

Urban
WATER
Management Plan

December 13, 2005



City of Garden Grove

2005

PSOMAS

URBAN WATER MANAGEMENT PLAN 2005



City of Garden Grove

December 13, 2005

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Acronyms and Abbreviations

| | |
|--------|--|
| AB | Assembly Bill |
| ACT | Urban Water Management Plan of 1983 |
| AF | Acre Feet |
| AFY | Acre Feet per Year |
| BEA | Basin Equity Assessment |
| BMP | Best Management Practices |
| BPP | Basin Pumping Percentage |
| CALSIM | California Water Allocation and Reservoir Operations Model |
| CDR | Center for Demographic Research |
| CEQA | California Environmental Quality Act |
| CFS | Cubic Feet per Second |
| CRA | Colorado River Aqueduct |
| CUWCC | California Urban Water Conservation Council |
| CVP | Central Valley Project |
| DBP | Disinfection Byproducts |
| DHS | Department of Health Services |
| DMM | Demand Management Measure |
| DWCV | Desert Water Agency/Coachella Valley Water District |
| DWR | Department of Water Resources |
| EIR | Environmental Impact Report |
| EOC | Emergency Operations Center |
| EPA | Environmental Protection Agency |
| ETo | Evapotranspiration |
| GAP | Green Acres Project |
| GGSD | Garden Grove Sanitary District |
| gpcd | Gallons per Capita per Day |
| gpf | Gallons per Flush |
| GPM | Gallons per Minute |
| GWRS | Groundwater Replenishment System |
| HAA | Haloacetic Acids |
| IAWP | Interim Agricultural Water Program |
| IID | Imperial Irrigation District |
| IRP | Integrated Water Resources Plan |
| LRP | Local Resources Program |
| LTFP | Long Term Facilities Plan |
| MAF | Million Acre Feet |
| MCL | Maximum Contaminant Level |
| MG | Million Gallons |
| MGD | Million Gallons per Day |
| mg/L | Milligrams Per Liter |
| MOU | Memorandum of Understanding |
| MPR | Master Plan Report |
| MTBE | Methyl Tertiary Butyl Ether |

| | |
|---------|---|
| MWDOC | Municipal Water District of Orange County |
| NDMA | N-nitrosodimethylamine |
| OCSD | Orange County Sanitation District |
| OCWA | Orange County Water Association |
| OCWD | Orange County Water District |
| pCi/L | Picocuries per liter |
| QSA | Quantification Settlement Agreement |
| RA | Replenishment Assessment |
| RWQCB | Regional Water Quality Control Board |
| SARI | Santa Ana Regional Interceptor |
| SAWPA | Santa Ana Watershed Project Authority |
| SB | Senate Bill |
| SBVMWD | San Bernardino Valley Municipal Water District |
| SCAB | South Coast Air Basin |
| SCADA | Supervisory Control Data Acquisition System |
| SCCWRRS | Southern California Comprehensive Water Reclamation and Reuse Study |
| SOCWRS | South Orange County Water Reliability Study |
| SWRCB | State Water Resources Control Board |
| SWP | State Water Project |
| TAF | Thousand Acre-Feet |
| TDS | Total Dissolved Solids |
| THM | Trihalomethanes |
| TIN | Total Inorganic Nitrogen |
| ug/L | Micrograms Per Liter |
| ULF | Ultra Low Flush |
| ULFT | Ultra Low Flush Toilet |
| USBR | United States Bureau of Reclamation |
| UWMP | Urban Water Management Plan |
| VOC | Volatile Organic Compounds |
| WARN | California Water Agencies Response Network |
| WEROC | Water Emergency Response Organization of Orange County |
| WOC | Water Operations Center |
| WOCWB | West Orange County Water Board |
| WSDM | Water Surplus and Drought Management |

SECTION 1 INTRODUCTION

1.1 PURPOSE AND UWMP SUMMARY

An Urban Water Management Plan (UWMP or Plan) prepared by a water purveyor is to ensure the appropriate level of reliability of water service sufficient to meet the needs of its various categories of customers during normal, single dry or multiple dry years. The California Water Management Planning Act of 1983 (Act), as amended, requires urban water suppliers to develop an UWMP every five years in the years ending in zero and five.

The legislature declared that waters of the state are a limited and renewable resource subject to ever increasing demands; that the conservation and efficient use of urban water supplies are of statewide concern; that successful implementation of plans is best accomplished at the local level; that conservation and efficient use of water shall be actively pursued to protect both the people of the state and their water resources; that conservation and efficient use of urban water supplies shall be a guiding criterion in public decisions; and that urban water suppliers shall be required to develop water management plans to achieve conservation and efficient use.

The City of Garden Grove (City) 2005 UWMP has been prepared in compliance with the requirements of the Act, as amended to 2005¹ (Appendix A), and includes the following:

- Water Services Division Service Area
- Water Services Division Facilities
- Water Sources and Supplies
- Water Quality Information
- Water Reliability Planning
- Water Use Provisions
- Water Demand Management Measures
- Water Shortage Contingency Plan
- Water Recycling

1.2 URBAN WATER MANAGEMENT PLAN UPDATE PREPARATION

The City's 2005 UWMP revises the 2000 UWMP prepared by the City and incorporates changes enacted by recent legislation including Senate Bill (SB) 610 (2001), Assembly Bill (AB) 901 (2001), SB 672 (2001), SB 1348 (2002), SB 1384 (2002), SB 1518 (2002), AB 105 (2004), and SB 318 (2004). The UWMP also incorporates water use efficiency efforts the City has implemented or is considering implementing pursuant to the

¹California Water Code, Division 6, Part 2.6; §10610, et. seq. Established by Assembly Bill 797 (1983).

Memorandum of Understanding Regarding Urban Water Conservation in California (MOU).² The City became signatory and adopted the MOU on December 19, 2000.

The sections in this Plan correspond to the outline of the Act, specifically Article 2, Contents of Plans, Sections 10631, 10632, and 10633. The sequence used for the required information, however, differs slightly in order to present information in a manner reflecting the unique characteristics of the City's water utility. The Department of Water Resources (DWR) 2005 UWMP Review for Completeness form has been completed, which identifies the location of Act requirements in this Plan and is included as Appendix B.

The 2005 UWMP was adopted by resolution of the Garden Grove City Council on December 13, 2005, following a public hearing. The Plan was submitted to the California Department of Water Resources within 30 days of Council approval. Copies of the Notice of Public Hearing and the Resolution of Plan Adoption are included in Appendix C. Copies of the Plan were made available to the public within 30 days following City Council approval.

Agency Coordination

Development of this Plan was performed by the City of Garden Grove Water Division staff, in coordination with other departments of the City including the City Manager's Office, City Clerk's Office, and Community Development Department.

