance(s) on file with CUWCC? yes

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

City of Carlsbad, City of Encinitas, City of San Diego	The City of Carlsbad has a "Carlsbad Water Ethic" that makes recomendations for on watering hours, sweeping instead of hosing, etc. There are no water waste ordinances for our area.

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

a. Gutter flooding	no
b. Single-pass cooling systems for new connections	no
c. Non-recirculating systems in all new conveyor or car wash systems	no
d. Non-recirculating systems in all new commercial laundry systems	no
e. Non-recirculating systems in all new decorative fountains	no
f. Other, please name	no

2. Describe measures that prohibit water uses listed above:

OMWD does not have jurisdiction to prohibit any water uses, it can only make recomendations.

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

a. Allow the sale of more efficient, demand-initiated regenerating DIR models.	no
b. Develop minimum appliance efficiency standards that:	
i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used.	no
ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced.	no

c. Allow local agencies, including municipalities and

special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply.	no
4. Does your agency include water softener checks in home water audit programs?	no
5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models?	no

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Ordinance 204, adopted during drought of late eighties, early nineties. AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE OLIVENHAIN MUNICIPAL WATER DISTRICT IMPOSING WATER CONSERVATION MEASURES BE IT ORDAINED by the Board of Directors of the Olivenhain Municipal Water District as follows: SECTION 1: Declaration of Policy. Water Code Section 71640 et seq., authorizes the District to impose water conservation measures and to restrict the use of water during any emergency caused by drought or other threatened or existing water shortage. The Board of Directors hereby establishes a comprehensive water conservation plan pursuant to Water Code Sections 71640 et seq., based upon an existing water shortage. SECTION 2: Findings. The Board of Directors finds and determines that a water shortage exists based upon the following facts: (a) The Governor has declared that precipitation in the State of California, for this water year to date, is approximately 50% of average. (b) Unprecedented weather conditions have resulted in five consecutive years (1987, 1988, 1989, 1990, 1991) of below normal precipitation and run-off resulting in a statewide water shortage. (c) The District is dependent upon water distributed through the California Aqueduct system and the Colorado River aqueduct by the Metropolitan Water District and the San Diego County Water Authority to provide water service to its customers. This is the sole source of supply to the District. The Metropolitan Water District of Southern California has notified the District that existing water demand will require a 30% reduction in water presently being provided to the San Diego County Water Authority. (d) The San Diego County Water Authority has notified the District that a drought condition exists and that effective April 11, 1991, a reduction in deliveries to member agencies of 20% of 1989-1990 deliveries, subject to minor adjustments for prior conservation efforts and growth, shall be invoked. (e) It is considered critical for the well being of the citizens within the Olivenhain Municipal Water District that existing water supplies be husbanded and future supplies be uniformly allocated so that water, essential for domestic use, sanitation, and fire protection, will remain available throughout the duration of the drought. (f) On April 11, 1991, the San Diego County Water Authority determined that in order to achieve the savings

necessary to comply with reductions in deliveries, that the Water Authority recommends that each member agency implement conservation programs substantially equivalent to those set forth in the Authority's Drought Response Plan of February 14, 1991. (g) The District has solicited and received advice and direction from the San Diego County Water Authority, the Metropolitan Water District of Southern California, the State Department of Water Resources, other member agencies of the Water Authority, the Cities of San Diego, Carlsbad and Encinitas, customers, businesses, professional organizations, members of the public, and other entities at various meetings and through numerous communications both written and oral, including a public meeting held on February 21, 1991, at 10:00 a.m., a public meeting held on March 21, 1991 at 9:00 a.m., and a public meeting held on April 18, 1991 at the District's Administration Office. (h) It is considered critical that mandatory restrictions on the use of water by District customers to conserve remaining water supplies be adopted. Experience of other agencies within California facing severe limitations on water supplies has demonstrated that prohibitions of certain uses, pricing structures, and limitations on deliveries have been found necessary to preserve water supplies for essential services and to allocate remaining supplies in a fair and uniform manner, with particular regard for domestic, sanitation, and fire protection. SECTION 3: CEQA Exemption. The District finds that this action is the result of the unexpected occurrences, above described, which involve clear and imminent danger demanding immediate action to mitigate damage to life, health and property from the loss of an essential public service - the delivery of public water supplies, and, therefore, it is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Sections 21080 (b) (4), 21060.3 Title 14, California Code of Regulations, Section 15269 (c). SECTION 4: Declaration of Water Shortage and Application. It is hereby determined and declared that, based upon the foregoing facts, the District is unable to provide sufficient water supplies to meet the ordinary demands and requirements of its customers without depleting available water supplies to the extent that insufficient water would be available for all needs of the District's customers. The provisions of this Ordinance shall apply to all persons, customers, and property served by the District wherever situated and for all imported water being provided by the District. SECTION 5: Authorization. Upon adoption of this Ordinance, the District's General Manager, or his designated representative, is hereby authorized and directed to implement the provisions of this Ordinance based upon his determination that such implementation is necessary to protect the public health, safety, and welfare. The declaration of each water conservation stage and/or water emergency shall be deemed implemented upon publication two (2) times in a newspaper of general circulation in the District. SECTION 6: Definitions for Potable Water Use Prohibitions (a) "Potable Water" means filtered or unfiltered water delivered by the District which meets drinking water standards or upon disinfection meets drinking water standards, i.e. raw water. (b) "Active public park and school ground areas" means areas designated by public agencies and private schools for specific sporting and recreational activities and those areas traditionally used for active play or recreation where turf is an integral part of the activity. (c) "Reclaimed water" means water which, as a result of treatment of wastewater, is suitable for a direct beneficial use or controlled use that would not otherwise occur. (See Water Code Section 13050(n).) (d) "Greywater" is household wastewater other than toilet water, i.e., water from laundry, shower, tub, bathroom and kitchen sinks. Its use is presently prohibited by the San Diego County Department of Health Services. The exception mentioned for greywater in this Ordinance depends solely upon approval of such use by the County of San Diego Health Services according to issued

rules and regulations. (e) "Micro irrigation systems/equipment" means low pressure, low volume methods of water application. These devices include drip emitters, T-tape, microsprayers, mini-sprinklers, twirlers, and spaghetti tubing. Pop-up sprinklers are not considered low-volume, low pressure irrigation systems/equipment. (f) "Normal Water Demand" means the expected water use for the use or development requiring the meter during times of unrestricted water deliveries. (g) "Recreational and Ornamental Lakes and Ponds" are those bodies of water which are not swimming pools, water storage reservoirs for the purpose of drinking water, or irrigation supply, or pool which maintain rare plant or animal species. (h) "Conservation offset" means the implementation of proven conservation techniques which, when installed, will result in a reduction equal to demand of the proposed use. Calculation of demand and saving shall be performed or verified by the General Manager based upon non-drought conditions (normal conditions). (i) "Fire Protection" means actions for prevention of suppression of fires as directed by the Fire Marshall or Fire Prevention offices with jurisdiction over the local area involved. (j) "Ground Cover" means continuous homologous, cultivated planting(s) other than grass, turf, lawn or "weeds", utilized for decorative purposes, erosion control, fire protection or a combination of the above uses. SECTION 7: Water Conservation Stages. During the period this Ordinance is effective, no customer of the District shall knowingly make, cause, use, or permit the use of water supplied by the District for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this Ordinance, in an amount in excess of the amounts authorized by this Ordinance or during any period of time other than the periods of time specified in this Ordinance. (A) Stage 1. Normal Supply Level Available. Stage 1 applies during periods when a normal supply and distribution capacity is available, while at the same time demand levels are not expected to significantly increase in the immediate future. Elements of Stage 1 include: (1) Implementation of the District's adopted Urban Water Management Plan and Conservation Program. (2) Adoption of a District policy which is an action plan for implementation of water conservation techniques. (All elements shall apply as in Stage 2, but voluntary basis only.) (3) The failure to repair a controllable leak is defined as "waste of water" and is prohibited at all times. (4) All new indoor meter applicants must provide a plan indicating installation of 2.5 gpm showerheads and 1.6 gallon flush toilets. (5) All new meters that will be used wholly or partially for landscape irrigation shall not be issued without the submittal of appropriate plans incorporating principles of low water use landscaping and irrigation systems. (6) Changes to existing landscaping and turf areas or the addition of new landscaping or turf areas shall utilize principles of low water use landscaping and irrigation systems. (B) Stage 2. Mandatory Compliance - Water Alert. Stage 2 applies during periods when the probability exists that the District will not be able to meet all of the water demands of its customers. Implementation of Stage 2 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 10%. During Stage 2, the following water conservation measures shall apply except when reclaimed water is used: (1) Lawn watering and landscape irrigation is permitted only on designated irrigation days and only between the evening hours of 6:00 p.m. and 9:00 a.m. the following morning. Watering is permitted at any time if a hand-held hose equipped with a positive shut-off nozzle is used, a hand-held, faucet-filled bucket of five (5) gallons or less is used, or a drip irrigation system is used. Properties with addresses ending in an even number may use water on Monday, Thursday, and Saturday evenings until the following morning. Addresses ending in an odd number may use water

on Tuesday, Friday, and Sunday evenings until the following morning. (2) Agricultural users and commercial nurseries as defined in the Metropolitan Water District Code are exempt from Stage 2 irrigation restrictions, but will be required to curtail all non-essential water use. The watering of livestock and irrigation of propagation beds are permitted at any time. (3) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited except on designated irrigation days. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shut-off nozzle for quick rinses. Washing is permitted at any time on the immediate premises of a commercial car wash. Further, such washing is exempted from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables. (4) Filling or refilling swimming pools, spas, ponds, and artificial lakes is permitted only on designated irrigation days. (5) Watering golf courses, parks, school grounds, and recreational fields is permitted only between the hours of 6:00 p.m. and 9:00 a.m. the following morning, except golf course greens and propagation beds. (6) The use of water from fire hydrants shall be limited to fire fighting and related activities, for construction activities, or other activities necessary to maintain the health, safety, and welfare of the public. (7) Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire, safety, or sanitation hazard. (8) Restaurants shall serve water to their customers only when specifically requested. (9) The operation of any non-recirculating ornamental fountain or similar structure is prohibited. (C) Stage 3. Mandatory Compliance - Watering Warning. Stage 3 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 3 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 15%. During Stage 3, the following water conservation measures shall apply except when reclaimed water is used: (1) Lawn watering and landscape irrigation is permitted only on designated irrigation days and only between the evening hours of 4:00 p.m. to 9:00 a.m. the following morning. Watering is permitted at any time if a hand-held hose equipped with a positive shut-off nozzle is used, a hand-held, faucet-filled bucket of five (5) gallons or less is used, or a micro-irrigation system/equipment is used. A "designated irrigation day" is determined by the last digit in the street address. Properties with addresses ending in an even number may use water on Tuesday and Saturday evenings until the following morning and addresses ending in an odd number may use water on Sunday and Thursday evenings until the following morning. (2) Agricultural users and commercial nurseries shall reduce water use by an amount to be determined at the time of declaration. The watering of livestock and irrigation of propagation beds are permitted at any time. (3) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited except on designated irrigation days. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shut-off nozzle for quick rinses. Washing is permitted at any time on the immediate premises of a commercial car wash. The use of water by all types of commercial car washes not using partially reclaimed or recycled water shall be reduced in volume by an amount to be determined at the time of declaration. Further, such washing is exempted from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables. (4) Filling or refilling of swimming pools and spas

is permitted only on designated irrigation days between the hours of 4:00 p.m. and 9:00 a.m. the following morning. The filling or refilling of ornamental lakes and ponds is prohibited. Irrigation reservoirs may be exempted when specifically requested. (5) Watering golf courses, parks, school grounds, and recreational fields is permitted only between the hours of 4:00 p.m. and 9:00 a.m. the following morning, except golf course greens. (6) The use of water from fire hydrants shall be limited to fire fighting and related activities, for construction activities, or other activities necessary to maintain the health, safety, and welfare of the public. (7) Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire or sanitation hazards. (8) Restaurants shall serve water to their customers only when specifically requested. (9) The operation of any ornamental, non-recirculating fountain or similar structure is prohibited. (10) New construction meters or permits for unmetered service shall not exceed the existing number of currently authorized meters. A new meter shall be issued only when an old meter is returned. Construction projects requiring water from a construction meter or a water truck shall not use water unnecessarily for any purposes other than those required by regulatory agencies. (D) Stage 4. Mandatory Compliance Water Warning. Stage 4 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 4 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 20%. During Stage 4, the following water conservation measures shall apply, including all provisions and conditions of Stage 3, except when reclaimed water is used: (1) All water users shall minimize water use. (2) Shower and sink warm up water shall be captured with a bucket and used outdoors or to flush toilets. (3) All golf courses, parks, school grounds, and recreational fields must reduce from their base 1989-1990 usage by a volume of not less than 20% at the time of declaration, or for new projects a base allocation to be determined by the General Manager. (4) Agricultural users and commercial nurseries shall reduce water use by an amount not less than 20%. (5) The use of potable water for commercial, industrial, manufacturing, processing purposes, resorts, hotels, motels and restaurants may be reduced in volume by an amount to be determined by the General Manager. (E) Stage 5. Mandatory Compliance Water Warning. Stage 5 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 5 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 30%. During Stage 5, the following water conservation measures shall apply, including all provisions and conditions of Stage 4, except when reclaimed water is used: (1) All lawn and turf watering, other than golf courses, shall be limited to one day per week between the hours 6:00 p.m. and 9:00 a.m. the following morning. Properties with addresses ending in an even number may use water on Saturday evenings until the following morning and addresses ending in an odd number may use water on Sunday evenings until the following morning. All Homeowners Associations may use water on Wednesday evenings until the following morning. (2) All construction water must be reclaimed or from a non- imported source unless the District determines in its sole discretion that those sources are not reasonably available. (3) Washing at home of autos, trucks, trailers, boats, airplanes and other types of mobile equipment is prohibited except with water captured from sink and bath warm-up water or other recovered water in a handheld bucket. (4) All new meter applicants must

mitigate their specific impact upon the water supply by participating in a toilet/showerhead retrofit program or contributing to a reclaimed water project such that an off-setting supply of "new" water capacity is created, prior to the District's issuing a new water meter(s). (5) All golf courses, hotels, motels, and resorts must reduce a minimum of 30% from their 1989-1990 base usage or for new projects a base allocation to be determined by the General Manager. (F) Stage 6. Mandatory Compliance. Stage 6 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 6 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 40%. During Stage 6, the following water conservation measures shall apply, including all provisions and conditions of Stage 5, except when reclaimed water is used: (1) No outdoor watering shall occur between 9:00 a.m. and 4:00 p.m. except when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations) or private well water. Anyone using such water at other than a private residence shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet along public rights-of-way where such water is being used noticing such usage. (2) Washing of personal vehicles other than in commercial carwashes or commercial vehicles for reasons of public health and safety is prohibited except when water used has been salvaged from indoor use, i.e., warmup water from showers, sinks, and/or lavatories. (3) There shall be no filling of new pools, new spas, or new fountains from imported sources. (4) Golf courses shall reduce water use by 40%. (G) Mandatory Compliance - Water Emergency. A Water Emergency applies when a major failure of any supply or distribution facility, whether temporary or permanent, occurs in the water distribution system of the State Water Project, Metropolitan Water District, San Diego County Water Authority, or District facilities, when the District determines that a water shortage exists for any reason, requiring use reductions of 50% or more. It is anticipated that these measures will result in a reduction of water use from a base allocation to be determined at the time of declaration by a volume of not less than 50%. During a Water Emergency, the following potable water use prohibitions shall apply, including all provisions and conditions of Stage 6, except when reclaimed water or well water is used. (1) General Requirement (a) All water users are expected to minimize water use for the duration of the drought emergency. All classes of water, including agricultural use, are expected to achieve a fifty percent reduction in use from the base allocation, as determined by the General Manager, except where specifically relieved of such reduction by the Board of Directors. Indoor uses will, in general, be reduced by such practices as fewer and shorter showers and baths, no running water while brushing teeth and shaving, full loads in dish and clothes washers, avoidance of unnecessary toilet flushing, frequent checking and repairing of leaks, and other conservation practices. (2) Potable Water Use Prohibitions. (a) Irrigation of Turf. Irrigation of turf with potable water is prohibited except under the following circumstances: 1. for active public park and school ground areas no more than twice weekly; 2. at day care centers where required by license no more than twice weekly; 3. for purposes of maintaining public safety (such as fire protection); and 4. when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations), or private well water. 5. at public parks, where trees and shrubs are interspersed amidst turf supported by the same irrigation system, provided the area of irrigation is within the drip line of each tree or shrub and irrigation is no more than

once every two weeks. (b) Irrigation of Ground Cover. Irrigation of ground cover with potable water is prohibited except under the following circumstances: 1. for fire protection; 2. where trees and shrubs are interspersed amidst ground cover supported by the same irrigation system; and 3. for preservation of existing ground cover which is designed to stabilize slopes. Irrigation of ground cover under this Section is restricted to once every 14 days. (c) Irrigation of Trees, Shrubs, Including Certified Agricultural Production Outside irrigation of trees, shrubs, and other plants which are not turf or ground cover, is allowed only by hand-held hose with positive shut-off nozzle, bucket, or micro irrigation systems/equipment. Sprinkler systems may only be used for certified agricultural production, watering active public park and school ground areas, maintenance of ground cover in accordance with this Ordinance and for purposes of maintaining public safety such as, fire protection. (d) Irrigation Water Hours. No outdoor irrigation shall occur between 9:00 a.m. and 4:00 p.m., except when using a micro irrigation system/equipment, or for certified agricultural production, or when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations), or private well water. Anyone using reclaimed water at other than a private residence shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet along public rights-of-way where such water is being used noticing such usage. (e) Hosing or Spraying of Paved or Hard Surfaces. Hosing paved or hard surfaces including, but not limited to, sidewalks, driveways, patios, streets and parking areas is prohibited except for compelling public health and safety reasons. Allowed hosing activities shall be done only with a hose equipped with a positive shut-off nozzle. Spraying hard surfaces during irrigation activities is prohibited. (f) Runoff and Repairing of Leaks. All runoff from outside water usage from property is prohibited. Leaks to irrigation and plumbing systems shall be immediately repaired. (g) Filling of Pools and Spas. Filling of new pools and spas is prohibited except under the following circumstances: 1. where the owner can produce and demonstrate a conservation offset; or, 2. where the owner can produce evidence that private well water meeting public health standards will be utilized. Draining of existing pools is prohibited except under orders of the appropriate local health or building official. (h) Recreational and Ornamental Lakes and Ponds. Recreational and ornamental lakes and ponds may not be filled or refilled except with reclaimed water or private well water. Lakes and ponds utilizing reclaimed water at other than a private residence shall post signs around the lakes and ponds of where such water is being used noticing such usage. (i) Golf Course Irrigation. Golf courses may use potable water supplied by the District only to irrigate tees and greens. Irrigation of fairways and roughs with potable water or any blend thereof is prohibited. Golf courses irrigating with reclaimed water shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet where such water is being used noticing such usage. (j) Restaurants. Restaurants shall serve water only upon request. (k) Ornamental Fountains. Operation of ornamental fountains is prohibited except when private well water or reclaimed water is used. Ornamental fountains utilizing reclaimed water at other than a private residence, shall post signs around the ornamental fountain of where such water is being used, noticing such usage. (l) Washing of Vehicles. Washing of vehicles is prohibited except: 1. in commercial car washes; 2. commercial vehicles for reasons of public health and safety; 3. where water has been salvaged from indoor use, e.g. warmup water from showers, sinks, and/or lavatories; or 4. by a mobile high-pressure/low volume service. (m) New Services. Except as to property for which a building permit has been heretofore issued, no new potable water shall be provided, no new temporary meters or permanent meters