The City of Garden Grove is fully dependent on the Metropolitan Water District of Southern California (Metropolitan) through the Municipal Water District of Orange County (MWDOC) and the Orange County Water District (OCWD) for its long-term water supply. All of the City's water supply planning relates to the policies, rules, and regulations of these three water agencies. Development of the City's UWMP was also coordinated with MWDOC, which serves as the City's wholesaler of water received from Metropolitan; OCWD, which manages the Santa Ana River (Orange County) groundwater basin (Basin) and provides recycled water in partnership with the Orange County Sanitation District (OCSD); and the OCSD, which manages wastewater.

This UWMP details the specifics as they relate to the City of Garden Grove Water Division and its service area and will refer to MWDOC, Metropolitan, OCWD and OCSD throughout. Appendix D lists the numerous references used benefiting the development of this Plan.

²The *Memorandum of Understanding Regarding Urban Water Conservation in California* (MOU) was adopted in September 1991 by a large number of water suppliers, public advocacy organizations and other interested groups. It created the *California Urban Water Conservation Council* and established 16 Best Management Practices (BMPs) for urban water conservation, recently refined to 14 BMPs. The City of Garden Grove adopted the MOU on November 12, 1996.

The UWMP is intended to serve as a general, flexible, and open-ended document that periodically can be updated to reflect changes in the Orange County water supply trends, and conservation and water use efficiency policies. This Plan, along with the City's Water Master Plan and other City planning documents, will be used by City staff to guide the City's water use and management efforts through the year 2010, when the UWMP is required to be updated.

1.3 GARDEN GROVE WATER SERVICE AREA

Location

The City of Garden Grove is located in north central Orange County as shown in Figure 1.1. The City is located south of Anaheim and north of Santa Ana, and is about 25 miles south of Los Angeles and 9 miles inland from the Pacific Ocean. Garden Grove has an area of 17.8 square miles and is generally flat, with elevations ranging from a low of about 20 feet above sea level in the southwest to 130 feet in the northeast. The City is predominately residential, although it also has five industrial parks, 19 retail centers, and eight large hotels and three conference centers. The City is located along the Garden Grove Freeway (SR 22) which provides excellent access to I-5 and the Orange County Freeway (SR 57) to the east and I-405, I-605 and I-710 to the west.

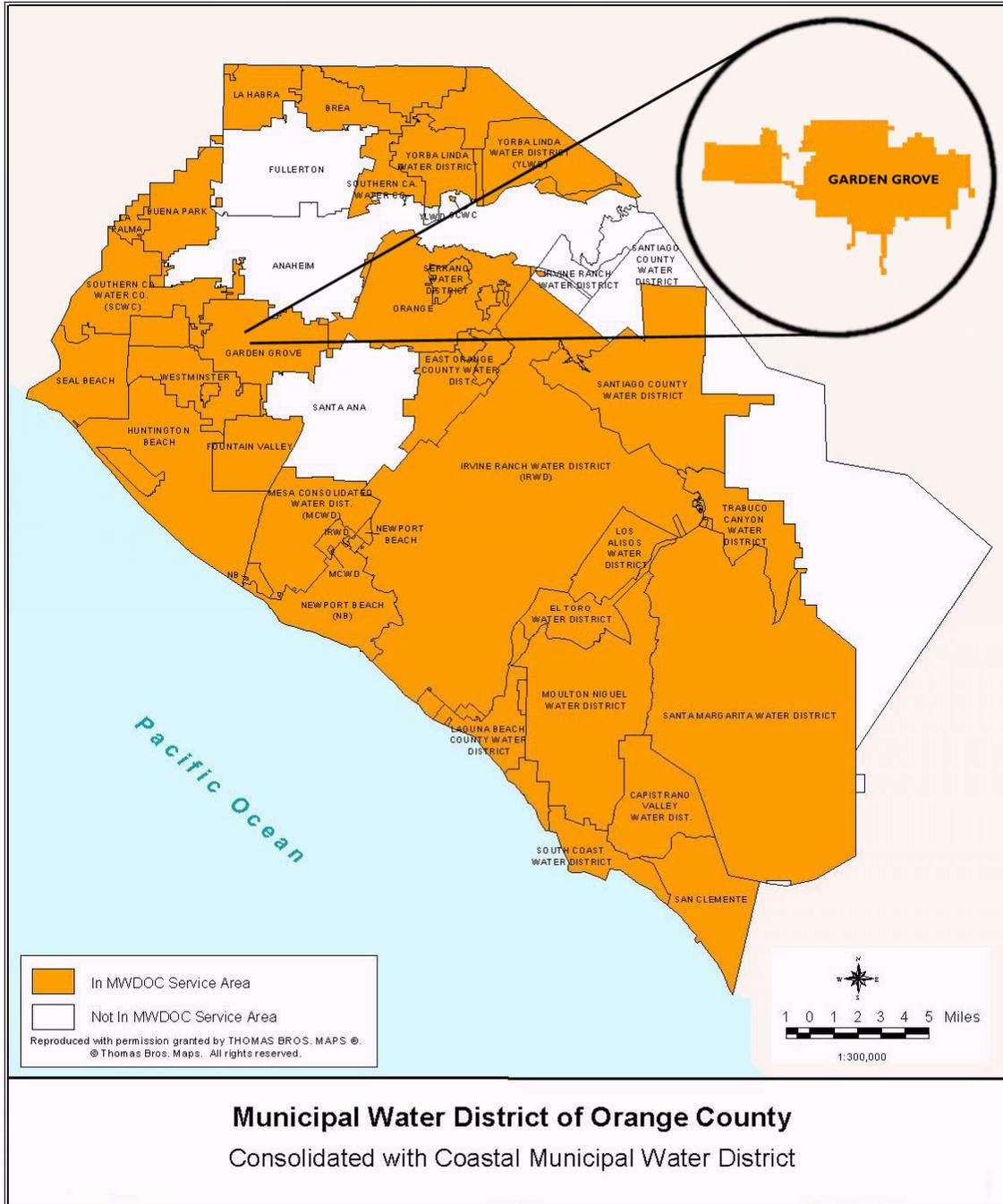
Climate Characteristics

The City of Garden Grove is located in an area known as the South Coast Air Basin (SCAB). The SCAB climate is characterized by what is known as Southern California's "Mediterranean" climate: a semi-arid environment with mild winters, warm summers and moderate rainfall. The general region lies in the semi-permanent high pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

The average annual temperature varies throughout the Basin, averaging 75 degrees Fahrenheit. January is usually the coldest month while July and August are usually the hottest months of the year. Annual average relative humidity is 63.5 percent. Precipitation is typically 9 to 14 inches averaging 12.9 inches, occurring mostly between November and April. Evapotranspiration (ET_o)³ in the region averages 49.7 inches annually. Details of average annual ET_o, temperatures and rainfall are shown in Table 1.3-1.

³ Evapotranspiration (ET) is the loss of water to the atmosphere by the combined processes of evaporation (from soil and plant surfaces) and transpiration (from plant tissues). It is an indicator of how much water crops, lawn, garden, and trees need for healthy growth and productivity. ET from a standardized grass is commonly denoted as ET_o.

Figure 1.1
City of Garden Grove Service Area Location
in Orange County and MWDOC



**Table 1.3-1
Garden Grove ETo, Temperatures and Rainfall⁴**

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total or Average | |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------------------|------|
| Average ETo (inches) | 1.86 | 2.24 | 3.41 | 4.80 | 5.58 | 6.30 | 6.51 | 6.20 | 4.80 | 3.72 | 2.40 | 1.86 | 49.7 | |
| Temperature (Fahrenheit) | Max | 68.1 | 69.4 | 70.2 | 72.7 | 74.5 | 77.8 | 82.7 | 84.1 | 83.6 | 79.3 | 73.7 | 68.8 | 75.4 |
| | Min | 45.0 | 46.3 | 48.0 | 51.2 | 55.1 | 58.6 | 62.0 | 63.0 | 61.2 | 56.4 | 49.5 | 45.0 | 53.4 |
| Average Rainfall (inches) | 3.04 | 2.74 | 2.22 | 0.93 | 0.21 | 0.07 | 0.01 | 0.08 | 0.25 | 0.25 | 1.36 | 1.75 | 12.92 | |

Demographics

The population of Garden Grove is currently estimated at about 171,000 people, and is growing slowly, as there is very little remaining vacant land. The Garden Grove Water Services Division service area is predominantly residential with over 90 percent of water service connections serving single-family or multi-family residences.

Data presented by the Center for Demographic Research (CDR) at California State University Fullerton projects an 11.1% increase in Garden Grove's population. According to the CDR, the number of dwelling units in Garden Grove increased by 366 (from 46,703 to 47,069) from April 1, 2000 through January 1, 2004; this projects to an 5.2% increase over the next 25 years. Only minimal changes in land use are anticipated over the next 25 years. Table 1.3-2 shows the population projections in five-year increments to the year 2030.

**Table 1.3-2
City of Garden Grove
Population Projections**

| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|--------------------------------|---------|---------|---------|---------|---------|---------|
| Service Area Population | 171,042 | 178,457 | 183,249 | 186,593 | 188,446 | 189,445 |

Source: City of Garden Grove Planning Department and the Center for Demographic Research (CDR), California State University Fullerton, September 2005.

⁴ [on-line] OC Almanac, <http://www.ocalmanac.com/Weather/we02.htm>, Western Regional Climate Center, Santa Ana Fire Station. Data from 7/1/1948 through 7/31/2003.

1.4 WATER SERVICES DIVISION AND FACILITIES

Water Services Division

In 1958, the City of Garden Grove established a Municipal Water Department, which is now recognized as the Water Services Division of the Public Works Department. The Water Services Division is the principal water retailer within the City boundaries and also provides water service for two small neighborhoods outside the City. The Division is responsible for operating and maintaining wells, reservoirs, imported water connections, distribution pipelines, fire hydrants, water meters and related infrastructure, and for meter reading, billing and accounting services. The Division also conducts comprehensive water quality testing and monitoring programs and develops long range operational and engineering plans designed to prepare for future needs and contingencies.

Service Area

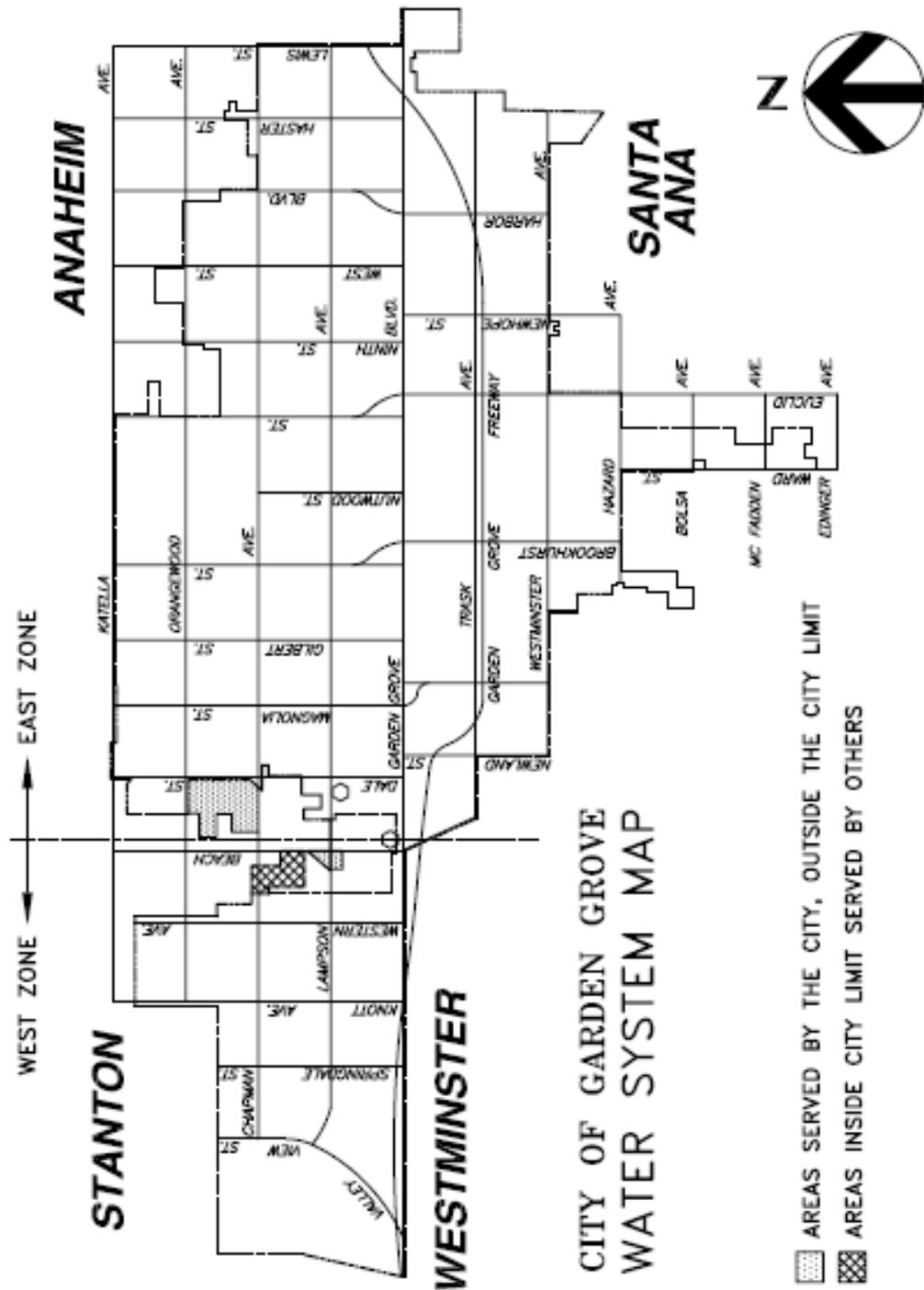
The Water Services Division supplies customers throughout the City of Garden Grove, an area of about 17.8 square miles. Garden Grove also serves water to two neighborhoods that are not within the incorporated boundaries of the City: one is in the vicinity northwest of Chapman Avenue and Dale Street and the other nearby, in the area of Lampson Avenue and Beach Street. A neighborhood that is within the City, but is not connected to the Water Services Division system, located north of Chapman Avenue and east of Western Avenue is served by the Golden State Water Company (formerly known as Southern California Water Company). Figure 1.2 shows the City limits and water service area.