shall be provided and no commitments (such as, will serve letters, certificates or letters of availability) to provide potable water service shall be issued, except for the following circumstances: 1. the commitment includes a notice that a water shortage emergency prevails, resulting in a water moratorium and no water service is currently available; 2. for projects necessary to protect the public's health, safety, and welfare; 3. when it can be demonstrated that no net increase in potable water use will occur; or 4. when a conservation offset is provided. (n) Certified agricultural irrigation shall reduce 50% from the 1989-1990 base year. Certified agricultural irrigation may be discontinued for varying durations, as determined necessary by the District's General Manager depending upon the circumstances of the water emergency. (o) The use of potable water for commercial, industrial, manufacturing, processing purposes, resorts, hotels, motels, and restaurants shall be reduced in volume by 50% from the base allocation for that user. These users shall be monitored by the District to ensure compliance with the 50% reduction. Any such user who exceeds their 50% reduction by 10% or more during any period monitored by the District shall have a flow restrictor installed at the user's expense until the user's total use for the year no longer exceeds a 50% reduction from that users base allocation. All fees and charges for the removal of the restrictor shall be paid by the user. SECTION 8: Grounds for Appeal. A customer may file with the General Manager a written request for review of issue(s) regarding the restriction and use of water and/or the mandatory prohibitions on the use of potable water. No customer of the District shall be entitled to appeal any restriction on potable water usage unless the customer can demonstrate that the customer's allocation is insufficient for health, sanitary, or fire protection purposes. Appeals seeking increased allocations for other purposes shall be summarily rejected and will not be considered by the General Manager. A customer may, following review of the appeal by the General Manager, request a hearing by the Board of Directors. The hearing shall be scheduled at the Board's next regular meeting or at a special meeting scheduled for that hearing. The customer may appear before the Board or present written testimony and documentation considered appropriate for proper understanding and evaluation of the claim and basis for appeal. The District shall mail written notice of the hearing to the customer before the date of said hearing. SECTION 9: Mandatory Conservation Phase Implementation. The Superintendent of Maintenance and Operations shall monitor the projected supply and demand for water by its customers on a daily basis during periods of emergency or drought and shall recommend to the General Manager the extent of the conservation required through the implementation and/or termination of particular conservation stages in order for the Water Operations Department to prudently plan for and supply water to its customers. Thereafter, the General Manager may order that the appropriate phase of water conservation be implemented or terminated in accordance with the applicable provisions of this Ordinance. Said order shall be made by public announcement and shall be published once a month for three months or until the Stage Alert has been lifted, whichever is the least amount of time, in a daily newspaper of general circulation and shall become effective immediately upon such publication. SECTION 10: Violation of Stage 2 through Stage 6 and/or a Water Emergency. Any customer of the District who violates any provision of a Stages 2 through Stage 6 and/or a Water Emergency shall receive a warning letter on the first violation accompanied by a copy of the appropriate section(s) of this Ordinance. Any customer who commits a second violation of any provision of Stage 2 through Stage 6 and/or a Water Emergency shall pay a fine of $50 for each violation of Stage 2 or Stage 3; $75 for each violation of Stage 4 or Stage 5; and $100 for each violation of Stage 6 and/or a Water Emergency. Any customer of the

District committing a third violation shall pay a fine of $100 for each violation of Stage 2 or Stage 3; $150 for each violation of Stage 4 or Stage 5; and $200 for each violation of Stage 6 and/or a Water Emergency. Any customer of the District who violates a Stage 2 through Stage 6 and/or a Water Emergency more than three (3) times shall pay a fine of $200 for each violation of Stage 2 or Stage 3; $300 for each violation of Stage 4 or Stage 5; and $400 for each violation of Stage 6 and/or a Water Emergency. In addition, where a customer of the District has violated any Stage 2 through Stage 6 and/or a Water Emergency restrictions more than three times, the Board of Directors shall conduct a hearing and may, in its discretion, order either (a) installation of a flow restrictor in the meter or (b) discontinuance of water service for such period of time as the Board of Directors determines appropriate under the circumstances. The District shall, at least ten (10) days before the date set for hearing, mail an appropriate written notice of the hearing to the affected customer. The decision of the Board of Directors of the District shall be final and not subject to further appeal. The failure of any customer to pay a fine levied by this Ordinance shall be grounds for termination of water service. Termination notices shall be given in accordance with the termination procedures utilized by the District for nonpayment of water bills. Customers whose water service has been restricted or terminated as a result of violation of this Ordinance shall be required to pay all fees and charges established by the District from time to time to reinstate full service. SECTION 11: Violation of Water Emergency. During periods of a water emergency, water consumption may be limited and allocated with penalties imposed for usage above one's allocation. The District's General Manager shall determine the allocation rate for every service connection in the District, based upon an assessment of the current and projected water supply and the availability of this supply to the community. The rate shall be determined as far in advance as possible and shall be applied fairly and equitably to all classes of water service. Notification of each customer's allocation shall be given by letter to The last known address of the customer as shown on District records and shall be effective beginning with the last billing period following the date the letter is mailed. SECTION 12: Allocation Violations. In addition to the penalties for violation of potable water use prohibitions, as set forth in Section 9, a customer who exceeds an established allocation shall be subject to the following penalties: (a) A customer who exceeds an established allocation shall pay a surcharge rate of five (5) times the rate for the highest tier established in the Water Rate Ordinance per HCF (Hundred Cubic Feet) of water for all water used in excess of the allowable allocation during a first billing period in which the excess occurs. (b) A customer who exceeds the customer's allocation for two or more billing periods shall pay a surcharge of ten (10) times the rate for the highest tier established in the Water Rate Ordinance rate, per HCF, for water in excess of the allowable allocation during the second and subsequent billing periods. As used herein, "excess water" means the amount of water delivered in excess of the allocation rate as set by the General Manager. (c) If a customer continues to exceed the established allocation for two or more consecutive billing periods, the Board of Directors shall conduct a hearing and may, in its discretion, order either (a) installation of a flow restrictor in the meter or (b) termination of water service for such period of time as the District determines appropriate under the circumstances. The District shall, at least ten (10) days before the date set for hearing, mail an appropriate written notice of the hearing to the affected customer. The decision of the Board of Directors shall be final and not subject to further appeal. The failure of any customer to pay the surcharges shall be grounds for termination of water service. Termination notices shall be given in accordance with the termination procedures

utilized by the District for nonpayment of water bills. Customers whose service is terminated shall be required to pay all fees and charges established by the District from time to time to reinstate full service. SECTION 13: No Tampering With Flow Restrictors. A flow restrictor or other device, once installed by the District, may not be removed or tampered with in any manner or for any purpose by other than authorized District personnel acting with the authority of the General Manager. Tampering or removing of such a fixture without authorization will result in the immediate discontinuance of service at the customer's expense and until the articles and provisions of this Ordinance as herein set forth are fully complied with. SECTION 14: Authority to Enter Premises. Authority and permission to enter upon private premises, for the purpose of inspecting outside water systems as to compliance with the articles and provisions of this Ordinance, shall be granted to authorized water district personnel upon presentation of official identification and clear statement of purpose to conduct water conservation enforcement activities. Those authorized personnel on official business shall be allowed free access at all reasonable hours to any premises supplied with the District water. Any owner or occupant of any premises who refuses admittance to, or hinders or prevents inspection by, an authorized employee of the Water District may, after , written notice setting a hearing date before the Board of Directors, have all water service discontinued. At the hearing, the customer shall be entitled to introduce testimony and evidence justifying denial of the right to inspect and any medical hardships caused by the termination. SECTION 15: No Unauthorized Use of District Identification. No unauthorized person shall possess, carry, wear, or exhibit any badge or other official identification of the Water District, nor shall any person, whether or not possession is authorized, display, exhibit, or cause to be exhibited any badge or other official identification of the Water District at any time, place, or in any manner or for any purpose which is not authorized by the General Manager. SECTION 16: Effective Date and Repeal. This Ordinance shall take effect immediately upon adoption. Within ten (10) days after adoption, this Ordinance shall be published one (1) time in a newspaper of general circulation in the District. This Ordinance shall remain effective until repeal by the Board of Directors of the Olivenhain Municipal Water District. Ordinance No. 203 is hereby repealed. PASSED, ADOPTED, AND APPROVED by the Board of Directors of the Olivenhain Municipal Water District at the regular Board meeting held on April 18, 1991, by the following roll call vote: AYES: Directors Miller, Golem, Gano, Peay, Denk NOES: None ABSTAIN: None ABSENT: None
_____ Harold L. Gano, President Board of Directors Olivenhain Municipal Water District ATTEST:
_____ Harley L. Denk, Secretary Board of Directors Olivenhain Municipal Water District Water ethic approved by Board 11/27/02 Olivenhain Water Use Awareness Practices The Olivenhain Water Use Awareness Practices promote responsible and efficient water use in our arid community. The following practices should be followed even when we are not in a drought situation. It is hoped that Olivenhain residents will adopt these behaviors as a way of life: 1. New landscaping should incorporate drought-tolerant plant materials and micro-irrigation (drip) systems wherever possible. 2. Water should never leave the user's property due to over-irrigation of landscape. 3. Watering should be done during the early morning or evening hours to minimize evaporation (between 4:00 p.m. and 9:00 a.m. the following morning). 4. Large Irrigators should spread water use throughout the week, avoiding having to irrigate at peak usage times such as Monday mornings. 5. All leaks must be investigated and repaired. 6. Water cannot be used to clean paved surfaces, such as sidewalks, driveways, parking areas, etc., except to alleviate immediate

safety or sanitation hazards. 7. Reclaimed or recycled water shall be used wherever and whenever possible. 8. Conveyor car washes, commercial laundry systems, cooling systems and decorative fountains should recycle water. 9. Exchange-type water softeners should be used in lie of those that discharge brine into the sewer system. 10. All customers are encouraged to retrofit existing plumbing devices such as faucet aerators, toilets, showerheads, clothes washers and hose nozzles with water-saving devices.

Reported as of 10/1

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2002

A. Implementation

	Single-Family Accounts	Multi-Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes

Number of Toilets Replaced by Agency Program During Report Year

Replacement Method	SF Accounts	MF Units
2. Rebate	0	0
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	513	74
Total	**513**	**74**

6. Describe your agency's ULFT program for single-family residences.

Through this program, participating residential customers are offered a voucher redeemable for up to $75 off the purchase price. Voucher can only be used to replace toilets that are 3.5 gpf or more. The ULFT voucher incentive program has extensive marketing research.

7. Describe your agency's ULFT program for multi-family residences.

Same as above

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

City of San Diego	Retrofit upon resale ordinance

B. Residential ULFT Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	16652	17934
2. Actual Expenditures	13058.46	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 10/1

BMP Report
FY 2003

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2003**

A. Implementation

1. Based on your signed MOU date, 09/05/1991, your Agency STRATEGY DUE DATE is:	09/04/1993
2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys?	yes
a. If YES, when was it implemented?	7/1/1995
3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys?	yes
a. If YES, when was it implemented?	7/1/1995

B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	75	75
2. Number of surveys completed:	29	0
Indoor Survey:		
3. Check for leaks, including toilets, faucets and meter checks	yes	yes
4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	yes	yes
5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary	yes	yes
Outdoor Survey:		
6. Check irrigation system and timers	yes	yes
7. Review or develop customer irrigation schedule	yes	yes
8. Measure landscaped area (Recommended but not required for surveys)	yes	yes
9. Measure total irrigable area (Recommended but not required for surveys)	yes	yes
10. Which measurement method is typically used (Recommended but not required for surveys)		Pacing
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	yes	yes
12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?	yes	yes
a. If yes, in what form are surveys tracked?		database
b. Describe how your agency tracks this information.		

Contractor tracks number of surveys through database.

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	2000	1992
2. Actual Expenditures	808	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Some of next year's budgeted funds will be for weather-based irrigation controllers. In the future, a BMP may be written to include these funds under a seperate BMP.

Reported as of 10/1

BMP 02: Residential Plumbing Retrofit

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2003**

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? yes
3. Estimated percent of single-family households with low-flow showerheads: 75%
4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? yes
5. Estimated percent of multi-family households with low-flow showerheads: 75%
6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

   The San Diego County Water Authority and its member agencies distributed over 500,000 showerheads between 1991 and 2002. The average rate of natural replacemebnt is 4.0%, while housing demolition is .5%. Effective January 1, 1994, showerheads manufactured in the United States must be 2.5 gpm maximum. OMWD continues to distribute showerheads in its lobby and at community events.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes

   a. If YES, when did your agency begin implementing this strategy? 1/1/1996

   b. Describe your targeting/ marketing strategy.

   Marketing includes the following: - residential survey distribution - direct distribution to cusotmers (lobby, website, community events)

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	25	0
3. Number of toilet-displacement devices distributed:	10	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	275	0

6. Does your agency track the distribution and cost of low-flow devices? no

   a. If YES, in what format are low-flow devices tracked?

   b. If yes, describe your tracking and distribution system :

   We distribute devices purchased or left over from the previous year at

community events and in our lobby throughout the year, but do not ask customers if they are single or multi-family so I have put all devices under single-family. We also do not monitor how many each customer takes. We simply restock every year on items such as hose nozzles, aerators, showerheads, dye tablets, rain gauges and sprinkler timers. CWA kept a spreadsheet by region on showerheads.

C. Low-Flow Device Distribution Expenditures

	This Year	Next Year
1. Budgeted Expenditures	1000	500
2. Actual Expenditures	987	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

SDCWA and its member agencies believe the region has satisfied the 75% saturation level and is pursuing grant money to fund a saturation study. OMWD conitues to distribute showerheads and other devices.

E. Comments

Reported as of 10/1

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2003**

A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year?	yes
2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:	
a. Determine metered sales (AF)	21756.3
b. Determine other system verifiable uses (AF)	629.8
c. Determine total supply into the system (AF)	23250.7
d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required.	0.96
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production?	yes
4. Did your agency complete a full-scale audit during this report year?	no
5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit?	yes
6. Does your agency operate a system leak detection program?	yes

a. If yes, describe the leak detection program:

The District uses a leak detection engineering firm to investigate suspected leaks, pinpoint the source and repair immediately. With our soils, even small water leaks manifest as all water comes to the top. We have such small water loss in the system that there is no cost benefit to perform another full audit.

B. Survey Data

1. Total number of miles of distribution system line.	375
2. Number of miles of distribution system line surveyed.	375

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	3000	3000
2. Actual Expenditures	3000	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Reported as of 10/1

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2003**

A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use?	yes
2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use?	no
a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed?	
b. Describe the program:	
All customers are required to have meters and are billed by volume of use. Retrofits are peformed on an as needed basis.	
3. Number of previously unmetered accounts fitted with meters during report year.	0

B. Feasibility Study

1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	no
a. If YES, when was the feasibility study conducted? (mm/dd/yy)	
b. Describe the feasibility study:	
2. Number of CII accounts with mixed-use meters.	27
3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period.	0

C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

Reported as of 10/1

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2003**

A. Water Use Budgets

1. Number of Dedicated Irrigation Meter Accounts:	626
2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:	0
3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):	0
4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):	0
5. Does your agency provide water use notices to accounts with budgets each billing cycle?	no

B. Landscape Surveys

1. Has your agency developed a marketing / targeting strategy for landscape surveys?	yes
a. If YES, when did your agency begin implementing this strategy?	8/10/1990

b. Description of marketing / targeting strategy:

Our contractor prescreens potential customers by reviewing usage data records and comparing typical patterns of other industry or SIC water usage. Customers that exhibit unusaully high water usage relative to the size of the property are sent a letter and a program brochure, inviting them to participate in the program. Dispersal of brochures to a variety of candidates, home owner's associations as well as large turf customers. Customers actually refer others to the program. All new customers are offered a survey.

2. Number of Surveys Offered.	10
3. Number of Surveys Completed.	2
4. Indicate which of the following Landscape Elements are part of your survey:	
a. Irrigation System Check	yes
b. Distribution Uniformity Analysis	yes
c. Review / Develop Irrigation Schedules	yes
d. Measure Landscape Area	yes
e. Measure Total Irrigable Area	yes
f. Provide Customer Report / Information	yes
5. Do you track survey offers and results?	yes
6. Does your agency provide follow-up surveys for previously completed surveys?	yes

a. If YES, describe below:

All participants are offered a follow-up survey.

C. Other BMP 5 Actions

1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program.	no

Does your agency provide mixed-use accounts with landscape budgets?	
2. Number of CII mixed-use accounts with landscape budgets.	0
3. Do you offer landscape irrigation training?	yes
4. Does your agency offer financial incentives to improve landscape water use efficiency?	yes

Type of Financial Incentive:	Budget (Dollars/ Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates	0	0	0
b. Loans	0	0	0
c. Grants	0	0	0

5. Do you provide landscape water use efficiency information to new customers and customers changing services?	yes
a. If YES, describe below:	
6. Do you have irrigated landscaping at your facilities?	yes
a. If yes, is it water-efficient?	yes
b. If yes, does it have dedicated irrigation metering?	yes
7. Do you provide customer notices at the start of the irrigation season?	yes
8. Do you provide customer notices at the end of the irrigation season?	yes

D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	1000	1500
2. Actual Expenditures	1293.25	

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

F. Comments

Reported as of 10/1

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2003

A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? yes

   a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

   San Diego Gas & Electric provided $75 rebates on qualified high-efficiency clothes washers in their service area.

2. Does your agency offer rebates for high-efficiency washers? yes
3. What is the level of the rebate? 125
4. Number of rebates awarded. 356

B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	5551	8000
2. Actual Expenditures	7860.5	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

   a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

This agency provides vouchers rather than rebates.