Water System Facilities

Groundwater is pumped from 12 active wells located throughout the City. The age, depth, design flow and production data for the 12 active wells is summarized in Section 2. MWDOC wholesales imported water to the City from Metropolitan through four imported water connections. Metropolitan treats water supplied to Garden Grove at the Diemer Filtration Plant in northern Orange County. The Garden Grove water distribution system is connected to Metropolitan transmission mains at four locations along the northern and eastern sides of the City.

The City also operates eight storage and distribution reservoirs at five sites with a combined capacity of 53 million gallons (MG). The storage volume is the equivalent of more than two days average use and is more than adequate for peaking demands and fire fighting needs. The storage system is supported with 17 booster pumps located at the reservoir sites. The booster pumps have a total capacity of 41,000 gallons per minute (GPM), which is more than enough to keep the system pressurized under peak flow conditions. The City also maintains eight emergency interconnections with neighboring water systems.

Figure 1.2
Garden Grove Water System Service Area



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Management of Water System Pressures and Peak Demands

The City's distribution system pressures are managed to ensure that water pressure is within acceptable ranges for both domestic use and fire flow demands. Peak demands can be met with combinations of increased pressure rates and water from storage tanks.

SECTION 2 WATER SOURCES AND SUPPLIES

2.1 WATER SOURCES

The City works together with three primary agencies to insure a safe and high quality water supply, which will continue to serve the community in periods of drought and shortage. The agencies who work in concert to provide these services are the Metropolitan, the MWDOC, and the OCWD.

Metropolitan Water District of Southern California (Metropolitan)

Metropolitan was formed in the late 1920's. At that time, Orange County was mostly an agriculturally based economy with the cities of Santa Ana, Anaheim, and Fullerton as the primary centers of urban development. Although other cities and residential communities existed at that time, it was these three cities that joined ten others located in Southern California, to form Metropolitan in 1928. Collectively, these charter members recognized the limited water supplies available within the region, and realized that continued prosperity and economic development of Southern California depended upon the acquisition and careful management of an adequate supplemental water supply. This foresight made the continued development of southern California and Orange County possible. Metropolitan acquires water from northern California via the State Water Project (SWP) and from the Colorado River to supply water to most of southern California. As a wholesaler, Metropolitan has no retail customers, and distributes treated and untreated water directly to its member agencies. One such member agency is MWDOC.

Municipal Water District of Orange County (MWDOC)

In 1951, MWDOC was formed to provide supplemental water to many purveyors within Orange County who were not Metropolitan member agencies. The communities surrounding the Lower Orange County groundwater basin realized that the local underground supply might not be sufficient to meet future demands of the area.

MWDOC was formed for the purpose of contracting with Metropolitan to acquire supplemental import water supplies from northern California and the Colorado River for use within the Orange County area. MWDOC is Metropolitan's second largest wholesale member agency. MWDOC represents 30 member agencies, including 14 special districts, 14 city water departments, one private water company and one mutual water company. MWDOC provides imported water to all of Orange County except for the cities of Anaheim, Fullerton and Santa Ana.⁵ It is through MWDOC that the City purchases imported water from Metropolitan.

⁵ MWDOC 2005 Regional Urban Water Management Plan, Section 1.

Orange County Water District (OCWD)

In 1933, OCWD was formed by legislative act to protect and manage the County's vast, natural, underground water supply with the best available technology and to defend its water rights to the Santa Ana River Basin. As part of its original formation, OCWD was established by a special act (Act), of the State of California Legislature. This legislation is found in the State of California Statutes, Water – Uncodified Acts, Act 5683, as amended.⁶ The Basin is managed by OCWD under the Act, which functions as a statutorily-imposed physical solution. Section 77 of the Act states that, *'nothing in this act contained shall be so construed as to affect or impair the vested right of any person, association or corporation to the use of water.'*⁷ According to the Act, the City has the right to construct and operate groundwater-producing facilities in the Basin. The Act also empowers OCWD to impose replenishment assessments (RA) and basin equity assessments (BEA) on production and to require registration of water-producing facilities and the filing of certain reports; however, OCWD is expressly prohibited from limiting extraction unless a producer agrees.⁸

The Basin is managed by OCWD for the benefit of municipal, agricultural and private groundwater producers. OCWD has 23 major producers extracting water from the Basin serving a population of approximately 2.8 million.⁹ Carefully managed by OCWD in collaboration with the other water and wastewater agencies, the growing population can be assured of a secure water supply from the groundwater source. Processes such as groundwater recharge of the Santa Ana River, recycling of wastewater, conservation and water use efficiency, and creative water purchases have aided in replenishing the Basin to desired levels to meet required demands.

West Orange County Water Board (WOCWB)

The WOCWB is a Joint Powers Agency between five participating agencies. The members include the cities of Garden Grove, Fountain Valley (with no voting rights), Huntington Beach, Westminster, and Seal Beach. The board consists of five members, with the City of Huntington Beach having two seats on the board. The board meets quarterly and manages surface water deliveries from Metropolitan (through MWDOC) to the agencies. The board oversees the maintenance of two feeder pipelines that connect to the treated surface water supply. The pipelines have a capacity of 21 cubic feet per second (CFS) and 45 CFS. The City of Fountain Valley has entered into an agreement to access imported water from the feeder pipelines, specifically OC-9 and OC-35, by the end of 2005. Each of the member agencies has paid for the capacity of the feeder pipelines and directly pays MWDOC for the use of water.

⁶ Orange County Water District Act.

⁷ Orange County Water District Act, Section 77.

⁸ Orange County Water District Act, Sections 23 and 31.5.

⁹ Orange County Facts and Figures. Center for Demographic Research. Available: <http://www.fullerton.edu/cdr/countyfacts.pdf>. Note: Population served by OCWD is different than MWDOC as it serves the cities of Santa Ana, Fullerton, and Anaheim. June 2002.

2.2 WATER SUPPLY

The City currently receives approximately 64 percent of its water supply from groundwater wells accessing the Santa Ana River groundwater basin and 36 percent from Metropolitan through the MWDOC. These percentages are established through OCWD's allowable Basin Pumping Percentage (BPP). The BPP is typically set by OCWD on an annual basis. However, OCWD does have the option of revising the BPP as needed. Actual percentages vary somewhat on an annual basis depending on the extent in-lieu delivery programs are implemented. Current and projected water supplies from imported water and groundwater are shown in Table 2.2-1 and described in subsequent sections.

**Table 2.2-1
City of Garden Grove
Current and Projected Water Supplies
(AFY)**

| Water Supply Sources | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| MWDOC – Import | 11,168 | 11,500 | 11,360 | 12,210 | 11,710 | 11,230 |
| Groundwater Production | 19,854 | 20,510 | 20,920 | 21,340 | 21,770 | 22,200 |
| Total Water Supply | 31,022 | 32,010 | 32,280 | 33,550 | 33,480 | 33,430 |

Source: Section 4, Table 4.2-4 of this Plan.

Import Connections

Currently, approximately 36 percent of the City's water supply comes from imported water wholesaled by Metropolitan through MWDOC. Imported water is delivered from northern California via the SWP and from the Colorado River, and is treated at the Robert B. Diemer Filtration Plant before the water is delivered to the City.

The City maintains four connections to the Metropolitan system, which allows utilization of water imported from the SWP and the Colorado Aqueduct. The characteristics of these connections are shown in Table 2.2-2.

**Table 2.2-2
Imported Water Connections**

| Designation | Location | Capacity (GPM) |
|--------------------|----------------------|-----------------------|
| OC-5 | Lewis & Lampson | 6,750 |
| OC-22 | Ninth & Katella | 4,500 |
| OC-35 | Knott & Chapman | 2,250 |
| OC-50 | Brookhurst & Katella | 9,000 |
| Total | | 22,500 |

The City participates, in coordination with MWDOC and the OCWD, in Metropolitan's in-lieu program. OCWD, MWDOC, and Metropolitan have developed a successful and efficient in-lieu program to increase storage in the Basin and anticipate working together on future programs. One such future program is the proposed Surplus Water Program.

The Surplus Water Program will allow Metropolitan to make direct deliveries to the City's distribution system in lieu of producing water from the Basin. This in-lieu program indirectly replenishes the Basin by avoiding pumping. In the in-lieu program, OCWD requests the City to halt pumping from specified wells. The City then takes replacement water through its import connections, which is purchased by OCWD from Metropolitan (through MWDOC). OCWD purchases the water at a reduced rate, and then bills the City the amount it would have had to pay for energy and the RA if it had produced the water from its wells. The deferred local production results in water being left in local storage for future use.

Reservoirs

The City operates eight storage and distribution reservoirs at five sites with a combined capacity of 53 MG. The storage volume is equivalent to more than two days average use and is more than adequate for peaking demands and fire fighting needs. The storage system is supported with 17 booster pumps located at the reservoir sites. The booster pumps have a total capacity of 41,000 GPM, which are more than enough to keep the system pressurized under peak flow conditions.

Groundwater

Orange County Groundwater Basin (Basin)

The Basin underlies the north half of Orange County beneath broad lowlands. The Basin covers an area of approximately 350 square miles, bordered by the Coyote and Chino Hills to the north, the Santa Ana Mountains to the northeast, the Pacific Ocean to the southwest, and terminates at the Orange County line to the northwest, where its aquifer systems continue into the Central Basin of Los Angeles County. The aquifers comprising the Basin extend over 2,000 feet deep and form a complex series of interconnected sand and gravel deposits.

Groundwater supply currently meets approximately 64 percent of the water supply demand for all of Orange County. This amount can be adjusted as needed based on Basin hydrologic conditions, but is typically set on an annual basis.

During the water year July 2003 to June 2004, total Basin production for all agencies was approximately 284,621 acre-feet (AF).¹⁰ The Basin generally operates as a reservoir in which the net amount of water stored is increased in wet years to allow for managed overdrafts in dry years. The Basin is recharged primarily from local rainfall (greater in

¹⁰Orange County Water District, *Draft 2003-2004 Engineer's Report on Groundwater conditions, Water Supply and Basin Utilization in the Orange County Water District*, February 2005.

wet years), base flow from the Santa Ana River (much of which is actually recycled wastewater from treatment plants in Riverside and San Bernardino Counties), imported water percolated into the Basin, and recycled wastewater directly recharged into the Basin. The production capability of the Basin is being increased as a result of a variety of specific management initiatives including increased wastewater reclamation and the blending of lower quality water with potable water for public distribution.

The Basin is not adjudicated and based on the Department of Water Resources' official departmental bulletins, California's Groundwater Bulletin 118 Updated 2003 and Bulletin 160, The California Water Plan Update 2005, the Basin is not specifically identified as a Basin in an overdraft condition. The California Water Plan Update, however, does state that groundwater overdraft is a challenge for the South Coast Hydrologic Region, which includes the Basin. The Basin is considered in an overdraft condition by OCWD, however the groundwater levels and amount of overdraft fluctuate overtime. OCWD continually monitors groundwater level trends and has collected data since 1962. OCWD's Groundwater Management Plan summarizes the accumulated overdraft and water level elevations within the Basin. OCWD estimates that the accumulated overdraft in June 2004 was approximately 400,000 AF.¹¹

Based on OCWD's 2004 Groundwater Management Plan the target accumulated overdraft is 200,000 AF. An accumulated overdraft condition minimizes the localized high groundwater levels and increases ability to recharge storm events from the Santa Ana River. OCWD estimates that the Basin can safely be operated on a short-term emergency basis with a maximum accumulated overdraft of approximately 500,000 AF; however, 400,000 AF is preferred.¹² With an accumulated overdraft of 200,000 AF, the Basin is considered 99.5 percent full with 40 million acre-feet (MAF) of groundwater in storage. The entire 40 MAF of groundwater, however, is not accessible due to salt water intrusion issues. The pumping must be offset with recharge to maintain the optimal overdraft condition and prevent seawater from migrating inland. During a typical year, pursuant to OCWD's basin management plan, the amount of groundwater available out of storage is essentially the same as the amount of water that can be indirectly or directly recharged to the Basin.