Reported as of 10/1

BMP 07: Public Information Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2003

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

On-hold telephone message, website, newsletter, bill messages, video library available, landscaping classes held at the District, lobby brochures and giveaways, press releases, speakers bureau, and community events and meetings are all a part of our program. Quotas are set for each month.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	no	
b. Public Service Announcement	yes	1
c. Bill Inserts / Newsletters / Brochures	yes	10
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	1
f. Special Events, Media Events	yes	8
g. Speaker's Bureau	yes	3
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	34000	33000
2. Actual Expenditures	32850	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

SDCWA has a regional program that includes: advertising in local newspapers Public Service Announcements (PSA) Demonstration garden Community Events Monthly Public Information Officer's Meeting Speaker's Bureau Water Awareness Month Regional Recycled Water Certification Workshops

Reported as of 10/1

BMP 08: School Education Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2003

A. Implementation

1.Has your agency implemented a school information program to promote water conservation? yes

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	yes	2	44	0
Grades 4th-6th	yes	10	300	0
Grades 7th-8th	yes	1	28	0
High School	yes	0	12	0

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 9/9/1990

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	1200	2000
2. Actual Expenditures	1800	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

OMWD brings the Splash Science Mobile Lab to schools within its district. It provides classroom presentations for all ages. Lessons are given at its recreational park. It takes part in a water awareness campaign for San Diego's North County. It participates in the CSDA scholarship for high school seniors. It provides adult education classes on landscaping and conservation. SDCWA provides educational programs including magic shows, traveling libraries, and experiments for teachers to use.

Reported as of 10/1

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2003**

A. Implementation

1. Has your agency identified and ranked COMMERCIAL customers according to use?	yes
2. Has your agency identified and ranked INDUSTRIAL customers according to use?	yes
3. Has your agency identified and ranked INSTITUTIONAL customers according to use?	yes

Option A: CII Water Use Survey and Customer Incentives Program

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option?	no

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	0	0	0
b. Number of New Surveys Completed	0	0	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	no	no	no
f. Evaluation of all water-using apparatus and processes	no	no	no
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	no	no	no

Agency CII Customer Incentives	Budget ($/Year)	No. Awarded to Customers	Total $ Amount Awarded
h. Rebates	0	0	0
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	0	0	0

Option B: CII Conservation Program Targets

5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option?	yes
6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	yes
7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991.	3.61
8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991.	0

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	5980	5904
2. Actual Expenditures	83	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

OMWD takes part in the regional program through SDCWA. It markets the programs through newsletters, bill messages and at community events.

Reported as of 10/1

BMP 09a: CII ULFT Water Savings

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2003**

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10. — Yes

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.
   - Potential savings
   - CII Sector or subsector

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

   Our CII voucher incentive program contractor, HDMC has been a significant player in the promotion of water-efficient products in San Diego County. Working in cooperation with WSA marketing and communications firm, HDMC has conducted extensive education, outreach, public relations, advertising and direct marketing activities. HDMC has created relationships with the owners, managers and related customer service sdupervisors and staff and water-efficient product suppliers from valley Center to San Yisidro for the past five years. Partnerships have been established with business owners, as well as employees at wholesale and retail suppliers. Understanding of suppliers' business profiles, sales operations and accounting policies and procedures are key to the success of the program. Working relationships and/or quality data has been gathered on over 200 plumbers. Dealers sign contracts each year in order to participate in a program that is responsible for increasing their sales substantially.

2. How does your agency advertise this program? Check all that apply.
   - Direct letter
   - Bill insert
   - Newsletter
   - Telephone
   - Web page
   - Other print media
   - Trade shows and events

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

   Relationships with the retail/wholesale outlets displaying marketing materials and knowing the program details. Adds in newspapers are also effective.

B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) — Yes
2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? — Yes
3. What is the total number of customer accounts participating in the program during the last year ? — 2

CII Subsector	Number of Toilets Replaced			
4.	Standard Gravity Tank	Air Assisted	Valve Floor Mount	Valve Wall Mount
a. Offices	0	0	0	0
b. Retail / Wholesale	0	0	0	0
c. Hotels	0	0	0	0
d. Health	0	0	0	0
e. Industrial	0	0	0	0
f. Schools: K to 12	0	0	0	0
g. Eating	2	0	0	0
h. Govern-ment	0	0	0	0
i. Churches	0	0	0	0
j. Other	0	0	0	0

5. Program design.

Rebate or voucher

6. Does your agency use outside services to implement this program? Yes

a. If yes, check all that apply.

Consultant
Plumbing contractors/subcontracts

7. Participant tracking and follow-up.

Letter
Telephone
Site Visit

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

a. Disruption to business	4
b. Inadequate payback	4
c. Inadequate ULFT performance	3
d. Lack of funding	5
e. American's with Disabilities Act	2
f. Permitting	2
g. Other. Please describe in B. 9.	0

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

The Regional CII voucher Incentive Program continues to increase in popularity in the San Diego region. Extensive marketing by our contractor, coupled with member agency support, has proven successful.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and

budgeting?

Contractor does a great job in marketing. District does not have adequate staff to market the program at the agency level. Would like to increase involvement, although the majority of our District is single-family homes.

C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor	0	0
b. Materials	0	0
c. Marketing & Advertising	0	0
d. Administration & Overhead	500	83
e. Outside Services	0	0
f. Total	500	83

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution	0
b. State agency contribution	0
c. Federal agency contribution	0
d. Other contribution	0
e. Total	0

D. Comments

Also had a voucher for a CTCC redeemed this year.

Reported as of 10/1

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2003**

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$16272319
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$6643627

2. Commercial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

3. Industrial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

4. Institutional / Government

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

5. Irrigation

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

6. Other

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0

d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	8000	8000
2. Actual Expenditures	7230	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

We cannot differentiate rates.

Reported as of 10/1

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2003**

A. Implementation

1. Does your Agency have a conservation coordinator?	yes
2. Is this a full-time position?	no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ?	yes
4. Partner agency's name:	San Diego County Water Authority
5. If your agency supplies the conservation coordinator:	
a. What percent is this conservation coordinator's position?	20%
b. Coordinator's Name	Teresa Chase
c. Coordinator's Title	Community Services Representative/Administrative Assistant
d. Coordinator's Experience and Number of Years	6 years
e. Date Coordinator's position was created (mm/dd/yyyy)	1/1/1992
6. Number of conservation staff, including Conservation Coordinator.	1

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	4800	5000
2. Actual Expenditures	4910	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 10/1

BMP 13: Water Waste Prohibition

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2003**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? no

a. If YES, describe the ordinance:

We had an ordinace after the drought was declared in the early nineties, but do not have the jurisdiction to prohibit certain water uses.

2. Is a copy of the most current ordinance(s) on file with CUWCC? yes

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

The City of Carlsbad has a "Carlsbad Water Ethic" that makes recomendations for on watering hours, sweeping instead of hosing, etc. There are no water waste ordinances for our area.	The District adopted a Olivenhain Water Ethic in 2003 and will revise its ordinance in 2005.

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

a. Gutter flooding	no
b. Single-pass cooling systems for new connections	no
c. Non-recirculating systems in all new conveyor or car wash systems	no
d. Non-recirculating systems in all new commercial laundry systems	no
e. Non-recirculating systems in all new decorative fountains	no
f. Other, please name	no

2. Describe measures that prohibit water uses listed above:

OMWD does not have jurisdiction to prohibit any water uses, it can only make recomendations.

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

a. Allow the sale of more efficient, demand-initiated regenerating DIR models.	no
b. Develop minimum appliance efficiency standards that:	
i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used.	no
ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced.	no
c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect	no

on the reclaimed water or groundwater supply.

4. Does your agency include water softener checks in home water audit programs?	no
5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models?	no

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Ordinance 204, adopted during drought of late eighties, early nineties. AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE OLIVENHAIN MUNICIPAL WATER DISTRICT IMPOSING WATER CONSERVATION MEASURES BE IT ORDAINED by the Board of Directors of the Olivenhain Municipal Water District as follows: SECTION 1: Declaration of Policy. Water Code Section 71640 et seq., authorizes the District to impose water conservation measures and to restrict the use of water during any emergency caused by drought or other threatened or existing water shortage. The Board of Directors hereby establishes a comprehensive water conservation plan pursuant to Water Code Sections 71640 et seq., based upon an existing water shortage. SECTION 2: Findings. The Board of Directors finds and determines that a water shortage exists based upon the following facts: (a) The Governor has declared that precipitation in the State of California, for this water year to date, is approximately 50% of average. (b) Unprecedented weather conditions have resulted in five consecutive years (1987, 1988, 1989, 1990, 1991) of below normal precipitation and run-off resulting in a statewide water shortage. (c) The District is dependent upon water distributed through the California Aqueduct system and the Colorado River aqueduct by the Metropolitan Water District and the San Diego County Water Authority to provide water service to its customers. This is the sole source of supply to the District. The Metropolitan Water District of Southern California has notified the District that existing water demand will require a 30% reduction in water presently being provided to the San Diego County Water Authority. (d) The San Diego County Water Authority has notified the District that a drought condition exists and that effective April 11, 1991, a reduction in deliveries to member agencies of 20% of 1989-1990 deliveries, subject to minor adjustments for prior conservation efforts and growth, shall be invoked. (e) It is considered critical for the well being of the citizens within the Olivenhain Municipal Water District that existing water supplies be husbanded and future supplies be uniformly allocated so that water, essential for domestic use, sanitation, and fire protection, will remain available throughout the duration of the drought. (f) On April 11, 1991, the San Diego County Water Authority determined that in order to achieve the savings necessary to comply with reductions in deliveries, that the Water Authority recommends that each member agency implement conservation programs substantially equivalent to those set forth in the

Authority's Drought Response Plan of February 14, 1991. (g) The District has solicited and received advice and direction from the San Diego County Water Authority, the Metropolitan Water District of Southern California, the State Department of Water Resources, other member agencies of the Water Authority, the Cities of San Diego, Carlsbad and Encinitas, customers, businesses, professional organizations, members of the public, and other entities at various meetings and through numerous communications both written and oral, including a public meeting held on February 21, 1991, at 10:00 a.m., a public meeting held on March 21, 1991 at 9:00 a.m., and a public meeting held on April 18, 1991 at the District's Administration Office. (h) It is considered critical that mandatory restrictions on the use of water by District customers to conserve remaining water supplies be adopted. Experience of other agencies within California facing severe limitations on water supplies has demonstrated that prohibitions of certain uses, pricing structures, and limitations on deliveries have been found necessary to preserve water supplies for essential services and to allocate remaining supplies in a fair and uniform manner, with particular regard for domestic, sanitation, and fire protection. SECTION 3: CEQA Exemption. The District finds that this action is the result of the unexpected occurrences, above described, which involve clear and imminent danger demanding immediate action to mitigate damage to life, health and property from the loss of an essential public service - the delivery of public water supplies, and, therefore, it is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Sections 21080 (b) (4), 21060.3 Title 14, California Code of Regulations, Section 15269 (c). SECTION 4: Declaration of Water Shortage and Application. It is hereby determined and declared that, based upon the foregoing facts, the District is unable to provide sufficient water supplies to meet the ordinary demands and requirements of its customers without depleting available water supplies to the extent that insufficient water would be available for all needs of the District's customers. The provisions of this Ordinance shall apply to all persons, customers, and property served by the District wherever situated and for all imported water being provided by the District. SECTION 5: Authorization. Upon adoption of this Ordinance, the District's General Manager, or his designated representative, is hereby authorized and directed to implement the provisions of this Ordinance based upon his determination that such implementation is necessary to protect the public health, safety, and welfare. The declaration of each water conservation stage and/or water emergency shall be deemed implemented upon publication two (2) times in a newspaper of general circulation in the District. SECTION 6: Definitions for Potable Water Use Prohibitions (a) "Potable Water" means filtered or unfiltered water delivered by the District which meets drinking water standards or upon disinfection meets drinking water standards, i.e. raw water. (b) "Active public park and school ground areas" means areas designated by public agencies and private schools for specific sporting and recreational activities and those areas traditionally used for active play or recreation where turf is an integral part of the activity. (c) "Reclaimed water" means water which, as a result of treatment of wastewater, is suitable for a direct beneficial use or controlled use that would not otherwise occur. (See Water Code Section 13050(n).) (d) "Greywater" is household wastewater other than toilet water, i.e., water from laundry, shower, tub, bathroom and kitchen sinks. Its use is presently prohibited by the San Diego County Department of Health Services. The exception mentioned for greywater in this Ordinance depends solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations. (e) "Micro irrigation systems/equipment" means low pressure, low volume methods of water application. These devices include drip emitters, T-tape, microsprayers, mini-sprinklers, twirlers, and

spaghetti tubing. Pop-up sprinklers are not considered low-volume, low pressure irrigation systems/equipment. (f) "Normal Water Demand" means the expected water use for the use or development requiring the meter during times of unrestricted water deliveries. (g) "Recreational and Ornamental Lakes and Ponds" are those bodies of water which are not swimming pools, water storage reservoirs for the purpose of drinking water, or irrigation supply, or pool which maintain rare plant or animal species. (h) "Conservation offset" means the implementation of proven conservation techniques which, when installed, will result in a reduction equal to demand of the proposed use. Calculation of demand and saving shall be performed or verified by the General Manager based upon non-drought conditions (normal conditions). (i) "Fire Protection" means actions for prevention of suppression of fires as directed by the Fire Marshall or Fire Prevention offices with jurisdiction over the local area involved. (j) "Ground Cover" means continuous homologous, cultivated planting(s) other than grass, turf, lawn or "weeds", utilized for decorative purposes, erosion control, fire protection or a combination of the above uses. SECTION 7: Water Conservation Stages. During the period this Ordinance is effective, no customer of the District shall knowingly make, cause, use, or permit the use of water supplied by the District for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this Ordinance, in an amount in excess of the amounts authorized by this Ordinance or during any period of time other than the periods of time specified in this Ordinance. (A) Stage 1. Normal Supply Level Available. Stage 1 applies during periods when a normal supply and distribution capacity is available, while at the same time demand levels are not expected to significantly increase in the immediate future. Elements of Stage 1 include: (1) Implementation of the District's adopted Urban Water Management Plan and Conservation Program. (2) Adoption of a District policy which is an action plan for implementation of water conservation techniques. (All elements shall apply as in Stage 2, but voluntary basis only.) (3) The failure to repair a controllable leak is defined as "waste of water" and is prohibited at all times. (4) All new indoor meter applicants must provide a plan indicating installation of 2.5 gpm showerheads and 1.6 gallon flush toilets. (5) All new meters that will be used wholly or partially for landscape irrigation shall not be issued without the submittal of appropriate plans incorporating principles of low water use landscaping and irrigation systems. (6) Changes to existing landscaping and turf areas or the addition of new landscaping or turf areas shall utilize principles of low water use landscaping and irrigation systems. (B) Stage 2. Mandatory Compliance - Water Alert. Stage 2 applies during periods when the probability exists that the District will not be able to meet all of the water demands of its customers. Implementation of Stage 2 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 10%. During Stage 2, the following water conservation measures shall apply except when reclaimed water is used: (1) Lawn watering and landscape irrigation is permitted only on designated irrigation days and only between the evening hours of 6:00 p.m. and 9:00 a.m. the following morning. Watering is permitted at any time if a hand-held hose equipped with a positive shut-off nozzle is used, a hand-held, faucet-filled bucket of five (5) gallons or less is used, or a drip irrigation system is used. Properties with addresses ending in an even number may use water on Monday, Thursday, and Saturday evenings until the following morning. Addresses ending in an odd number may use water on Tuesday, Friday, and Sunday evenings until the following morning. (2) Agricultural users and commercial nurseries as defined in the Metropolitan Water District Code are exempt from Stage 2 irrigation

restrictions, but will be required to curtail all non-essential water use. The watering of livestock and irrigation of propagation beds are permitted at any time. (3) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited except on designated irrigation days. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shut-off nozzle for quick rinses. Washing is permitted at any time on the immediate premises of a commercial car wash. Further, such washing is exempted from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables. (4) Filling or refilling swimming pools, spas, ponds, and artificial lakes is permitted only on designated irrigation days. (5) Watering golf courses, parks, school grounds, and recreational fields is permitted only between the hours of 6:00 p.m. and 9:00 a.m. the following morning, except golf course greens and propagation beds. (6) The use of water from fire hydrants shall be limited to fire fighting and related activities, for construction activities, or other activities necessary to maintain the health, safety, and welfare of the public. (7) Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire, safety, or sanitation hazard. (8) Restaurants shall serve water to their customers only when specifically requested. (9) The operation of any non-recirculating ornamental fountain or similar structure is prohibited. (C) Stage 3. Mandatory Compliance - Watering Warning. Stage 3 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 3 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 15%. During Stage 3, the following water conservation measures shall apply except when reclaimed water is used: (1) Lawn watering and landscape irrigation is permitted only on designated irrigation days and only between the evening hours of 4:00 p.m. to 9:00 a.m. the following morning. Watering is permitted at any time if a hand-held hose equipped with a positive shut-off nozzle is used, a hand-held, faucet-filled bucket of five (5) gallons or less is used, or a micro-irrigation system/equipment is used. A "designated irrigation day" is determined by the last digit in the street address. Properties with addresses ending in an even number may use water on Tuesday and Saturday evenings until the following morning and addresses ending in an odd number may use water on Sunday and Thursday evenings until the following morning. (2) Agricultural users and commercial nurseries shall reduce water use by an amount to be determined at the time of declaration. The watering of livestock and irrigation of propagation beds are permitted at any time. (3) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited except on designated irrigation days. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shut-off nozzle for quick rinses. Washing is permitted at any time on the immediate premises of a commercial car wash. The use of water by all types of commercial car washes not using partially reclaimed or recycled water shall be reduced in volume by an amount to be determined at the time of declaration. Further, such washing is exempted from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables. (4) Filling or refilling of swimming pools and spas is permitted only on designated irrigation days between the hours of 4:00 p.m. and 9:00 a.m. the following morning. The filling or refilling of ornamental lakes and ponds is prohibited. Irrigation reservoirs may be

exempted when specifically requested. (5) Watering golf courses, parks, school grounds, and recreational fields is permitted only between the hours of 4:00 p.m. and 9:00 a.m. the following morning, except golf course greens. (6) The use of water from fire hydrants shall be limited to fire fighting and related activities, for construction activities, or other activities necessary to maintain the health, safety, and welfare of the public. (7) Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire or sanitation hazards. (8) Restaurants shall serve water to their customers only when specifically requested. (9) The operation of any ornamental, non-recirculating fountain or similar structure is prohibited. (10) New construction meters or permits for unmetered service shall not exceed the existing number of currently authorized meters. A new meter shall be issued only when an old meter is returned. Construction projects requiring water from a construction meter or a water truck shall not use water unnecessarily for any purposes other than those required by regulatory agencies. (D) Stage 4. Mandatory Compliance Water Warning. Stage 4 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 4 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 20%. During Stage 4, the following water conservation measures shall apply, including all provisions and conditions of Stage 3, except when reclaimed water is used: (1) All water users shall minimize water use. (2) Shower and sink warm up water shall be captured with a bucket and used outdoors or to flush toilets. (3) All golf courses, parks, school grounds, and recreational fields must reduce from their base 1989-1990 usage by a volume of not less than 20% at the time of declaration, or for new projects a base allocation to be determined by the General Manager. (4) Agricultural users and commercial nurseries shall reduce water use by an amount not less than 20%. (5) The use of potable water for commercial, industrial, manufacturing, processing purposes, resorts, hotels, motels and restaurants may be reduced in volume by an amount to be determined by the General Manager. (E) Stage 5. Mandatory Compliance Water Warning. Stage 5 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 5 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 30%. During Stage 5, the following water conservation measures shall apply, including all provisions and conditions of Stage 4, except when reclaimed water is used: (1) All lawn and turf watering, other than golf courses, shall be limited to one day per week between the hours 6:00 p.m. and 9:00 a.m. the following morning. Properties with addresses ending in an even number may use water on Saturday evenings until the following morning and addresses ending in an odd number may use water on Sunday evenings until the following morning. All Homeowners Associations may use water on Wednesday evenings until the following morning. (2) All construction water must be reclaimed or from a non- imported source unless the District determines in its sole discretion that those sources are not reasonably available. (3) Washing at home of autos, trucks, trailers, boats, airplanes and other types of mobile equipment is prohibited except with water captured from sink and bath warm-up water or other recovered water in a handheld bucket. (4) All new meter applicants must mitigate their specific impact upon the water supply by participating in a toilet/showerhead retrofit program or contributing to a reclaimed water project such that an off-setting supply of "new" water capacity is created,

prior to the District's issuing a new water meter(s). (5) All golf courses, hotels, motels, and resorts must reduce a minimum of 30% from their 1989-1990 base usage or for new projects a base allocation to be determined by the General Manager. (F) Stage 6. Mandatory Compliance. Stage 6 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 6 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 40%. During Stage 6, the following water conservation measures shall apply, including all provisions and conditions of Stage 5, except when reclaimed water is used: (1) No outdoor watering shall occur between 9:00 a.m. and 4:00 p.m. except when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations) or private well water. Anyone using such water at other than a private residence shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet along public rights-of-way where such water is being used noticing such usage. (2) Washing of personal vehicles other than in commercial carwashes or commercial vehicles for reasons of public health and safety is prohibited except when water used has been salvaged from indoor use, i.e., warmup water from showers, sinks, and/or lavatories. (3) There shall be no filling of new pools, new spas, or new fountains from imported sources. (4) Golf courses shall reduce water use by 40%. (G) Mandatory Compliance - Water Emergency. A Water Emergency applies when a major failure of any supply or distribution facility, whether temporary or permanent, occurs in the water distribution system of the State Water Project, Metropolitan Water District, San Diego County Water Authority, or District facilities, when the District determines that a water shortage exists for any reason, requiring use reductions of 50% or more. It is anticipated that these measures will result in a reduction of water use from a base allocation to be determined at the time of declaration by a volume of not less than 50%. During a Water Emergency, the following potable water use prohibitions shall apply, including all provisions and conditions of Stage 6, except when reclaimed water or well water is used. (1) General Requirement (a) All water users are expected to minimize water use for the duration of the drought emergency. All classes of water, including agricultural use, are expected to achieve a fifty percent reduction in use from the base allocation, as determined by the General Manager, except where specifically relieved of such reduction by the Board of Directors. Indoor uses will, in general, be reduced by such practices as fewer and shorter showers and baths, no running water while brushing teeth and shaving, full loads in dish and clothes washers, avoidance of unnecessary toilet flushing, frequent checking and repairing of leaks, and other conservation practices. (2) Potable Water Use Prohibitions. (a) Irrigation of Turf. Irrigation of turf with potable water is prohibited except under the following circumstances: 1. for active public park and school ground areas no more than twice weekly; 2. at day care centers where required by license no more than twice weekly; 3. for purposes of maintaining public safety (such as fire protection); and 4. when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations), or private well water. 5. at public parks, where trees and shrubs are interspersed amidst turf supported by the same irrigation system, provided the area of irrigation is within the drip line of each tree or shrub and irrigation is no more than once every two weeks. (b) Irrigation of Ground Cover. Irrigation of ground cover with potable water is prohibited except under the following circumstances: 1. for fire protection; 2. where trees and shrubs are

interspersed amidst ground cover supported by the same irrigation system; and 3. for preservation of existing ground cover which is designed to stabilize slopes. Irrigation of ground cover under this Section is restricted to once every 14 days. (c) Irrigation of Trees, Shrubs, Including Certified Agricultural Production Outside irrigation of trees, shrubs, and other plants which are not turf or ground cover, is allowed only by hand-held hose with positive shut-off nozzle, bucket, or micro irrigation systems/equipment. Sprinkler systems may only be used for certified agricultural production, watering active public park and school ground areas, maintenance of ground cover in accordance with this Ordinance and for purposes of maintaining public safety such as, fire protection. (d) Irrigation Water Hours. No outdoor irrigation shall occur between 9:00 a.m. and 4:00 p.m., except when using a micro irrigation system/equipment, or for certified agricultural production, or when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations), or private well water. Anyone using reclaimed water at other than a private residence shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet along public rights-of-way where such water is being used noticing such usage. (e) Hosing or Spraying of Paved or Hard Surfaces. Hosing paved or hard surfaces including, but not limited to, sidewalks, driveways, patios, streets and parking areas is prohibited except for compelling public health and safety reasons. Allowed hosing activities shall be done only with a hose equipped with a positive shut-off nozzle. Spraying hard surfaces during irrigation activities is prohibited. (f) Runoff and Repairing of Leaks. All runoff from outside water usage from property is prohibited. Leaks to irrigation and plumbing systems shall be immediately repaired. (g) Filling of Pools and Spas. Filling of new pools and spas is prohibited except under the following circumstances: 1. where the owner can produce and demonstrate a conservation offset; or, 2. where the owner can produce evidence that private well water meeting public health standards will be utilized. Draining of existing pools is prohibited except under orders of the appropriate local health or building official. (h) Recreational and Ornamental Lakes and Ponds. Recreational and ornamental lakes and ponds may not be filled or refilled except with reclaimed water or private well water. Lakes and ponds utilizing reclaimed water at other than a private residence shall post signs around the lakes and ponds of where such water is being used noticing such usage. (i) Golf Course Irrigation. Golf courses may use potable water supplied by the District only to irrigate tees and greens. Irrigation of fairways and roughs with potable water or any blend thereof is prohibited. Golf courses irrigating with reclaimed water shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet where such water is being used noticing such usage. (j) Restaurants. Restaurants shall serve water only upon request. (k) Ornamental Fountains. Operation of ornamental fountains is prohibited except when private well water or reclaimed water is used. Ornamental fountains utilizing reclaimed water at other than a private residence, shall post signs around the ornamental fountain of where such water is being used, noticing such usage. (l) Washing of Vehicles. Washing of vehicles is prohibited except: 1. in commercial car washes; 2. commercial vehicles for reasons of public health and safety; 3. where water has been salvaged from indoor use, e.g. warmup water from showers, sinks, and/or lavatories; or 4. by a mobile high-pressure/low volume service. (m) New Services. Except as to property for which a building permit has been heretofore issued, no new potable water shall be provided, no new temporary meters or permanent meters shall be provided and no commitments (such as, will serve letters, certificates or letters of availability) to provide potable water service shall be issued, except for the following circumstances: 1. the commitment

includes a notice that a water shortage emergency prevails, resulting in a water moratorium and no water service is currently available; 2. for projects necessary to protect the public's health, safety, and welfare; 3. when it can be demonstrated that no net increase in potable water use will occur; or 4. when a conservation offset is provided. (n) Certified agricultural irrigation shall reduce 50% from the 1989-1990 base year. Certified agricultural irrigation may be discontinued for varying durations, as determined necessary by the District's General Manager depending upon the circumstances of the water emergency. (o) The use of potable water for commercial, industrial, manufacturing, processing purposes, resorts, hotels, motels, and restaurants shall be reduced in volume by 50% from the base allocation for that user. These users shall be monitored by the District to ensure compliance with the 50% reduction. Any such user who exceeds their 50% reduction by 10% or more during any period monitored by the District shall have a flow restrictor installed at the user's expense until the user's total use for the year no longer exceeds a 50% reduction from that users base allocation. All fees and charges for the removal of the restrictor shall be paid by the user. SECTION 8: Grounds for Appeal. A customer may file with the General Manager a written request for review of issue(s) regarding the restriction and use of water and/or the mandatory prohibitions on the use of potable water. No customer of the District shall be entitled to appeal any restriction on potable water usage unless the customer can demonstrate that the customer's allocation is insufficient for health, sanitary, or fire protection purposes. Appeals seeking increased allocations for other purposes shall be summarily rejected and will not be considered by the General Manager. A customer may, following review of the appeal by the General Manager, request a hearing by the Board of Directors. The hearing shall be scheduled at the Board's next regular meeting or at a special meeting scheduled for that hearing. The customer may appear before the Board or present written testimony and documentation considered appropriate for proper understanding and evaluation of the claim and basis for appeal. The District shall mail written notice of the hearing to the customer before the date of said hearing. SECTION 9: Mandatory Conservation Phase Implementation. The Superintendent of Maintenance and Operations shall monitor the projected supply and demand for water by its customers on a daily basis during periods of emergency or drought and shall recommend to the General Manager the extent of the conservation required through the implementation and/or termination of particular conservation stages in order for the Water Operations Department to prudently plan for and supply water to its customers. Thereafter, the General Manager may order that the appropriate phase of water conservation be implemented or terminated in accordance with the applicable provisions of this Ordinance. Said order shall be made by public announcement and shall be published once a month for three months or until the Stage Alert has been lifted, whichever is the least amount of time, in a daily newspaper of general circulation and shall become effective immediately upon such publication. SECTION 10: Violation of Stage 2 through Stage 6 and/or a Water Emergency. Any customer of the District who violates any provision of a Stages 2 through Stage 6 and/or a Water Emergency shall receive a warning letter on the first violation accompanied by a copy of the appropriate section(s) of this Ordinance. Any customer who commits a second violation of any provision of Stage 2 through Stage 6 and/or a Water Emergency shall pay a fine of $50 for each violation of Stage 2 or Stage 3; $75 for each violation of Stage 4 or Stage 5; and $100 for each violation of Stage 6 and/or a Water Emergency. Any customer of the District committing a third violation shall pay a fine of $100 for each violation of Stage 2 or Stage 3; $150 for each violation of Stage 4 or Stage 5; and $200 for each violation of Stage 6 and/or a Water

Emergency. Any customer of the District who violates a Stage 2 through Stage 6 and/or a Water Emergency more than three (3) times shall pay a fine of $200 for each violation of Stage 2 or Stage 3; $300 for each violation of Stage 4 or Stage 5; and $400 for each violation of Stage 6 and/or a Water Emergency. In addition, where a customer of the District has violated any Stage 2 through Stage 6 and/or a Water Emergency restrictions more than three times, the Board of Directors shall conduct a hearing and may, in its discretion, order either (a) installation of a flow restrictor in the meter or (b) discontinuance of water service for such period of time as the Board of Directors determines appropriate under the circumstances. The District shall, at least ten (10) days before the date set for hearing, mail an appropriate written notice of the hearing to the affected customer. The decision of the Board of Directors of the District shall be final and not subject to further appeal. The failure of any customer to pay a fine levied by this Ordinance shall be grounds for termination of water service. Termination notices shall be given in accordance with the termination procedures utilized by the District for nonpayment of water bills. Customers whose water service has been restricted or terminated as a result of violation of this Ordinance shall be required to pay all fees and charges established by the District from time to time to reinstate full service. SECTION 11: Violation of Water Emergency. During periods of a water emergency, water consumption may be limited and allocated with penalties imposed for usage above one's allocation. The District's General Manager shall determine the allocation rate for every service connection in the District, based upon an assessment of the current and projected water supply and the availability of this supply to the community. The rate shall be determined as far in advance as possible and shall be applied fairly and equitably to all classes of water service. Notification of each customer's allocation shall be given by letter to The last known address of the customer as shown on District records and shall be effective beginning with the last billing period following the date the letter is mailed. SECTION 12: Allocation Violations. In addition to the penalties for violation of potable water use prohibitions, as set forth in Section 9, a customer who exceeds an established allocation shall be subject to the following penalties: (a) A customer who exceeds an established allocation shall pay a surcharge rate of five (5) times the rate for the highest tier established in the Water Rate Ordinance per HCF (Hundred Cubic Feet) of water for all water used in excess of the allowable allocation during a first billing period in which the excess occurs. (b) A customer who exceeds the customer's allocation for two or more billing periods shall pay a surcharge of ten (10) times the rate for the highest tier established in the Water Rate Ordinance rate, per HCF, for water in excess of the allowable allocation during the second and subsequent billing periods. As used herein, "excess water" means the amount of water delivered in excess of the allocation rate as set by the General Manager. (c) If a customer continues to exceed the established allocation for two or more consecutive billing periods, the Board of Directors shall conduct a hearing and may, in its discretion, order either (a) installation of a flow restrictor in the meter or (b) termination of water service for such period of time as the District determines appropriate under the circumstances. The District shall, at least ten (10) days before the date set for hearing, mail an appropriate written notice of the hearing to the affected customer. The decision of the Board of Directors shall be final and not subject to further appeal. The failure of any customer to pay the surcharges shall be grounds for termination of water service. Termination notices shall be given in accordance with the termination procedures utilized by the District for nonpayment of water bills. Customers whose service is terminated shall be required to pay all fees and charges established by the District from time to time to reinstate full service.

SECTION 13: No Tampering With Flow Restrictors. A flow restrictor or other device, once installed by the District, may not be removed or tampered with in any manner or for any purpose by other than authorized District personnel acting with the authority of the General Manager. Tampering or removing of such a fixture without authorization will result in the immediate discontinuance of service at the customer's expense and until the articles and provisions of this Ordinance as herein set forth are fully complied with. SECTION 14: Authority to Enter Premises. Authority and permission to enter upon private premises, for the purpose of inspecting outside water systems as to compliance with the articles and provisions of this Ordinance, shall be granted to authorized water district personnel upon presentation of official identification and clear statement of purpose to conduct water conservation enforcement activities. Those authorized personnel on official business shall be allowed free access at all reasonable hours to any premises supplied with the District water. Any owner or occupant of any premises who refuses admittance to, or hinders or prevents inspection by, an authorized employee of the Water District may, after , written notice setting a hearing date before the Board of Directors, have all water service discontinued. At the hearing, the customer shall be entitled to introduce testimony and evidence justifying denial of the right to inspect and any medical hardships caused by the termination. SECTION 15: No Unauthorized Use of District Identification. No unauthorized person shall possess, carry, wear, or exhibit any badge or other official identification of the Water District, nor shall any person, whether or not possession is authorized, display, exhibit, or cause to be exhibited any badge or other official identification of the Water District at any time, place, or in any manner or for any purpose which is not authorized by the General Manager. SECTION 16: Effective Date and Repeal. This Ordinance shall take effect immediately upon adoption. Within ten (10) days after adoption, this Ordinance shall be published one (1) time in a newspaper of general circulation in the District. This Ordinance shall remain effective until repeal by the Board of Directors of the Olivenhain Municipal Water District. Ordinance No. 203 is hereby repealed. PASSED, ADOPTED, AND APPROVED by the Board of Directors of the Olivenhain Municipal Water District at the regular Board meeting held on April 18, 1991, by the following roll call vote: AYES: Directors Miller, Golem, Gano, Peay, Denk NOES: None ABSTAIN: None ABSENT: None
_____ Harold L. Gano, President
Board of Directors Olivenhain Municipal Water District ATTEST:
_____ Harley L. Denk, Secretary
Board of Directors Olivenhain Municipal Water District Water ethic approved by Board 11/27/02 Olivenhain Water Use Awareness Practices The Olivenhain Water Use Awareness Practices promote responsible and efficient water use in our arid community. The following practices should be followed even when we are not in a drought situation. It is hoped that Olivenhain residents will adopt these behaviors as a way of life: 1. New landscaping should incorporate drought-tolerant plant materials and micro-irrigation (drip) systems wherever possible. 2. Water should never leave the user's property due to over-irrigation of landscape. 3. Watering should be done during the early morning or evening hours to minimize evaporation (between 4:00 p.m. and 9:00 a.m. the following morning). 4. Large Irrigators should spread water use throughout the week, avoiding having to irrigate at peak usage times such as Monday mornings. 5. All leaks must be investigated and repaired. 6. Water cannot be used to clean paved surfaces, such as sidewalks, driveways, parking areas, etc., except to alleviate immediate safety or sanitation hazards. 7. Reclaimed or recycled water shall be used wherever and whenever possible. 8. Conveyor car washes, commercial laundry systems, cooling systems and decorative fountains

should recycle water. 9. Exchange-type water softeners should be used in lie of those that discharge brine into the sewer system. 10. All customers are encouraged to retrofit existing plumbing devices such as faucet aerators, toilets, showerheads, clothes washers and hose nozzles with water-saving devices.

Reported as of 10/1

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2003

A. Implementation

	Single-Family Accounts	Multi-Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes

Number of Toilets Replaced by Agency Program During Report Year

Replacement Method	SF Accounts	MF Units
2. Rebate	0	0
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	718	100
Total	**718**	**100**

6. Describe your agency's ULFT program for single-family residences.

Through this program, participating residential customers are offered a voucher redeemable for up to $75 off the purchase price. Voucher can only be used to replace toilets that are 3.5 gpf or more. The ULFT voucher incentive program has extensive marketing research.

7. Describe your agency's ULFT program for multi-family residences.

Same as above

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

City of San Diego	Retrofit upon resale ordinance

B. Residential ULFT Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	17934	15000
2. Actual Expenditures	16835.36	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 10/1

BMP Report
FY 2004

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2004**

A. Implementation

1. Based on your signed MOU date, 09/05/1991, your Agency STRATEGY DUE DATE is:	09/04/1993
2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys?	yes
a. If YES, when was it implemented?	7/1/1995
3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys?	yes
a. If YES, when was it implemented?	7/1/1995

B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	75	75
2. Number of surveys completed:	100	0
Indoor Survey:		
3. Check for leaks, including toilets, faucets and meter checks	yes	yes
4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary	yes	yes
5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary	yes	yes
Outdoor Survey:		
6. Check irrigation system and timers	yes	yes
7. Review or develop customer irrigation schedule	yes	yes
8. Measure landscaped area (Recommended but not required for surveys)	yes	yes
9. Measure total irrigable area (Recommended but not required for surveys)	yes	yes
10. Which measurement method is typically used (Recommended but not required for surveys)		Pacing
11. Were customers provided with information packets that included evaluation results and water savings recommendations?	yes	yes
12. Have the number of surveys offered and completed, survey results, and survey costs been tracked?	yes	yes
a. If yes, in what form are surveys tracked?		database
b. Describe how your agency tracks this information.		