In an effort to eliminate long-term overdraft conditions, OCWD developed a comprehensive computer-based groundwater flow model to study and better understand the Basin's reaction to pumping and recharge. OCWD has also implemented a monitoring program to track dynamic conditions including groundwater production, storage, elevations, and quality. Components of this monitoring program include the request for the City to provide its groundwater production to OCWD on a monthly basis, routine monthly measurement of groundwater levels, water quality monitoring, and assessment of sea water intrusion.

¹¹Orange County Water District, *Draft 2003-2004 Engineer's Report on Groundwater conditions, Water Supply and Basin Utilization in the Orange County Water District*, February 2005

¹²Orange County Water District, *Groundwater Management Plan*, March 2004.

Basin Pumping Percentage (BPP)

One of the methods OCWD uses to manage the amount of production from the Basin is the establishment of a Basin Production Percentage (BPP). OCWD recommends a BPP each water year which is calculated by dividing the optimum producer's groundwater production (basin yield) by their total potable water demands. The BPP is based on groundwater conditions, availability of imported water supplies, and basin management objectives. The BPP is also a major factor in determining the cost of groundwater production (RA) from the Basin for that year.

While the BPP has been as high as 75 percent in recent years, the BPP was set at 66 percent for 2004-2005. The BPP has been set at 64 percent for the water year 2005-2006 and is anticipated to increase to 70 percent over the next five years. Producers may pump above the BPP to 100 percent of their needs by paying the BEA. The BEA is the additional fee paid on any water pumped above the BPP, making the cost of that water equal or greater to the cost of imported water. Such flexibility in producing over the BPP guarantees the City and other water utilities in Orange County the ability to provide water to their customers during periods of varying water availability.

The City has historically pumped above the BPP to produce additional groundwater. This additional groundwater is due to the City's Lampson Reservoir Well Nitrate Blending Project. The Lampson Reservoir Well Nitrate Blending Project is a blending project that utilizes two wells in order to meet the MCL for nitrate.¹³ The two wells used are Well No. 28 (high nitrate concentration) and Well No. 23 (low nitrate concentration). Because the Lampson Well Nitrate Blending Project was blending nitrate laden groundwater and putting it to beneficial use, the City received BEA exemptions, meaning the City can pump over the BPP without paying the full BEA amount.

Recharge Facilities

Another method for controlling overdraft is through recharge management programs. The Basin is recharged by multiple sources including natural and artificial sources. Natural recharge occurs when groundwater producers use surface water in-lieu of groundwater. The reduction in pumping naturally recharges the Basin. Another source of natural recharge is the result of precipitation and OCWD estimates that approximately 60,000 AFY is recharged to the Basin.

Artificial recharge occurs at developed percolation ponds (approximately 1,000 acres) and also via injection through the Talbert and Alamitos Barriers. The four groundwater spreading systems throughout OCWD's service area and their respectable percolations rates are summarized in Table 2.2-3.

¹³ OCWD, Groundwater Management Plan, March 2004.

**Table 2.2-3
Orange County Groundwater Basin
Groundwater Spreading Systems**

| System | Area (acres) | Storage Capacity (AF) | Percolation Rate (cfs) |
|----------------------------|---------------------|------------------------------|-------------------------------|
| Main River System | 245 | 480 | 87-115 |
| Off-River System | 126 | 394 | 15-40 |
| Deep Basin System | 280 | 8,484 | 89-300 |
| Burris Pit/Santiago System | 373 | 17,500 | 106-210 |

These percolation systems can recharge Santa Ana River baseflow and storm flows. OCWD estimates that approximately 155,000 AF of baseflow and 60,000 AF of storm flows are recharged each year at the percolation ponds. OCWD also imports between 35,000 and 60,000 AF of replenishment water from Metropolitan to be used for recharging the Basin.

OCWD also recharges the Basin by injecting water to prevent seawater intrusion. The seawater intrusion barriers include the Talbert and Alamitos Barriers. The Talbert Barrier has 26 injection wells and injects 12 million gallons per day (MGD) into the Basin. Over 95 percent of the water injected flows inland and is therefore considered replenishment water. The Alamitos Barrier injects approximately 5,000 AFY of which 50 percent stays within the Basin for replenishment.

The estimated average annual recharge of the Basin based on the information provided above is 328,400 AF to 353,400 AF. The range is due to the amount of imported water purchased from Metropolitan each year. The amount of water available for recharge will vary from year to year.

City of Garden Grove Groundwater Wells

Within the City, groundwater is produced from 12 operating wells that vary in depth from 900 feet to 1,100 feet, with production varying from 1,000 GPM to 4,500 GPM, with a total system capacity of approximately 34,000 GPM as shown in Table 2.2-3. A new well is planned (Well 30) that will increase total system capacity to 36,500 GPM.

**Table 2.2-4
City of Garden Grove Active and Planned Wells**

| Well No. | Well Description | Date Completed | Depth (feet) | Design Flow (GPM) |
|-----------------|--|-----------------------|---------------------|--------------------------|
| 16 | West Zone System Well | 6/9/64 | 964 | 2,000 |
| 19 | Main Zone System Well | 10/20/66 | 942 | 1,900 |
| 20 | Trask Reservoir Well | 5/29/67 | 950 | 2,000 |
| 21 | Westhaven Reservoir Well | 4/1/69 | 1,158 | 3,000 |
| 22 | West GG Reservoir Well | 5/8/74 | 1,020 | 3,300 |
| 23 | Lampson Reservoir Well | 10/19/77 | 860 | 2,600 |
| 24 | Main Zone System Well | 4/30/82 | 825 | 2,100 |
| 25 | Main Zone System Well | 1/27/82 | 982 | 1,000 |
| 26 | Main Zone System Well | 5/16/88 | 1,100 | 3,600 |
| 27 | Main Zone System Well; Magnolia Reservoir | 2/26/88 | 1,180 | 4,000 |
| 28 | Lampson Reservoir Well | 12/21/88 | 280 | 4,000 |
| 29 | Twin Lakes Freedom Park | 1/28/98 | 1,107 | 4,500 |
| 30 | Well 30 | Anticipated 2007 | 1,160 | 2,500 |

Source: City of Garden Grove Water System Master Plan, 1998

Table 2.2-5 summarizes the amount of groundwater pumped by the City for the last five years.