Contractor tracks number of surveys through database.

C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	1992	1638
2. Actual Expenditures	1992	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Some of next year's budgeted funds will be for weather-based irrigation controllers. In the future, a BMP may be written to include these funds under a seperate BMP.

Reported as of 10/1

BMP 02: Residential Plumbing Retrofit

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2004**

A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? yes
3. Estimated percent of single-family households with low-flow showerheads: 75%
4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? yes
5. Estimated percent of multi-family households with low-flow showerheads: 75%
6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

   The San Diego County Water Authority and its member agencies distributed over 500,000 showerheads between 1991 and 2002. The average rate of natural replacemebnt is 4.0%, while housing demolition is .5%. Effective January 1, 1994, showerheads manufactured in the United States must be 2.5 gpm maximum. OMWD continues to distribute showerheads in its lobby and at community events.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes

   a. If YES, when did your agency begin implementing this strategy? 1/1/1996

   b. Describe your targeting/ marketing strategy.

   Marketing includes the following: - residential survey distribution - direct distribution to cusotmers (lobby, website, community events)

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	50	0
3. Number of toilet-displacement devices distributed:	3	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	200	0

6. Does your agency track the distribution and cost of low-flow devices? no

   a. If YES, in what format are low-flow devices tracked?

   b. If yes, describe your tracking and distribution system :

   We distribute devices purchased or left over from the previous year at

community events and in our lobby throughout the year, but do not ask customers if they are single or multi-family so I have put all devices under single-family. We also do not monitor how many each customer takes. We simply restock every year on items such as hose nozzles, aerators, showerheads, dye tablets, rain gauges and sprinkler timers. CWA kept a spreadsheet by region on showerheads.

C. Low-Flow Device Distribution Expenditures

	This Year	Next Year
1. Budgeted Expenditures	500	500
2. Actual Expenditures	475	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

SDCWA and its member agencies believe the region has satisfied the 75% saturation level and is pursuing grant money to fund a saturation study. OMWD conitues to distribute showerheads and other devices.

E. Comments

Reported as of 10/1

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2004**

A. Implementation

1. Has your agency completed a pre-screening system audit for this reporting year?	no
2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:	
a. Determine metered sales (AF)	20777.9
b. Determine other system verifiable uses (AF)	
c. Determine total supply into the system (AF)	21424.8
d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required.	0.97
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production?	yes
4. Did your agency complete a full-scale audit during this report year?	no
5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit?	yes
6. Does your agency operate a system leak detection program?	yes

a. If yes, describe the leak detection program:

The District uses a leak detection engineering firm to investigate suspected leaks, pinpoint the source and repair immediately. With our soils, even small water leaks manifest as all water comes to the top. We have such small water loss in the system that there is no cost benefit to perform another full audit.

B. Survey Data

1. Total number of miles of distribution system line.	375
2. Number of miles of distribution system line surveyed.	375

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	3000	3000
2. Actual Expenditures	3000	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Reported as of 10/1

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2004**

A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use?	yes
2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use?	no
a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed?	
b. Describe the program:	
All customers are required to have meters and are billed by volume of use. Retrofits are peformed on an as needed basis.	
3. Number of previously unmetered accounts fitted with meters during report year.	0

B. Feasibility Study

1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	no
a. If YES, when was the feasibility study conducted? (mm/dd/yy)	
b. Describe the feasibility study:	
2. Number of CII accounts with mixed-use meters.	29
3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period.	0

C. Meter Retrofit Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No
a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."	

E. Comments

Reported as of 10/1

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2004**

A. Water Use Budgets

1. Number of Dedicated Irrigation Meter Accounts:	611
2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:	0
3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):	0
4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):	0
5. Does your agency provide water use notices to accounts with budgets each billing cycle?	no

B. Landscape Surveys

1. Has your agency developed a marketing / targeting strategy for landscape surveys?	yes
a. If YES, when did your agency begin implementing this strategy?	8/10/1990

b. Description of marketing / targeting strategy:

Our contractor prescreens potential customers by reviewing usage data records and comparing typical patterns of other industry or SIC water usage. Customers that exhibit unusaully high water usage relative to the size of the property are sent a letter and a program brochure, inviting them to participate in the program. Dispersal of brochures to a variety of candidates, home owner's associations as well as large turf customers. Customers actually refer others to the program. All new customers are offered a survey.

2. Number of Surveys Offered.	10
3. Number of Surveys Completed.	2
4. Indicate which of the following Landscape Elements are part of your survey:	
a. Irrigation System Check	yes
b. Distribution Uniformity Analysis	yes
c. Review / Develop Irrigation Schedules	yes
d. Measure Landscape Area	yes
e. Measure Total Irrigable Area	yes
f. Provide Customer Report / Information	yes
5. Do you track survey offers and results?	yes
6. Does your agency provide follow-up surveys for previously completed surveys?	yes

a. If YES, describe below:

All participants are offered a follow-up survey.

C. Other BMP 5 Actions

1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program.	no

Does your agency provide mixed-use accounts with landscape budgets?	
2. Number of CII mixed-use accounts with landscape budgets.	0
3. Do you offer landscape irrigation training?	yes
4. Does your agency offer financial incentives to improve landscape water use efficiency?	yes

Type of Financial Incentive:	Budget (Dollars/ Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates	0	0	0
b. Loans	0	0	0
c. Grants	0	0	0

5. Do you provide landscape water use efficiency information to new customers and customers changing services?	yes
a. If YES, describe below:	
6. Do you have irrigated landscaping at your facilities?	yes
a. If yes, is it water-efficient?	yes
b. If yes, does it have dedicated irrigation metering?	yes
7. Do you provide customer notices at the start of the irrigation season?	yes
8. Do you provide customer notices at the end of the irrigation season?	yes

D. Landscape Conservation Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	1500	1500
2. Actual Expenditures	1581	

E. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

F. Comments

Reported as of 10/1

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2004

A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? yes

   a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

   San Diego Gas & Electric provided tiered rebates of $75 and $125 on qualified high-efficiency clothes washers in their service area.

2. Does your agency offer rebates for high-efficiency washers? yes
3. What is the level of the rebate? 125
4. Number of rebates awarded. 571

B. Rebate Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	8000	8000
2. Actual Expenditures	13133	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

   a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

This agency provides vouchers rather than rebates.

Reported as of 10/1

BMP 07: Public Information Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2004

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

SDCWA has a regional program that includes: advertising in local newspapers Public Service Announcements (PSA) Demonstration garden Community Events Monthly Public Information Officer's Meeting Speakers Bureau Water Awareness Month Regional Recycled Water Certification Workshops. Quotas set for each month.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	no	
b. Public Service Announcement	yes	2
c. Bill Inserts / Newsletters / Brochures	yes	16
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	2
f. Special Events, Media Events	yes	12
g. Speaker's Bureau	yes	4
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	33000	33000
2. Actual Expenditures	32500	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

SDCWA has a regional program that includes: advertising in local newspapers Public Service Announcements (PSA) Demonstration garden Community Events Monthly Public Information Officer's Meeting Speaker's Bureau Water Awareness Month Regional Recycled Water Certification Workshops

Reported as of 10/1

BMP 08: School Education Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2004

A. Implementation

1.Has your agency implemented a school information program to promote water conservation? yes

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	yes	3	55	0
Grades 4th-6th	yes	9	260	0
Grades 7th-8th	yes	1	26	0
High School	yes	0	11	0

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 9/9/1990

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	2000	3500
2. Actual Expenditures	2500	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

OMWD brings the Splash Science Mobile Lab to schools within its district. It provides classroom presentations for all ages. Lessons are given at its recreational park. It takes part in a water awareness campaign for San Diego's North County. It participates in the CSDA scholarship for high school seniors. It provides adult education classes on landscaping and conservation. SDCWA provides educational programs including magic shows, traveling libraries, and experiments for teachers to use. SDCWA does teacher workshops for the region and provides grant funding oopportunities.

Reported as of 10/1

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2004**

A. Implementation

1. Has your agency identified and ranked COMMERCIAL customers according to use?	yes
2. Has your agency identified and ranked INDUSTRIAL customers according to use?	yes
3. Has your agency identified and ranked INSTITUTIONAL customers according to use?	yes

Option A: CII Water Use Survey and Customer Incentives Program

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option?	no

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	0	0	0
b. Number of New Surveys Completed	0	0	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	no	no	no
f. Evaluation of all water-using apparatus and processes	no	no	no
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	no	no	

Agency CII Customer Incentives	Budget ($/Year)	No. Awarded to Customers	Total $ Amount Awarded
h. Rebates	0	0	0
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	0	0	0

Option B: CII Conservation Program Targets

5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option?	yes
6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	yes
7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991.	4.3
8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991.	0

B. Conservation Program Expenditures for CII Accounts

	This Year	Next Year
1. Budgeted Expenditures	5904	5904
2. Actual Expenditures	98	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

OMWD takes part in the regional program through SDCWA. It markets the programs through newsletters, bill messages and at community events.

Reported as of 10/1

BMP 09a: CII ULFT Water Savings

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2004**

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10. — Yes

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.
   - Potential savings
   - CII Sector or subsector

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

   Our CII voucher incentive program contractor, HDMC has been a significant player in the promotion of water-efficient products in San Diego County. Working in cooperation with WSA marketing and communications firms, HDMC has conducted extensive education, outreach, public relations, advertising and direct marketing activities. HDMC has created relationships with the owners, managers and related customer service sdupervisors and staff and water-efficient product suppliers from valley Center to San Yisidro for the past five years. Partnerships have been established with business owners, as well as employees at wholesale and retail suppliers. Understanding of suppliers' business profiles, sales operations and accounting policies and procedures are key to the success of the program. Working relationships and/or quality data has been gathered on over 200 plumbers. Dealers sign contracts each year in order to participate in a program that is responsible for increasing their sales substantially.

2. How does your agency advertise this program? Check all that apply.
   - Bill insert
   - Telephone
   - Web page
   - Trade shows and events

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

   Relationships with the retail/wholesale outlets displaying marketing materials and knowing the program details. Adds in newspapers are also effective.

B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) — Yes
2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? — Yes
3. What is the total number of customer accounts participating in the program during the last year ? — 4

CII Subsector	Number of Toilets Replaced

4.	Standard Gravity Tank	Air Assisted	Valve Floor Mount	Valve Wall Mount
a. Offices	0	0	0	0
b. Retail / Wholesale	2	0	0	0
c. Hotels	0	0	0	0
d. Health	0	0	0	0
e. Industrial	0	0	0	0
f. Schools: K to 12	0	0	0	0
g. Eating	0	0	0	0
h. Govern-ment	0	0	0	0
i. Churches	0	0	0	0
j. Other	0	0	0	0

5. Program design.

Rebate or voucher

6. Does your agency use outside services to implement this program? Yes

a. If yes, check all that apply.

Consultant

Plumbing contractors/subcontracts

7. Participant tracking and follow-up.

Letter

Telephone

Site Visit

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

a. Disruption to business	4
b. Inadequate payback	4
c. Inadequate ULFT performance	3
d. Lack of funding	5
e. American's with Disabilities Act	2
f. Permitting	2
g. Other. Please describe in B. 9.	0

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

The Regional CII voucher Incentive Program continues to increase in popularity in the San Diego region. Extensive marketing by our contractor, coupled with member agency support, has proven successful.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

Contractor does a great job in marketing. District does not have

adequate staff to market the program at the agency level. Would like to increase involvement, although the majority of our District is single-family homes.

C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor	0	0
b. Materials	0	0
c. Marketing & Advertising	0	0
d. Administration & Overhead	500	210
e. Outside Services	0	0
f. Total	500	210

2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution	0
b. State agency contribution	0
c. Federal agency contribution	0
d. Other contribution	0
e. Total	0

D. Comments

Also had a voucher for 2 CTCC, 9 washers, and 1 waterbroom redeemed this year.

Reported as of 10/1

BMP 11: Conservation Pricing

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2004**

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential

a. Water Rate Structure	Decreasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$16405400
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$6601401

2. Commercial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

3. Industrial

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

4. Institutional / Government

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

5. Irrigation

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	$0

6. Other

a. Water Rate Structure	Increasing Block
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	$0

d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources $0

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	8000	7000
2. Actual Expenditures	4250	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

We cannot differentiate rates.

Reported as of 10/1

BMP 12: Conservation Coordinator

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2004**

A. Implementation

1. Does your Agency have a conservation coordinator?	yes
2. Is this a full-time position?	no
3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ?	yes
4. Partner agency's name:	San Diego County Water Authority
5. If your agency supplies the conservation coordinator:	
a. What percent is this conservation coordinator's position?	20%
b. Coordinator's Name	Teresa Chase
c. Coordinator's Title	Community Services Representative/Administrative Assistant
d. Coordinator's Experience and Number of Years	6 years
e. Date Coordinator's position was created (mm/dd/yyyy)	1/1/1992
6. Number of conservation staff, including Conservation Coordinator.	1

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	5000	5000
2. Actual Expenditures	4960	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 10/1

BMP 13: Water Waste Prohibition

Reporting Unit:	BMP Form Status:	Year:
Olivenhain Municipal Water District	**100% Complete**	**2004**

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? no

a. If YES, describe the ordinance:

We had an ordinace after the drought was declared in the early nineties, but do not have the jurisdiction to prohibit certain water uses.

2. Is a copy of the most current ordinance(s) on file with CUWCC? yes

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

The City of Carlsbad has a "Carlsbad Water Ethic" that makes recomendations for on watering hours, sweeping instead of hosing, etc. There are no water waste ordinances for our area.	The District adopted a Olivenhain Water Ethic in 2003 and will revise its ordinance in 2005.

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

a. Gutter flooding	no
b. Single-pass cooling systems for new connections	no
c. Non-recirculating systems in all new conveyor or car wash systems	no
d. Non-recirculating systems in all new commercial laundry systems	no
e. Non-recirculating systems in all new decorative fountains	no
f. Other, please name	no

2. Describe measures that prohibit water uses listed above:

OMWD does not have jurisdiction to prohibit any water uses, it can only make recomendations.

Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

a. Allow the sale of more efficient, demand-initiated regenerating DIR models.	no
b. Develop minimum appliance efficiency standards that:	
i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used.	no
ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced.	no
c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect	no

on the reclaimed water or groundwater supply.

4. Does your agency include water softener checks in home water audit programs?	no
5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models?	no

C. Water Waste Prohibition Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP?	no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

E. Comments

Ordinance 204, adopted during drought of late eighties, early nineties. AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE OLIVENHAIN MUNICIPAL WATER DISTRICT IMPOSING WATER CONSERVATION MEASURES BE IT ORDAINED by the Board of Directors of the Olivenhain Municipal Water District as follows: SECTION 1: Declaration of Policy. Water Code Section 71640 et seq., authorizes the District to impose water conservation measures and to restrict the use of water during any emergency caused by drought or other threatened or existing water shortage. The Board of Directors hereby establishes a comprehensive water conservation plan pursuant to Water Code Sections 71640 et seq., based upon an existing water shortage. SECTION 2: Findings. The Board of Directors finds and determines that a water shortage exists based upon the following facts: (a) The Governor has declared that precipitation in the State of California, for this water year to date, is approximately 50% of average. (b) Unprecedented weather conditions have resulted in five consecutive years (1987, 1988, 1989, 1990, 1991) of below normal precipitation and run-off resulting in a statewide water shortage. (c) The District is dependent upon water distributed through the California Aqueduct system and the Colorado River aqueduct by the Metropolitan Water District and the San Diego County Water Authority to provide water service to its customers. This is the sole source of supply to the District. The Metropolitan Water District of Southern California has notified the District that existing water demand will require a 30% reduction in water presently being provided to the San Diego County Water Authority. (d) The San Diego County Water Authority has notified the District that a drought condition exists and that effective April 11, 1991, a reduction in deliveries to member agencies of 20% of 1989-1990 deliveries, subject to minor adjustments for prior conservation efforts and growth, shall be invoked. (e) It is considered critical for the well being of the citizens within the Olivenhain Municipal Water District that existing water supplies be husbanded and future supplies be uniformly allocated so that water, essential for domestic use, sanitation, and fire protection, will remain available throughout the duration of the drought. (f) On April 11, 1991, the San Diego County Water Authority determined that in order to achieve the savings necessary to comply with reductions in deliveries, that the Water Authority recommends that each member agency implement conservation programs substantially equivalent to those set forth in the