**Table 2.2-5
 Historic Groundwater Production
 (AFY)**

| Well Location | 2000 | 2001 | 2002 | 2003 | 2004 |
|---------------|--------|--------|--------|--------|--------|
| All Wells | 23,438 | 21,846 | 21,019 | 17,673 | 20,554 |

Source: City of Garden Grove data for 2000 and 2001 are estimates; data for 2002, 2003 and 2004 are actual production.

Table 2.2-6 projects the amount of water that will be pumped from each well in the future.

**Table 2.2-6
 Projected Groundwater Production
 (AFY)**

| Well Location | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---------------|--------|--------|--------|--------|--------|--------|
| All Wells | 19,549 | 20,510 | 20,920 | 21,340 | 21,770 | 22,200 |

Well 30 is being developed under the Orange County Groundwater Conjunctive Use Program and completion is anticipated for 2007. Well 30 will enable the City to pump stored water during dry periods. It is unknown at this time the amount of water to be pumped in the future, since its use is dependant on future hydrologic conditions. Groundwater production projections will be adjusted at that time.

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SECTION 3 WATER QUALITY

3.1 WATER QUALITY OF EXISTING SOURCES

As required by the Safe Drinking Water Act, which was reauthorized in 1996, the City provides annual Water Quality Reports to its customers; also known as Consumer Confidence Reports. This mandate is governed by the Environmental Protection Agency (EPA) and the California Department of Health Services (DHS) to inform customers of their drinking water quality. In accordance with the Safe Drinking Water Act, the City monitors a number of regulated and unregulated compounds in its water supply and in years past, the water delivered to the City meets the standards required by the state and federal regulatory agencies.¹⁴ As mentioned earlier, the City's sources of water currently includes imported water supplies and groundwater.

IMPORTED WATER

The City receives imported water through MWDOC from Metropolitan, which receives raw water from northern California through the State Water Project (SWP) and the Colorado River Aqueduct (CRA). Metropolitan water is treated in accordance with potable standards at filtration plants located throughout Southern California. The City receives its treated imported water from the Robert B. Diemer Filtration Plant located in Yorba Linda, California.

Metropolitan tests and treats its water for microbial, organic, inorganic, and radioactive contaminants as well as pesticides and herbicides. Protection of Metropolitan's water system continues to be a top priority. In coordination with its 26 member agencies, Metropolitan added new security measures in 2001 and continues to upgrade and refine procedures. Changes have included an increase in the number of water quality tests conducted each year (more than 300,000) as well as contingency plans that coordinate with the Homeland Security Office's multicolored tiered risk alert system.¹⁵ Metropolitan also has one of the most advanced laboratories in the country where water quality staff performs tests, collects data, reviews results, prepares reports, and researches other treatment technologies. Although not required, Metropolitan monitors and samples substances that are not regulated but have captured scientific and/or public interest. Metropolitan has tested for chemicals such as perchlorate, methyl tertiary butyl ether (MTBE), and chromium VI among others.

In Metropolitan's Integrated Resources Plan (IRP) Update, water quality was identified as a possible risk to Metropolitan's future water supply reliability. Existing supplies could be threatened in the future because of contamination, more stringent water quality regulations, or the discovery of an unknown contaminant. Water quality of imported

¹⁴ City of Garden Grove, 2004 Water Quality Report.

¹⁵ Metropolitan's website, www.mwdh2o.com/mwdh2o/pages/yourwater/2005_report/protect_02.html

water could directly impact water supplies available to the City. Metropolitan's UWMP Update included the following examples:

- If a groundwater basin becomes contaminated and cannot be used, more water will be required from other sources.
- Imported water from the Colorado River must be blended (mixed) with lower salinity water from the SWP. Higher salinity levels in the Colorado River would increase the proportion of SWP supplies required.
- High total dissolved solids (TDS) in water supplies leads to high TDS in wastewater, which increases the cost of recycled water.
- If diminished water quality causes a need for membrane treatment, the process typically results in losses of up to 15 percent of the water processed.
- Degradation of imported water supply quality could limit the use of local groundwater basins for storage.
- Changes in drinking water quality standards such as arsenic, radon, or perchlorate could increase demand on imported water supplies.

Because of the concerns identified above, Metropolitan has identified those water quality issues that are most concerning and have identified necessary water management strategies to minimize the impact on water supplies. Water quality concerns with Metropolitan's water supplies and the approaches taken to ensure acceptable water quality are discussed in the following sections.

Salinity

Water from the CRA has the highest level of salinity of all Metropolitan's sources of supply, averaging 650 milligrams per liter (mg/L) during normal water years.¹⁶ Several actions have been taken on the state and federal level to control the salinity with the river such as the Colorado River Basin Salinity Control Act in 1974 and formation of the Colorado River Basin Salinity Control Forum. In 1975, water quality standards and a plan for controlling salinity were approved by the EPA.

In contrast, water from the SWP is significantly lower in TDS, averaging 250 mg/L. Because of the lower salinity, Metropolitan blends SWP water with Colorado River water to reduce the salinity in the water delivered to its customers. The Metropolitan's board has adopted a salinity objective of 500 mg/L for blended imported water as defined in Metropolitan's Salinity Management Action Plan. Metropolitan estimates that the objective can be met in seven out of ten years. In the other three years, hydrologic conditions would result in increased salinity and reduced volume of SWP supplies.

¹⁶ Metropolitan Water District of Southern California, Regional Urban Water Management Plan, September 2005 Draft

In an effort to address the concerns over salinity, Metropolitan secured Proposition 13 funding for two water quality programs:

- 1) Water Quality Exchange Partnership – the funding is being used to develop new infrastructure to optimize water management capabilities between the agricultural users of the eastern San Joaquin Valley and urban users of southern California. Installing infrastructure will provide opportunities for Metropolitan to exchange SWP water for higher quality water. Because of tidal influences from the San Francisco Bay, bromide is a water quality issue for the SWP. Also, agricultural drainage presents a potential problem in the Delta which is manifested in the form of total organic carbon. These issues are discussed in detail below.
- 2) The Desalination Research and Innovation Partnership – the funding is being used to develop cost-effective advanced water treatment technologies for the desalination of Colorado River water, brackish groundwater, municipal wastewater, and agricultural drainage water.