Authority's Drought Response Plan of February 14, 1991. (g) The District has solicited and received advice and direction from the San Diego County Water Authority, the Metropolitan Water District of Southern California, the State Department of Water Resources, other member agencies of the Water Authority, the Cities of San Diego, Carlsbad and Encinitas, customers, businesses, professional organizations, members of the public, and other entities at various meetings and through numerous communications both written and oral, including a public meeting held on February 21, 1991, at 10:00 a.m., a public meeting held on March 21, 1991 at 9:00 a.m., and a public meeting held on April 18, 1991 at the District's Administration Office. (h) It is considered critical that mandatory restrictions on the use of water by District customers to conserve remaining water supplies be adopted. Experience of other agencies within California facing severe limitations on water supplies has demonstrated that prohibitions of certain uses, pricing structures, and limitations on deliveries have been found necessary to preserve water supplies for essential services and to allocate remaining supplies in a fair and uniform manner, with particular regard for domestic, sanitation, and fire protection. SECTION 3: CEQA Exemption. The District finds that this action is the result of the unexpected occurrences, above described, which involve clear and imminent danger demanding immediate action to mitigate damage to life, health and property from the loss of an essential public service - the delivery of public water supplies, and, therefore, it is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Sections 21080 (b) (4), 21060.3 Title 14, California Code of Regulations, Section 15269 (c). SECTION 4: Declaration of Water Shortage and Application. It is hereby determined and declared that, based upon the foregoing facts, the District is unable to provide sufficient water supplies to meet the ordinary demands and requirements of its customers without depleting available water supplies to the extent that insufficient water would be available for all needs of the District's customers. The provisions of this Ordinance shall apply to all persons, customers, and property served by the District wherever situated and for all imported water being provided by the District. SECTION 5: Authorization. Upon adoption of this Ordinance, the District's General Manager, or his designated representative, is hereby authorized and directed to implement the provisions of this Ordinance based upon his determination that such implementation is necessary to protect the public health, safety, and welfare. The declaration of each water conservation stage and/or water emergency shall be deemed implemented upon publication two (2) times in a newspaper of general circulation in the District. SECTION 6: Definitions for Potable Water Use Prohibitions (a) "Potable Water" means filtered or unfiltered water delivered by the District which meets drinking water standards or upon disinfection meets drinking water standards, i.e. raw water. (b) "Active public park and school ground areas" means areas designated by public agencies and private schools for specific sporting and recreational activities and those areas traditionally used for active play or recreation where turf is an integral part of the activity. (c) "Reclaimed water" means water which, as a result of treatment of wastewater, is suitable for a direct beneficial use or controlled use that would not otherwise occur. (See Water Code Section 13050(n).) (d) "Greywater" is household wastewater other than toilet water, i.e., water from laundry, shower, tub, bathroom and kitchen sinks. Its use is presently prohibited by the San Diego County Department of Health Services. The exception mentioned for greywater in this Ordinance depends solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations. (e) "Micro irrigation systems/equipment" means low pressure, low volume methods of water application. These devices include drip emitters, T-tape, microsprayers, mini-sprinklers, twirlers, and

spaghetti tubing. Pop-up sprinklers are not considered low-volume, low pressure irrigation systems/equipment. (f) "Normal Water Demand" means the expected water use for the use or development requiring the meter during times of unrestricted water deliveries. (g) "Recreational and Ornamental Lakes and Ponds" are those bodies of water which are not swimming pools, water storage reservoirs for the purpose of drinking water, or irrigation supply, or pool which maintain rare plant or animal species. (h) "Conservation offset" means the implementation of proven conservation techniques which, when installed, will result in a reduction equal to demand of the proposed use. Calculation of demand and saving shall be performed or verified by the General Manager based upon non-drought conditions (normal conditions). (i) "Fire Protection" means actions for prevention of suppression of fires as directed by the Fire Marshall or Fire Prevention offices with jurisdiction over the local area involved. (j) "Ground Cover" means continuous homologous, cultivated planting(s) other than grass, turf, lawn or "weeds", utilized for decorative purposes, erosion control, fire protection or a combination of the above uses. SECTION 7: Water Conservation Stages. During the period this Ordinance is effective, no customer of the District shall knowingly make, cause, use, or permit the use of water supplied by the District for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this Ordinance, in an amount in excess of the amounts authorized by this Ordinance or during any period of time other than the periods of time specified in this Ordinance. (A) Stage 1. Normal Supply Level Available. Stage 1 applies during periods when a normal supply and distribution capacity is available, while at the same time demand levels are not expected to significantly increase in the immediate future. Elements of Stage 1 include: (1) Implementation of the District's adopted Urban Water Management Plan and Conservation Program. (2) Adoption of a District policy which is an action plan for implementation of water conservation techniques. (All elements shall apply as in Stage 2, but voluntary basis only.) (3) The failure to repair a controllable leak is defined as "waste of water" and is prohibited at all times. (4) All new indoor meter applicants must provide a plan indicating installation of 2.5 gpm showerheads and 1.6 gallon flush toilets. (5) All new meters that will be used wholly or partially for landscape irrigation shall not be issued without the submittal of appropriate plans incorporating principles of low water use landscaping and irrigation systems. (6) Changes to existing landscaping and turf areas or the addition of new landscaping or turf areas shall utilize principles of low water use landscaping and irrigation systems. (B) Stage 2. Mandatory Compliance - Water Alert. Stage 2 applies during periods when the probability exists that the District will not be able to meet all of the water demands of its customers. Implementation of Stage 2 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 10%. During Stage 2, the following water conservation measures shall apply except when reclaimed water is used: (1) Lawn watering and landscape irrigation is permitted only on designated irrigation days and only between the evening hours of 6:00 p.m. and 9:00 a.m. the following morning. Watering is permitted at any time if a hand-held hose equipped with a positive shut-off nozzle is used, a hand-held, faucet-filled bucket of five (5) gallons or less is used, or a drip irrigation system is used. Properties with addresses ending in an even number may use water on Monday, Thursday, and Saturday evenings until the following morning. Addresses ending in an odd number may use water on Tuesday, Friday, and Sunday evenings until the following morning. (2) Agricultural users and commercial nurseries as defined in the Metropolitan Water District Code are exempt from Stage 2 irrigation

restrictions, but will be required to curtail all non-essential water use. The watering of livestock and irrigation of propagation beds are permitted at any time. (3) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited except on designated irrigation days. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shut-off nozzle for quick rinses. Washing is permitted at any time on the immediate premises of a commercial car wash. Further, such washing is exempted from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables. (4) Filling or refilling swimming pools, spas, ponds, and artificial lakes is permitted only on designated irrigation days. (5) Watering golf courses, parks, school grounds, and recreational fields is permitted only between the hours of 6:00 p.m. and 9:00 a.m. the following morning, except golf course greens and propagation beds. (6) The use of water from fire hydrants shall be limited to fire fighting and related activities, for construction activities, or other activities necessary to maintain the health, safety, and welfare of the public. (7) Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire, safety, or sanitation hazard. (8) Restaurants shall serve water to their customers only when specifically requested. (9) The operation of any non-recirculating ornamental fountain or similar structure is prohibited. (C) Stage 3. Mandatory Compliance - Watering Warning. Stage 3 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 3 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 15%. During Stage 3, the following water conservation measures shall apply except when reclaimed water is used: (1) Lawn watering and landscape irrigation is permitted only on designated irrigation days and only between the evening hours of 4:00 p.m. to 9:00 a.m. the following morning. Watering is permitted at any time if a hand-held hose equipped with a positive shut-off nozzle is used, a hand-held, faucet-filled bucket of five (5) gallons or less is used, or a micro-irrigation system/equipment is used. A "designated irrigation day" is determined by the last digit in the street address. Properties with addresses ending in an even number may use water on Tuesday and Saturday evenings until the following morning and addresses ending in an odd number may use water on Sunday and Thursday evenings until the following morning. (2) Agricultural users and commercial nurseries shall reduce water use by an amount to be determined at the time of declaration. The watering of livestock and irrigation of propagation beds are permitted at any time. (3) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited except on designated irrigation days. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shut-off nozzle for quick rinses. Washing is permitted at any time on the immediate premises of a commercial car wash. The use of water by all types of commercial car washes not using partially reclaimed or recycled water shall be reduced in volume by an amount to be determined at the time of declaration. Further, such washing is exempted from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables. (4) Filling or refilling of swimming pools and spas is permitted only on designated irrigation days between the hours of 4:00 p.m. and 9:00 a.m. the following morning. The filling or refilling of ornamental lakes and ponds is prohibited. Irrigation reservoirs may be

exempted when specifically requested. (5) Watering golf courses, parks, school grounds, and recreational fields is permitted only between the hours of 4:00 p.m. and 9:00 a.m. the following morning, except golf course greens. (6) The use of water from fire hydrants shall be limited to fire fighting and related activities, for construction activities, or other activities necessary to maintain the health, safety, and welfare of the public. (7) Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire or sanitation hazards. (8) Restaurants shall serve water to their customers only when specifically requested. (9) The operation of any ornamental, non-recirculating fountain or similar structure is prohibited. (10) New construction meters or permits for unmetered service shall not exceed the existing number of currently authorized meters. A new meter shall be issued only when an old meter is returned. Construction projects requiring water from a construction meter or a water truck shall not use water unnecessarily for any purposes other than those required by regulatory agencies. (D) Stage 4. Mandatory Compliance Water Warning. Stage 4 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 4 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 20%. During Stage 4, the following water conservation measures shall apply, including all provisions and conditions of Stage 3, except when reclaimed water is used: (1) All water users shall minimize water use. (2) Shower and sink warm up water shall be captured with a bucket and used outdoors or to flush toilets. (3) All golf courses, parks, school grounds, and recreational fields must reduce from their base 1989-1990 usage by a volume of not less than 20% at the time of declaration, or for new projects a base allocation to be determined by the General Manager. (4) Agricultural users and commercial nurseries shall reduce water use by an amount not less than 20%. (5) The use of potable water for commercial, industrial, manufacturing, processing purposes, resorts, hotels, motels and restaurants may be reduced in volume by an amount to be determined by the General Manager. (E) Stage 5. Mandatory Compliance Water Warning. Stage 5 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 5 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 30%. During Stage 5, the following water conservation measures shall apply, including all provisions and conditions of Stage 4, except when reclaimed water is used: (1) All lawn and turf watering, other than golf courses, shall be limited to one day per week between the hours 6:00 p.m. and 9:00 a.m. the following morning. Properties with addresses ending in an even number may use water on Saturday evenings until the following morning and addresses ending in an odd number may use water on Sunday evenings until the following morning. All Homeowners Associations may use water on Wednesday evenings until the following morning. (2) All construction water must be reclaimed or from a non- imported source unless the District determines in its sole discretion that those sources are not reasonably available. (3) Washing at home of autos, trucks, trailers, boats, airplanes and other types of mobile equipment is prohibited except with water captured from sink and bath warm-up water or other recovered water in a handheld bucket. (4) All new meter applicants must mitigate their specific impact upon the water supply by participating in a toilet/showerhead retrofit program or contributing to a reclaimed water project such that an off-setting supply of "new" water capacity is created,

prior to the District's issuing a new water meter(s). (5) All golf courses, hotels, motels, and resorts must reduce a minimum of 30% from their 1989-1990 base usage or for new projects a base allocation to be determined by the General Manager. (F) Stage 6. Mandatory Compliance. Stage 6 applies during periods when the District will not be able to meet all of the water demands of its customers. Implementation of Stage 6 is intended to result in certain minimum reductions in water use from a base allocation. The specific amount of reduction from the base allocation shall be determined at the time of declaration by a volume of not less than 40%. During Stage 6, the following water conservation measures shall apply, including all provisions and conditions of Stage 5, except when reclaimed water is used: (1) No outdoor watering shall occur between 9:00 a.m. and 4:00 p.m. except when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations) or private well water. Anyone using such water at other than a private residence shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet along public rights-of-way where such water is being used noticing such usage. (2) Washing of personal vehicles other than in commercial carwashes or commercial vehicles for reasons of public health and safety is prohibited except when water used has been salvaged from indoor use, i.e., warmup water from showers, sinks, and/or lavatories. (3) There shall be no filling of new pools, new spas, or new fountains from imported sources. (4) Golf courses shall reduce water use by 40%. (G) Mandatory Compliance - Water Emergency. A Water Emergency applies when a major failure of any supply or distribution facility, whether temporary or permanent, occurs in the water distribution system of the State Water Project, Metropolitan Water District, San Diego County Water Authority, or District facilities, when the District determines that a water shortage exists for any reason, requiring use reductions of 50% or more. It is anticipated that these measures will result in a reduction of water use from a base allocation to be determined at the time of declaration by a volume of not less than 50%. During a Water Emergency, the following potable water use prohibitions shall apply, including all provisions and conditions of Stage 6, except when reclaimed water or well water is used. (1) General Requirement (a) All water users are expected to minimize water use for the duration of the drought emergency. All classes of water, including agricultural use, are expected to achieve a fifty percent reduction in use from the base allocation, as determined by the General Manager, except where specifically relieved of such reduction by the Board of Directors. Indoor uses will, in general, be reduced by such practices as fewer and shorter showers and baths, no running water while brushing teeth and shaving, full loads in dish and clothes washers, avoidance of unnecessary toilet flushing, frequent checking and repairing of leaks, and other conservation practices. (2) Potable Water Use Prohibitions. (a) Irrigation of Turf. Irrigation of turf with potable water is prohibited except under the following circumstances: 1. for active public park and school ground areas no more than twice weekly; 2. at day care centers where required by license no more than twice weekly; 3. for purposes of maintaining public safety (such as fire protection); and 4. when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations), or private well water. 5. at public parks, where trees and shrubs are interspersed amidst turf supported by the same irrigation system, provided the area of irrigation is within the drip line of each tree or shrub and irrigation is no more than once every two weeks. (b) Irrigation of Ground Cover. Irrigation of ground cover with potable water is prohibited except under the following circumstances: 1. for fire protection; 2. where trees and shrubs are

interspersed amidst ground cover supported by the same irrigation system; and 3. for preservation of existing ground cover which is designed to stabilize slopes. Irrigation of ground cover under this Section is restricted to once every 14 days. (c) Irrigation of Trees, Shrubs, Including Certified Agricultural Production Outside irrigation of trees, shrubs, and other plants which are not turf or ground cover, is allowed only by hand-held hose with positive shut-off nozzle, bucket, or micro irrigation systems/equipment. Sprinkler systems may only be used for certified agricultural production, watering active public park and school ground areas, maintenance of ground cover in accordance with this Ordinance and for purposes of maintaining public safety such as, fire protection. (d) Irrigation Water Hours. No outdoor irrigation shall occur between 9:00 a.m. and 4:00 p.m., except when using a micro irrigation system/equipment, or for certified agricultural production, or when using reclaimed water, greywater (solely upon approval of such use by the County of San Diego Health Services according to issued rules and regulations), or private well water. Anyone using reclaimed water at other than a private residence shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet along public rights-of-way where such water is being used noticing such usage. (e) Hosing or Spraying of Paved or Hard Surfaces. Hosing paved or hard surfaces including, but not limited to, sidewalks, driveways, patios, streets and parking areas is prohibited except for compelling public health and safety reasons. Allowed hosing activities shall be done only with a hose equipped with a positive shut-off nozzle. Spraying hard surfaces during irrigation activities is prohibited. (f) Runoff and Repairing of Leaks. All runoff from outside water usage from property is prohibited. Leaks to irrigation and plumbing systems shall be immediately repaired. (g) Filling of Pools and Spas. Filling of new pools and spas is prohibited except under the following circumstances: 1. where the owner can produce and demonstrate a conservation offset; or, 2. where the owner can produce evidence that private well water meeting public health standards will be utilized. Draining of existing pools is prohibited except under orders of the appropriate local health or building official. (h) Recreational and Ornamental Lakes and Ponds. Recreational and ornamental lakes and ponds may not be filled or refilled except with reclaimed water or private well water. Lakes and ponds utilizing reclaimed water at other than a private residence shall post signs around the lakes and ponds of where such water is being used noticing such usage. (i) Golf Course Irrigation. Golf courses may use potable water supplied by the District only to irrigate tees and greens. Irrigation of fairways and roughs with potable water or any blend thereof is prohibited. Golf courses irrigating with reclaimed water shall post signs, with a minimal area of four square feet, and at intervals of two hundred feet where such water is being used noticing such usage. (j) Restaurants. Restaurants shall serve water only upon request. (k) Ornamental Fountains. Operation of ornamental fountains is prohibited except when private well water or reclaimed water is used. Ornamental fountains utilizing reclaimed water at other than a private residence, shall post signs around the ornamental fountain of where such water is being used, noticing such usage. (l) Washing of Vehicles. Washing of vehicles is prohibited except: 1. in commercial car washes; 2. commercial vehicles for reasons of public health and safety; 3. where water has been salvaged from indoor use, e.g. warmup water from showers, sinks, and/or lavatories; or 4. by a mobile high-pressure/low volume service. (m) New Services. Except as to property for which a building permit has been heretofore issued, no new potable water shall be provided, no new temporary meters or permanent meters shall be provided and no commitments (such as, will serve letters, certificates or letters of availability) to provide potable water service shall be issued, except for the following circumstances: 1. the commitment

includes a notice that a water shortage emergency prevails, resulting in a water moratorium and no water service is currently available; 2. for projects necessary to protect the public's health, safety, and welfare; 3. when it can be demonstrated that no net increase in potable water use will occur; or 4. when a conservation offset is provided. (n) Certified agricultural irrigation shall reduce 50% from the 1989-1990 base year. Certified agricultural irrigation may be discontinued for varying durations, as determined necessary by the District's General Manager depending upon the circumstances of the water emergency. (o) The use of potable water for commercial, industrial, manufacturing, processing purposes, resorts, hotels, motels, and restaurants shall be reduced in volume by 50% from the base allocation for that user. These users shall be monitored by the District to ensure compliance with the 50% reduction. Any such user who exceeds their 50% reduction by 10% or more during any period monitored by the District shall have a flow restrictor installed at the user's expense until the user's total use for the year no longer exceeds a 50% reduction from that users base allocation. All fees and charges for the removal of the restrictor shall be paid by the user. SECTION 8: Grounds for Appeal. A customer may file with the General Manager a written request for review of issue(s) regarding the restriction and use of water and/or the mandatory prohibitions on the use of potable water. No customer of the District shall be entitled to appeal any restriction on potable water usage unless the customer can demonstrate that the customer's allocation is insufficient for health, sanitary, or fire protection purposes. Appeals seeking increased allocations for other purposes shall be summarily rejected and will not be considered by the General Manager. A customer may, following review of the appeal by the General Manager, request a hearing by the Board of Directors. The hearing shall be scheduled at the Board's next regular meeting or at a special meeting scheduled for that hearing. The customer may appear before the Board or present written testimony and documentation considered appropriate for proper understanding and evaluation of the claim and basis for appeal. The District shall mail written notice of the hearing to the customer before the date of said hearing. SECTION 9: Mandatory Conservation Phase Implementation. The Superintendent of Maintenance and Operations shall monitor the projected supply and demand for water by its customers on a daily basis during periods of emergency or drought and shall recommend to the General Manager the extent of the conservation required through the implementation and/or termination of particular conservation stages in order for the Water Operations Department to prudently plan for and supply water to its customers. Thereafter, the General Manager may order that the appropriate phase of water conservation be implemented or terminated in accordance with the applicable provisions of this Ordinance. Said order shall be made by public announcement and shall be published once a month for three months or until the Stage Alert has been lifted, whichever is the least amount of time, in a daily newspaper of general circulation and shall become effective immediately upon such publication. SECTION 10: Violation of Stage 2 through Stage 6 and/or a Water Emergency. Any customer of the District who violates any provision of a Stages 2 through Stage 6 and/or a Water Emergency shall receive a warning letter on the first violation accompanied by a copy of the appropriate section(s) of this Ordinance. Any customer who commits a second violation of any provision of Stage 2 through Stage 6 and/or a Water Emergency shall pay a fine of $50 for each violation of Stage 2 or Stage 3; $75 for each violation of Stage 4 or Stage 5; and $100 for each violation of Stage 6 and/or a Water Emergency. Any customer of the District committing a third violation shall pay a fine of $100 for each violation of Stage 2 or Stage 3; $150 for each violation of Stage 4 or Stage 5; and $200 for each violation of Stage 6 and/or a Water

Emergency. Any customer of the District who violates a Stage 2 through Stage 6 and/or a Water Emergency more than three (3) times shall pay a fine of $200 for each violation of Stage 2 or Stage 3; $300 for each violation of Stage 4 or Stage 5; and $400 for each violation of Stage 6 and/or a Water Emergency. In addition, where a customer of the District has violated any Stage 2 through Stage 6 and/or a Water Emergency restrictions more than three times, the Board of Directors shall conduct a hearing and may, in its discretion, order either (a) installation of a flow restrictor in the meter or (b) discontinuance of water service for such period of time as the Board of Directors determines appropriate under the circumstances. The District shall, at least ten (10) days before the date set for hearing, mail an appropriate written notice of the hearing to the affected customer. The decision of the Board of Directors of the District shall be final and not subject to further appeal. The failure of any customer to pay a fine levied by this Ordinance shall be grounds for termination of water service. Termination notices shall be given in accordance with the termination procedures utilized by the District for nonpayment of water bills. Customers whose water service has been restricted or terminated as a result of violation of this Ordinance shall be required to pay all fees and charges established by the District from time to time to reinstate full service. SECTION 11: Violation of Water Emergency. During periods of a water emergency, water consumption may be limited and allocated with penalties imposed for usage above one's allocation. The District's General Manager shall determine the allocation rate for every service connection in the District, based upon an assessment of the current and projected water supply and the availability of this supply to the community. The rate shall be determined as far in advance as possible and shall be applied fairly and equitably to all classes of water service. Notification of each customer's allocation shall be given by letter to The last known address of the customer as shown on District records and shall be effective beginning with the last billing period following the date the letter is mailed. SECTION 12: Allocation Violations. In addition to the penalties for violation of potable water use prohibitions, as set forth in Section 9, a customer who exceeds an established allocation shall be subject to the following penalties: (a) A customer who exceeds an established allocation shall pay a surcharge rate of five (5) times the rate for the highest tier established in the Water Rate Ordinance per HCF (Hundred Cubic Feet) of water for all water used in excess of the allowable allocation during a first billing period in which the excess occurs. (b) A customer who exceeds the customer's allocation for two or more billing periods shall pay a surcharge of ten (10) times the rate for the highest tier established in the Water Rate Ordinance rate, per HCF, for water in excess of the allowable allocation during the second and subsequent billing periods. As used herein, "excess water" means the amount of water delivered in excess of the allocation rate as set by the General Manager. (c) If a customer continues to exceed the established allocation for two or more consecutive billing periods, the Board of Directors shall conduct a hearing and may, in its discretion, order either (a) installation of a flow restrictor in the meter or (b) termination of water service for such period of time as the District determines appropriate under the circumstances. The District shall, at least ten (10) days before the date set for hearing, mail an appropriate written notice of the hearing to the affected customer. The decision of the Board of Directors shall be final and not subject to further appeal. The failure of any customer to pay the surcharges shall be grounds for termination of water service. Termination notices shall be given in accordance with the termination procedures utilized by the District for nonpayment of water bills. Customers whose service is terminated shall be required to pay all fees and charges established by the District from time to time to reinstate full service.

SECTION 13: No Tampering With Flow Restrictors. A flow restrictor or other device, once installed by the District, may not be removed or tampered with in any manner or for any purpose by other than authorized District personnel acting with the authority of the General Manager. Tampering or removing of such a fixture without authorization will result in the immediate discontinuance of service at the customer's expense and until the articles and provisions of this Ordinance as herein set forth are fully complied with. SECTION 14: Authority to Enter Premises. Authority and permission to enter upon private premises, for the purpose of inspecting outside water systems as to compliance with the articles and provisions of this Ordinance, shall be granted to authorized water district personnel upon presentation of official identification and clear statement of purpose to conduct water conservation enforcement activities. Those authorized personnel on official business shall be allowed free access at all reasonable hours to any premises supplied with the District water. Any owner or occupant of any premises who refuses admittance to, or hinders or prevents inspection by, an authorized employee of the Water District may, after , written notice setting a hearing date before the Board of Directors, have all water service discontinued. At the hearing, the customer shall be entitled to introduce testimony and evidence justifying denial of the right to inspect and any medical hardships caused by the termination. SECTION 15: No Unauthorized Use of District Identification. No unauthorized person shall possess, carry, wear, or exhibit any badge or other official identification of the Water District, nor shall any person, whether or not possession is authorized, display, exhibit, or cause to be exhibited any badge or other official identification of the Water District at any time, place, or in any manner or for any purpose which is not authorized by the General Manager. SECTION 16: Effective Date and Repeal. This Ordinance shall take effect immediately upon adoption. Within ten (10) days after adoption, this Ordinance shall be published one (1) time in a newspaper of general circulation in the District. This Ordinance shall remain effective until repeal by the Board of Directors of the Olivenhain Municipal Water District. Ordinance No. 203 is hereby repealed. PASSED, ADOPTED, AND APPROVED by the Board of Directors of the Olivenhain Municipal Water District at the regular Board meeting held on April 18, 1991, by the following roll call vote: AYES: Directors Miller, Golem, Gano, Peay, Denk NOES: None ABSTAIN: None ABSENT: None
_____ Harold L. Gano, President Board of Directors Olivenhain Municipal Water District ATTEST:
_____ Harley L. Denk, Secretary Board of Directors Olivenhain Municipal Water District Water ethic approved by Board 11/27/02 Olivenhain Water Use Awareness Practices The Olivenhain Water Use Awareness Practices promote responsible and efficient water use in our arid community. The following practices should be followed even when we are not in a drought situation. It is hoped that Olivenhain residents will adopt these behaviors as a way of life: 1. New landscaping should incorporate drought-tolerant plant materials and micro-irrigation (drip) systems wherever possible. 2. Water should never leave the user's property due to over-irrigation of landscape. 3. Watering should be done during the early morning or evening hours to minimize evaporation (between 4:00 p.m. and 9:00 a.m. the following morning). 4. Large Irrigators should spread water use throughout the week, avoiding having to irrigate at peak usage times such as Monday mornings. 5. All leaks must be investigated and repaired. 6. Water cannot be used to clean paved surfaces, such as sidewalks, driveways, parking areas, etc., except to alleviate immediate safety or sanitation hazards. 7. Reclaimed or recycled water shall be used wherever and whenever possible. 8. Conveyor car washes, commercial laundry systems, cooling systems and decorative fountains

should recycle water. 9. Exchange-type water softeners should be used in lie of those that discharge brine into the sewer system. 10. All customers are encouraged to retrofit existing plumbing devices such as faucet aerators, toilets, showerheads, clothes washers and hose nozzles with water-saving devices.

Reported as of 10/1

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:
Olivenhain Municipal Water District

BMP Form Status:
100% Complete

Year:
2004

A. Implementation

	Single-Family Accounts	Multi-Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes

Number of Toilets Replaced by Agency Program During Report Year

Replacement Method	SF Accounts	MF Units
2. Rebate	0	0
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	576	93
Total	**576**	**93**

6. Describe your agency's ULFT program for single-family residences.

Through this program, participating residential customers are offered a voucher redeemable for up to $75 off the purchase price. Voucher can only be used to replace toilets that are 3.5 gpf or more. The ULFT voucher incentive program has extensive marketing research.

7. Describe your agency's ULFT program for multi-family residences.

Same as above

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

City of San Diego	Retrofit upon resale ordinance

B. Residential ULFT Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	15000	12000
2. Actual Expenditures	13722.4	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

Reported as of 10/1

APPENDIX G

Olivenhain Municipal Water Recycled and Non-Potable Water Ordinance 173

ORDINANCE NO. 173

AN ORDINANCE OF THE BOARD OF DIRECTORS
OF THE OLIVENHAIN MUNICIPAL WATER DISTRICT
MANDATING USE OF RECLAIMED AND NON-POTABLE WATER

IT IS HEREBY ORDAINED by the Board of Directors of the Olivenhain Municipal Water District as follows:

SECTION 1: Article 25 is hereby added to the District's Administrative Code to read as follows:

ARTICLE 25 USE OF RECLAIMED AND NON-POTABLE WATER

Sec. 25.1. Declaration of Policy. Water Code Section 13500, et seq., establishes a State policy to encourage the use of reclaimed water. Water Code Section 13500 provides that the use of potable domestic water for the irrigation of green belt areas, cemeteries, golf courses, park, and highway landscaped areas constitutes an unreasonable use of water where reclaimed water is available for such uses. Water Code Sections 71610 and 71611 authorize the District to provide and sell reclaimed and non-potable water within the water service jurisdiction of the District. It is the policy of the Board of Directors of the District to encourage and mandate the development of reclaimed water and non-potable water within the District to meet the growing demand for water within the District's service jurisdiction.

Sec. 25.2. Legislative Findings. The Board of Directors finds and determines that the implementation of reclaimed water and non-potable water within the service jurisdiction of the District is necessary to meet the growing demand for water service within the District, to reduce the demand for imported water to serve the District's customers, and to properly utilize local sources of usable water.

Sec. 25.3. Mandatory Use of Reclaimed and Non-Potable Water. All persons, customers, and property served by the District seeking water service from the District after the effective date of Ordinance No. 173 shall be required to utilize reclaimed water or non-potable water where reclaimed or non-potable water is determined to be available by the District and suitable for the uses being proposed. Customers of the District subject to this Ordinance shall comply with all terms and conditions of reclaimed or non-potable water service as prescribed by the District.

SECTION 2: The District finds that this Ordinance and actions taken hereafter pursuant to this Ordinance are exempt from the California Environmental Quality Act as actions taken to assure the preservation and enhancement of water resources in accordance with CEQA Guidelines Sections 15307 and 15308. The General Manager of the District is authorized and directed to file a Notice of Exemption as soon as possible following adoption of this Ordinance.

SECTION 3: This Ordinance shall become effective upon adoption. It shall be published one time in a newspaper of general circulation within the District within ten (10) days of its adoption. This Ordinance shall remain effective until repeal by Board of Directors of the District.

PASSED, ADOPTED, AND APPROVED by the Board of Directors of the Olivenhain Municipal Water District at a Regular Board Meeting held this 15th day of September, 1988, by the following roll call vote:

AYES: Directors Miller, Golem, Peay, Denk, Gano
NOES: None
ABSTAIN: None
ABSENT: None

Ann L. Peay

Ann L. Peay, President
Board of Directors
Olivenhain Municipal Water District

ATTEST:

Harley L. Denk

Harley L. Denk, Secretary
Board of Directors
Olivenhain Municipal Water District

APPENDIX H

Emergency Exchange Interconnections Matrix

Emergency Exchange Connections
Metered and Unmetered

OMWD - Santa Fe Irrigation

Metered	Unmetered
San Elijo Hills	Santa Luisa - Santa Victoria
Whispering Palms	Via De Santa Fe / Calzada Del Bosque (North Side of Bridges)
Calle Mayor	
Circa Oriente	
Polo Club	

OMWD - San Dieguito Water District (City of Escondido)

Metered	Unmetered
El Camino Del Norte - Cole Ranch Road	Santa Fe Drive - El Camino Real
Encinitas Blvd. Bet. Willowspring & Village Pk Wy	Encinitas Blvd. (in front of Herman Cook Volkswagon)
Wanket Reservoir	Oak Branch & Pegaso Street
A & B Connections - Delphinium	Via Cantebria & Clipper Ave.
El Camino Real - Target Shopping Center	

OMWD - Carlsbad Municipal Water District (City of Carlsbad)

Metered	Unmetered
La Costa Ave. (Vons Shopping Center)	7644 Calle Madero
	7934 Nueva Castillo Lane
	3003 La Costa Ave.

OMWD - Vallecitos Water District

Metered	Unmetered
Questhaven - Denk Reservoir	None

APPENDIX I

Department of Water Resources Checklist

2005 Urban Water Management Plan "Review for Completeness" Form

For DWR Review Staff Use

Coordination with Appropriate Agencies **(Water Code § 10620 (d)(1)(2**

Yes

☐ Participated in area, regional, watershed or basin wide plan _____ Reference & Pa

Name of plan _____ Lead Agency _____ _____ Reference & Pa

☐ Describe the coordination of the plan preparation and anticipated benefits. _____ Reference & Pa

Table 1
Coordination with Appropriate Agencies

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

Describe resource maximization / import minimization plan **(Water Code §10620 (f))**

☐ Describe how water management tools / options maximize resources & minimize need to import water _____ Reference & Pa

Plan Updated in Years Ending in Five and Zero **(Water Code § 10621(a))**

☐ Date updated and adopted plan received _____ (enter date) _____ Reference & Pa

City and County Notification and Participation **(Water Code § 10621(b))**

☐ Notify any city or county within service area of UWMP of plan review & revision _____ Reference & Pa

☐ Consult and obtain comments from cities and counties within service area _____ Reference & Pa

Service Area Information **Water Code § 10631 (a))**

☐	Include current and projected population	Reference & Pa
☐	Population projections were based on data from state, regional or local agency	Reference & Pa

Table 2 Population - Current and Projected						
	2005	2010	2015	2020	2025	2030 - opt
Service Area Population						

☐	Describe climate characteristics that affect water management	Reference & Pa
☐	Describe other demographic factors affecting water management	Reference & Pa

Table 3 Climate						
	January	February	March	April	May	June
Standard Average ETo						
Average Rainfall						
Average Temperature						

Table 3 (continued) Climate						
	July	August	September	October	November	December
Average ETo						
Average Rainfall						
Average Temperature						

Water Sources (Water Code § 10631 (b))

☐	Identify existing and planned water supply sour	2-1	Reference & Pa
☐	Provide current water supply quantities	2-1	Reference & Pa
☐	Provide planned water supply quantities	2-1	Reference & Pa

Table 4 Current and Planned Water Supplies - AFY

Water Supply Sources	2005	2010	2015	2020	2025
Water purchased from:					
U.S. Bureau of Reclamation					
Department of Water Resources					
Arcade Water District					
Calleguas Municipal Water District					
Castaic Lake Water Agency					
Central Basin Municipal Water District					
Chino Basin Municipal Water District					
Coastal Municipal Water District					
Contra Costa Water District					
Eastern Municipal Water District					
Foothill Municipal Water District					
Humboldt Bay Municipal Water District					
Inland Empire Utilities Agency					
Joint Regional Water Supply System					
Kern County Water Agency					
Metropolitan Water District of Southern Ca					
Municipal Water District of Orange County					
North of The River Municipal Water Distric					
Placer County Water Agency					
Sacramento County Water Management Di					
San Diego County Water Authority					
San Francisco City of					
San Juan Water District					
San Luis Obispo County					
Santa Clara Valley Water District					
Solano County Water Agency					
Sonoma County Water Agency					
Stockton East Water District					
Tehachapi-Cummings County Water Distri					

Three Valleys Municipal Utility District					
Upper San Gabriel Valley Municipal Water					
Water Facilities Authority					
West Basin Municipal Water District					
Western Municipal Water Dist of Riverside					
Zone 7					
Other Wholesaler 1 (enter agency name)					
Other Wholesaler 2 (enter agency name)					
Other Wholesaler 3 (enter agency name)					
Supplier produced groundwater					
Supplier surface diversions					
Transfers in or out					
Exchanges In or out					
Recycled Water (projected use)					
Desalination					
Other					
Other					
Total	0	0	0	0	0

If Groundwater identified as existing or planned source **(Water Code §10631 (b)(1-4))**

☐	Has management plan	Reference & Pa
☐	Attached management plan (b)(1)	Reference & Pa
☐	Description of basin(s) (b)(2)	Reference & Pa
☐	Basin is adjudicated	Reference & Pa
☐	If adjudicated, attached order or decree (b)(2)	Reference & Pa
☐	Quantified amount of legal pumping right (b)(2)	Reference & Pa

Table 5
Groundwater Pumping Rights - AF Year

Basin Name	Pumping Right - AFY

Total	0

- [ ] DWR identified, or projected to be, in overdraft (b)(2) _____ Reference & Pa
- [ ] Plan to eliminate overdraft (b)(2) _____ Reference & Pa
- [ ] Analysis of location, amount & sufficiency, last five years (b)(3) _____ Reference & Pa
- [ ] Analysis of location & amount projected, 20 years (b)(4) _____ Reference & Pa

Table 6
Amount of Groundwater pumped - AFY

Basin Name (s)	2000	2001	2002	2003	2004
	0	0	0	0	0
% of Total Water Supply					

Table 7
Amount of Groundwater projected to be pumped - AFY

Basin Name(s)	2010	2015	2020	2025	2030 - opt
	0	0	0	0	0
% of Total Water Supply	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Reliability of Supply (Water Code §10631 (c) (1-3)

- [ ] Describes the reliability of the water supply and vulnerability to seasonal or climatic shortage _____ Reference & Pa

Table 8
Supply Reliability - AF Year

		Multiple Dry Water Years			
Average / Normal Water Year	**Single Dry Water Year**	**Year 1**	**Year 2**	**Year 3**	**Year 4**
% of Normal	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Table 9 Basis of Water Year Data			
Water Year Type	Source name	Source name	Source name
Average Water Year			
Single-Dry Water Year			
Multiple-Dry Water Years			

Reference & Pa
Reference & Pa
Reference & Pa

Water Sources Not Available on a Consistent Basis (Water Code §10631 (c))

- ☐ Describe the reliability of the water supply due to seasonal or climatic shortages — Reference & Pa
- ☐ Describe the vulnerability of the water supply to seasonal or climatic shortages — Reference & Pa
- ☐ No unreliable sources — Reference & Pa

Table 10 Factors resulting in inconsistency of supply				
Name of supply	**Legal**	**Environ-mental**	**Water Quality**	**Climatic**

- ☐ Describe plans to supplement or replace inconsistent sources with alternative sources or DMMs — Reference & Pa
- ☐ No inconsistent sources — Reference & Pa

Transfer or Exchange Opportunities (Water Code §10631 (d))

- ☐ Describe short term and long term exchange or transfer opportunities — Reference & Pa
- ☐ No transfer opportunities — Reference & Pa

Table11 Transfer and Exchange Opportunities - AF Year					
Transfer Agency	**Transfer or Exchange**	**Short term**	**Proposed Quantities**	**Long term**	**Proposed Quantities**
Total			0		0

Water Use Provisions **(Water Code §10631 (e)(1)(2)**

☐	Quantify past water use by sector	4-2	Reference & Pa
☐	Quantify current water use by sector	4-2	Reference & Pa
☐	Project future water use by sector	4-2	Reference & Pa

TABLE 12 - Past, Current and Projected Wat						
	2000				**200**	
	metered		unmetered		metered	
Water Use Sectors	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY
Single family						
Multi-family						
Commercial						
Industrial						
Institutional/gov						
Landscape						
Agriculture						
other						
Total	0	0	0	0	0	0

TABLE12 (continue						
	2015				**202**	
	metered		unmetered		metered	
Water Use Sectors	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY

Single family						
Multi-family						
Commercial						
Industrial						
Institutional/gov						
Landscape						
Agriculture						
other						
Total	0	0	0	0	0	0

☐ Identify and quantify sales to other agencies _____ Reference & Pa

☐ No sales to other agencies _____ Reference & Pa

Table 13 Sales to Other Agencies - AF Year					
Water Distributed	**2000**	**2005**	**2010**	**2015**	**2020**
La Cumbre	0	0	0	0	0
name of agency					
name of agency					
Total	0	0	0	0	0

☐ Identify and quantify additional water uses _____ Reference & Pa

Table 14 Additional Water Uses and Losses - AF Year					
Water Use	**2000**	**2005**	**2010**	**2015**	**2020**
Saline barriers					
Groundwater recharge					
Conjunctive use					
raw water					
recycled					
other (define)					
Unaccounted-for system losses					

Total	0	0	0	0	0

Table 15 Total Water Use - AF Year					
Water Use	**2000**	**2005**	**2010**	**2015**	**2020**
Total of Tables 12, 13, 14	0	0	0	0	0

2005 Urban Water Management Plan "Review of DMMs for Completeness" Form (Water Code §10631 (f)

(Water Code §10631 (f) & (g), the 2005 Urban Water Management Plan "Review of DMMs for Completeness" Form is found on Sheet

Planned Water Supply Projects and Programs, including non-implemented DMMs (Water Code §10631 (g))

- ☐ No non-implemented / not scheduled DMMs _____ Reference & Pa
- ☐ Cost-Benefit includes economic and non-economic factors (environmental, social, health, customer impact, and technological factors) _____ Reference & Pa
- ☐ Cost-Benefit analysis includes total benefits and total costs _____ Reference & Pa
- ☐ Identifies funding available for Projects with higher per-unit-cost than DMMs _____ Reference & Pa
- ☐ Identifies Suppliers' legal authority to implement DMMs, efforts to implement the measures and efforts to identify cost share partners _____ Reference & Pa

Table 16 Evaluation of unit cost of water resulting from non-implemented / non-scheduled DMMs and planned water supply project and programs	
Non-implemented & Not Scheduled DMM / Planned Water Supply Projects (Name)	**Per-AF Cost ($)**

Planned Water Supply Projects and Programs (Water Code §10631 (h))

- ☐ No future water supply projects or programs

☐	Detailed description of expected future supply projects & programs	Reference & Pa
☐	Timeline for each proposed project	Reference & Pa
☐	Quantification of each projects normal yield (AFY)	Reference & Pa
☐	Quantification of each projects single dry-year yield (AFY)	Reference & Pa
☐	Quantification of each projects multiple dry-year yield (AFY)	Reference & Pa

Table 17
Future Water Supply Projects

Project Name	Projected Start Date	Projected Completion Date	Normal-year AF to agency	Single-dry year yield AF	Multiple-Dry-Year 1 AF	Multiple-Dry-Year 2 AF

Opportunities for development of desalinated water (Water Code §10631 (i))

☐ Describes opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and

☐ No opportunities for development of desalinated water

Table 18
Opportunities for desalinated water

Sources of Water	Check if yes
Ocean Water	
Brackish ocean water	
Brackish groundwater	
other	
other	

District is a CUWCC signatory (Water Code § 10631 (j))

Urban suppliers that are California Urban Water Conservation Council members may submit the annual reports identifying water demar management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) ar The supplier's CUWCC Best Management Practices Report should be attached to the UWMP.

☐ Agency is a CUWCC member _____ Reference & Pa
☐ 2003-04 annual updates are attached to plan _____ Reference & Pa
☐ Both annual updates are considered completed by CUWCC website _____ Reference & Pa

If Supplier receives or projects receiving water from a wholesale supplier **(Water Code §10631 (k))**

Yes
☐ Agency receives, or projects receiving, wholesale water _____ Reference & Pa
☐ Agency provided written demand projections to wholesaler, 20 years _____ Reference & Pa

Table 19 Agency demand projections provided to wholesale suppliers - AFY					
Wholesaler	**2010**	**2015**	**2020**	**2025**	**2030 - opt**
(name 1)					
(name 2)					
(name 3)					

☐ Wholesaler provided written water availability projections, by source, to agency, 20 years _____ Reference & Pa
(if agency served by more than one wholesaler, duplicate this table and provide the source availability for each wholesaler)

Table 20 Wholesaler identified & quantified the existing and planned sources of water- AFY					
Wholesaler sources	**2010**	**2015**	**2020**	**2025**	**2030 - opt**
(source 1)					
(source 2)					
(source 3)					

☐ Reliability of wholesale supply provided in writing by wholesale agency _____ Reference & Pa
(if agency served by more than one wholesaler, duplicate this table and provide the source availability for each wholesaler)

Table 21 Wholesale Supply Reliability - % of normal AFY					
	Multiple Dry Water Years				
Wholesaler sources	**Single Dry**	**Year 1**	**Year 2**	**Year 3**	**Year 4**
(source 1)					
(source 2)					

(source 3)					

Table 22 Factors resulting in inconsistency of wholesaler's supply				
Name of supply	**Legal**	**Environment**	**Water Quality**	**Climatic**

Water Shortage Contingency Plan Section **(Water Code § 10632)**

Stages of Action **(Water Code § 10632 (a))**

- ☐ Provide stages of action _____ Reference & Pa
- ☐ Provide the water supply conditions for each stage _____ Reference & Pa
- ☐ Includes plan for 50 percent supply shortage _____ Reference & Pa

Table 23 Water Supply Shortage Stages and Conditions RATIONING STAGES		
Stage No.	**Water Supply Conditions**	**% Shortage**

Three-Year Minimum Water Supply **(Water Code §10632 (b))**

- ☐ Identifies driest 3-year period _____ Reference & Pa
- ☐ Minimum water supply available by source for the next three years _____ Reference & Pa

Table 24 Three-Year Estimated Minimum Water Supply - AF Year

*Note: If reporting after 2005, change the column headers (Y

source**	Normal	Year 1	Year 2	Year 3
Total	0	0	0	0

to the appropriate years

Preparation for catastrophic water supply interruption (Water Code §10632 (c))

☐ Provided catastrophic supply interruption plan _____ Reference & Pa

Table 25 Preparation Actions for a Catastrophe	
Possible Catastrophe	**Check if Discussed**
Regional power outage	
Earthquake	
Other (name event)	
Other (name event)	

Prohibitions (Water Code § 10632 (d))

☐ List the mandatory prohibitions against specific water use practices during water shortages _____ Reference & Pa

Table 26 Mandatory Prohibitions	
Examples of Prohibitions	**Stage When Prohibition Becomes Mandatory**
Using potable water for street washing	
Other (name prohibition)	
Other (name prohibition)	

Other (name prohibition)	
Other (name prohibition)	
Other (name prohibition)	
Other (name prohibition)	

Consumption Reduction Methods (Water Code § 10632 (e))

☐ List the consumption reduction methods the water supplier will use to reduce water use in the most restrictive stages with up to a 50% reduction. _____ Reference & Pa

Table 27 Consumption Reduction Methods		
Consumption Reduction Methods	**Stage When Method Takes Effect**	**Projected Reduction (%)**
name method	2	25
name method	3	35
name method	4	50
name method	2, 3, 4	?
name method	3, 4	?
name method		

Penalties (Water Code § 10632 (f))

☐ List excessive use penalties or charges for excessive use _____ Reference & Pa

Table 28 Penalties and Charges	
Penalties or Charges	**Stage When Penalty Takes Effect**
Penalty for excess use	
Charge for excess use	

Other (name penalties or charges)	
Other (name penalties or charges)	
Other (name penalties or charges)	
Other (name penalties or charges)	
Other (name penalties or charges)	
Other (name penalties or charges)	

Revenue and Expenditure Impacts (Water Code § 10632 (g))

- ☐ Describe how actions and conditions impact revenues _____ Reference & Pa
- ☐ Describe how actions and conditions impact expenditures _____ Reference & Pa
- ☐ Describe measures to overcome the revenue and expenditure impacts _____ Reference & Pa

Table 29 Proposed measures to overcome revenue impacts	
Names of measures	**Check if Discussed**
Rate adjustment	
Development of reserves	
name of measure	
name of measure	

Table 30 Proposed measures to overcome expenditure impacts	
Names of measures	**Check if Discussed**
name of measure	
name of measure	
name of measure	
name of measure	

Water Shortage Contingency Ordinance/Resolution (Water Code § 10632 (h))

☐ Attach a copy of the draft water shortage contingency resolution or ordinance. _____ Reference & Pa

Reduction Measuring Mechanism (Water Code § 10632 (i))

☐ Provided mechanisms for determining actual reductions _____ Reference & Pa

Table 31 Water Use Monitoring Mechanisms	
Mechanisms for determining actual reductions	**Type data expected (pop-up?)**
Name mechanism	
Name mechanism	
Name mechanism	

Recycling Plan Agency Coordination Water Code § 10633

☐ Describe the coordination of the recycling plan preparation information to the extent available.. _____ Reference & Pa

Table 32 Participating agencies	
	participated
Water agencies	
Wastewater agencies	
Groundwater agencies	
Planning Agencies	

Wastewater System Description (Water Code § 10633 (a))

☐ Describe the wastewater collection and treatment systems in the supplier's service area _____ Reference & Pa

☐ Quantify the volume of wastewater collected and treated _____ Reference & Pa

Table 33 Wastewater Collection and Treatment - AF Year					
Type of Wastewater	**2000**	**2005**	**2010**	**2015**	**2020**
Wastewater collected & treated in service area	6,796				
Volume that meets recycled water standard	1,030				

Wastewater Disposal and Recycled Water Uses **(Water Code § 10633 (a - d))**

- [ ] Describes methods of wastewater disposal _____ Reference & Pa
- [ ] Describe the current type, place and use of recycled water _____ Reference & Pa
- [x] None _____ Reference & Pa
- [ ] Describe and quantify potential uses of recycled water _____ Reference & Pa

Table 34 Disposal of wastewater (non-recycled) AF Year					
Method of disposal	**Treatment Level**	**2005**	**2010**	**2015**	**2020**
Name of method					
Name of method					
Name of method					
Name of method					
	Total	0	0	0	0

Table 35 Recycled Water Uses - Actual and Potential (AFY)					
User type	**Treatment Level**	**2005**	**2010**	**2015**	**2020**
Agriculture					
Landscape					
Wildlife Habitat					
Wetlands					
Industrial					
Groundwater Recharge					

Other (user type)					
Other (user type)					
Total		0	0	0	0

☐ Determination of technical and economic feasibility of serving the potential uses _____ Reference & Pa

Projected Uses of Recycled Water (Water Code § 10633 (e))

☐ Projected use of recycled water, 20 years _____ Reference & Pa

Table 36 Projected Future Use of Recycled Water in Service Area - AF Year					
	2010	**2015**	**2020**	**2025**	**2030 - opt**
Projected use of Recycled Water					

☐ Compare UWMP 2000 projections with UWMP 2005 actual (§ 10633 (e)) _____ Reference & Pa

☐ None _____ Reference & Pa

Table 37 Recycled Water Uses - 2000 Projection compared with 2005 actual - AFY		
User type	**2000 Projection for 2005**	**2005 actual use**
Agriculture		
Landscape		
Wildlife Habitat		
Wetlands		
Industrial		
Groundwater Recharge		
Other (user type)		
Other (user type)		
Total	0	0

Plan to Optimize Use of Recycled Water (Water Code § 10633 (f))

☐ Describe actions that might be taken to encourage recycled water uses _____ Reference & Pa

☐ Describe projected results of these actions in terms of acre-feet of recycled water used per year _____ Reference & Pa

Table 38 Methods to Encourage Recycled Water Use				
	AF of use projected to result from this actio			
Actions	2010	2015	2020	2025
Financial incentives				
name of action				
name of action				
name of action				
name of action				
name of action				
name of action				
name of action				
Total	0	0	0	0

☐ Provide a recycled water use optimization plan which includes actions to facilitate the use of recycled water (dual distribution systems, promote recirculating uses) _____ Reference & Pa

Water quality impacts on availability of supply (Water Code §10634)

☐ Discusses water quality impacts (by source) upon water management strategies and supply reliability _____ Reference & Pa

☐ No water quality impacts projected _____

Table 39 Current & projected water supply changes due to water quality - percentage						
water source	2005	2010	2015	2020	2025	2030 - opt

Supply and Demand Comparison to 20 Years (Water Code § 10635 (a))

☐ Compare the projected normal water supply to projected normal water use over the next 20 years, in 5-year increments. _____ Reference & Pa

Table 40 Projected Normal Water Supply - AF Year					
(from table 4)	**2010**	**2015**	**2020**	**2025**	**2030 - opt**
Supply	0	0	0	0	0
% of year 2005	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Table 41 Projected Normal Water Demand - AF Year					
(from table 15)	**2010**	**2015**	**2020**	**2025**	**2030 - opt**
Demand	0	0	0	0	0
% of year 2005	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Table 42 Projected Supply and Demand Comparison - AF Year					
	2010	**2015**	**2020**	**2025**	**2030 - opt**
Supply totals	-	-	-	-	-
Demand totals	-	-	-	-	-
Difference	0	0	0	0	0
Difference as % of Supply	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Difference as % of Demand	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Supply and Demand Comparison: Single-dry Year Scenario (Water Code § 10635 (a))

☐ Compare the projected single-dry year water supply to projected single-dry year water use over the next 20 years, in 5-year increments. _____ Reference & Pa

Table 43

Projected single dry year Water Supply - AF Year					
	2010	2015	2020	2025	2030 - opt
Supply					
% of projected normal					

Table 44 Projected single dry year Water Demand - AF Year					
	2010	2015	2020	2025	2030 - opt
Demand					
% of projected normal					

Table 45 Projected single dry year Supply and Demand Comparison - AF Year					
	2010	2015	2020	2025	2030 - opt
Supply totals	0	0	0	0	0
Demand totals	0	0	0	0	0
Difference	0	0	0	0	0
Difference as % of Supply					
Difference as % of Demand					

Supply and Demand Comparison: Multiple-dry Year Scenario **(Water Code § 10635 (a))**

☐ Project a multiple-dry year period (as identified in Table 9) occurring between 2006-2010 and compare projected supply and demand during those years _____ Reference & Pa

Table 46 Projected supply during multiple dry year period ending in 2010 - AF Year					
	2006	2007	2008	2009	2010
Supply					
% of projected normal					

Table 47 Projected demand multiple dry year period ending in 2010 - AFY

	2006	2007	2008	2009	2010
Demand					
% of projected normal	0.0%	0.0%	0.0%	0.0%	0.0%

Table 48 Projected Supply and Demand Comparison during multiple dry year period ending in 2010- AF Year					
	2006	**2007**	**2008**	**2009**	**2010**
Supply totals	0	0	0	0	0
Demand totals	0	0	0	0	0
Difference	0	0	0	0	0
Difference as % of Supply					
Difference as % of Demand					

☐ Project a multiple-dry year period (as identified in Table 9) occurring between 2011-2015 and compare projected supply and demand during those years _____ Reference & Pa

Table 49 Projected supply during multiple dry year period ending in 2015 - AF Year					
	2011	**2012**	**2013**	**2014**	**2015**
Supply					
% of projected normal					

Table 50 Projected demand multiple dry year period ending in 2015 - AFY					
	2011	**2012**	**2013**	**2014**	**2015**
Demand					
% of projected normal					

Table 51 Projected Supply and Demand Comparison during multiple dry year period ending in 2015- AF Year					
	2011	**2012**	**2013**	**2014**	**2015**
Supply totals	0	0	0	0	0
Demand totals	0	0	0	0	0

Difference	0	0	0	0	0
Difference as % of Supply					
Difference as % of Demand					

☐ Project a multiple-dry year period (as identified in Table 9) occurring between 2016-2020 and compare projected supply and demand during those years _____ Reference & Pa

Table 52 Projected supply during multiple dry year period ending in 2020 - AF Year					
	2016	**2017**	**2018**	**2019**	**2020**
Supply					
% of projected normal					

Table 53 Projected demand multiple dry year period ending in 2020 - AFY					
	2016	**2017**	**2018**	**2019**	**2020**
Demand					
% of projected normal					

Table 54 Projected Supply and Demand Comparison during multiple dry year period ending in 2020- AF Year					
	2016	**2017**	**2018**	**2019**	**2020**
Supply totals	0	0	0	0	0
Demand totals	0	0	0	0	0
Difference	0	0	0	0	0
Difference as % of Supply					
Difference as % of Demand					

☐ Project a multiple-dry year period (as identified in Table 9) occurring between 2021-2025 and compare projected supply and demand during those years _____ Reference & Pa

Table 55

Projected supply during multiple dry year period ending in 2025 - AF Year					
	2021	2022	2023	2024	2025
Supply					
% of projected normal					

Table 56 Projected demand multiple dry year period ending in 2025 - AFY					
	2021	2022	2023	2024	2025
Demand					
% of projected normal					

Table 57 Projected Supply and Demand Comparison during multiple dry year period ending in 2025- AF Year					
	2021	2022	2023	2024	2025
Supply totals	0	0	0	0	0
Demand totals	0	0	0	0	0
Difference	0	0	0	0	0
Difference as % of Supply					
Difference as % of Demand					

Provision of Water Service Reliability section to cities/counties within service area **(Water Code § 10635(b))**

☐ Provided Water Service Reliability section of UWMP to cities and counties within which it provides water supplies within 60 days of UWMP submission to DWR _____ Reference & Pa

Does the Plan Include Public Participation and Plan Adoption **(Water Code § 10642)**

☐ Attach a copy of adoption resolution _____ Reference & Pa

☐ Encourage involvement of social, cultural & economic community groups _____ Reference & Pa

☐ Plan available for public inspection _____ Reference & Pa

☐ Provide proof of public hearing _____ Reference & Pa

☐ Provided meeting notice to local governments Reference & Pa

Review of implementation of 2000 UWMP **(Water Code § 10643)**

☐	Reviewed implementation plan and schedule of 2000 UWMP	_____	Reference & Pa
☐	Implemented in accordance with the schedule set forth in plan	_____	Reference & Pa
☐	2000 UWMP not required	_____	Reference & Pa

Provision of 2005 UWMP to local governments		**(Water Code § 10644 (a))**	
☐	Provide 2005 UWMP to DWR, and cities and counties within 30 days of adoption	_____	Reference & Pa

Does the plan or correspondence accompanying it show where it is available for public review		**(Water Code § 10645)**	
☐	Does UWMP or correspondence accompanying it show where it is available for public review	_____	Reference & Pa

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