Perchlorate in Colorado River

Perchlorate is a contaminant of concern and is believed to inhibit the uptake of iodide. Perchlorate has been detected at low levels in the Colorado River water supply. Perchlorate is difficult to remove from water supplies with conventional water treatment. Successful treatment technologies include ion exchange, nanofiltration, reverse osmosis, biological treatment, and fluidized bed bioreactor treatment. Metropolitan continues to monitor perchlorate contamination of the Colorado River as well as research various treatment options. In 2002, Metropolitan adopted a Perchlorate Action Plan which defined the following nine objectives:

- 1) expand monitoring and reporting programs
- 2) assess the impact of perchlorate on local groundwater supplies
- 3) continue tracking health effects studies
- 4) continue tracking remediation efforts in the Las Vegas Wash
- 5) initiate modeling of perchlorate levels in the Colorado River
- 6) investigate the need for additional resource management strategies
- 7) pursue legislative and regulatory options for cleanup activities and regulatory standards
- 8) include information on perchlorate into outreach activities
- 9) provide periodic updates to Metropolitan's board and member agencies

Disinfection by-products (DBP) formed by disinfectants reacting with bromide and total organic carbon in SWP water

SWP water supplies contain levels of total organic carbon and bromide that are a concern to Metropolitan to maintain safe drinking water supplies. When water is disinfected at treatment plants, certain chemical reactions can occur with these compounds that can form Disinfection Byproducts (DBPs). DBPs include trihalomethanes (THMs), haloacetic acids (HAAs), and other DPBs. THMs and HAAs have been found to cause cancer in laboratory animals. Inherent in any through-Delta water movement is the high organic

and bromide loading imposed on the water from agricultural runoff and salt water intrusion. This poses significant treatment challenges to the receiving end users, like Metropolitan, to avoid problems with DBPs and the formation of THMs. It is imperative that the quality of SWP water delivered to Metropolitan be maintained at the highest levels possible.

In order to control the total organic carbon and bromide concentrations in Metropolitan's water supply, SWP water is blended with Colorado River water. The blending of the two water sources benefits in two ways: reduction in DBPs and reduction in salinity (as discussed earlier). Because of the recent drought conditions on the Colorado River, water supplies have been reduced which impacts the blending operations at the various filtration plants. Metropolitan's board, therefore, authorized the use of ozone as the primary disinfectant at all five Metropolitan treatment plants in July 2003 to minimize impacts from reduced deliveries of Colorado River water. Previously, only the Henry J Mills and Jensen Filtration Plants had been approved for this treatment. These two plants were chosen for the use of ozone in order to meet new DBPs regulations. Metropolitan's board plans to install ozonation at the remaining three plants by 2009, including the Diemer filtration plant.

Methyl Tertiary Butyl Ether (MTBE) in groundwater and local surface reservoirs

The California DHS has adopted a primary maximum contaminant level (MCL) of 13 micrograms per liter (ug/L) for MTBE and a secondary MCL of 5 ug/L. MTBE is an oxygenate found in gasoline. Metropolitan monitors MTBE levels at Diamond Valley Lake and Lake Skinner. The reservoirs also have boat requirements such as MTBE-free fuel to aid in the protection of imported water supplies. MTBE concentrations have been below the MCL.

Uranium

Uranium is a contaminant of concern in the water from the Colorado River. There are uranium mine tailings located approximately 600 feet from the river at Moab, Utah. Rainfall seeps through the tailings and contaminates the local groundwater which flows to the river. In 2003, an interim action system was implemented that intercepts some of the contaminated groundwater prior to reaching the river. The Department of Energy is preparing an Environmental Impact Statement that will evaluate the possibility of moving the pile, capping it in place, and other alternatives. Uranium levels at Metropolitan's intake range from 1 to 5 picocuries per liter (pCi/L) whereas the California drinking water standard is 20 pCi/L.¹⁷

¹⁷ Metropolitan Water District of Southern California, Regional Urban Water Management Plan, September 2005 Draft

N-nitrosodimethylamine (NDMA)

NDMA is an emerging contaminant that may have an impact on the water supply. Although Metropolitan's water supplies are non-detect for NDMA, there is a concern that chlorine and monochloramine can react with organic nitrogen precursors to form NDMA.

Hexavalent Chromium (Chromium VI)

Currently the MCL for total chromium is 0.05 mg/L, which includes Chromium VI. California DHS is to set a MCL for Chromium VI, however, the Office of Health Hazard Assessment must first establish a public health goal. Metropolitan samples for Chromium VI and monitors levels within the Colorado River because of Chromium VI detection in groundwater near the river. The plume of Chromium VI has been detected in recently installed wells that are located less than 60 feet west of the Colorado River near Topock, Arizona. In February 2005, Chromium VI was detected at a concentration of 354 ug/L.¹⁸ Metropolitan is involved in a Technical Work Group that reviews monitoring results and remediation plans for contaminated groundwater.

Water Quality Programs

Metropolitan supports and is involved in many programs that address water quality concerns related to both the SWP and Colorado River supplies. Some of the programs and activities include:

- CALFED Program – This program coordinates several SWP water feasibility studies and projects. These include:
 - » A feasibility study on water quality improvement in the California Aqueduct.
 - » The conclusion of feasibility studies and demonstration projects under the Southern California-San Joaquin Regional Water Quality Exchange Project.¹⁹ This exchange project was discussed earlier as a mean to convey higher quality water to Metropolitan.
 - » DWR's Municipal Water Quality Investigations Program and the Sacramento River Watershed Program. Both programs address water quality problems in the Bay-Delta and Sacramento River watershed.
- Delta Improvement Package – Metropolitan in conjunction with DWR and US Geologic Survey have completed modeling efforts of the Delta to determine if levee modifications at Franks Tract would reduce ocean salinity concentrations in water exported from the Delta. Currently, tidal flows trap high saline water in the track. By constructing levee breach openings and flow control structures, it is believed saline intrusion can be reduced. This would significantly reduce TDS and bromide concentrations in water from the Delta.

¹⁸ Arizona Department of Health Services, Topock Groundwater Study Evaluation of Chromium in Groundwater Wells, September 7, 2005.

¹⁹ Metropolitan Water District of Southern California, Regional Urban Water Management Plan, September 2005 Draft

- Source Water Protection – In 2001, Metropolitan completed a Watershed Sanitary Survey as required by DHS to examine possible sources of drinking water contamination and identify mitigation measures that can be taken to protect the water at the source. DHS requires the survey to be completed every five years. Metropolitan also completed a Source Water Assessment (December 2002) to evaluate the vulnerability of water sources to contamination. Water from the Colorado River is considered to be most vulnerable to contamination by recreation, urban/storm water runoff, increasing urbanization in the watershed, wastewater and past industrial practices. Water supplies from SWP are most vulnerable to urban/storm-water runoff, wildlife, agriculture, recreation, and wastewater.²⁰

GROUNDWATER

OCWD manages the Basin and conducts a comprehensive water quality monitoring program. OCWD collects over 13,500 groundwater samples each year from over 800 wells. The water quality data collected from these wells is used to assess ambient conditions of the Basin, monitor the effects of extraction, monitor the effectiveness of the seawater intrusion barriers, evaluate impacts from historic and current land use, address poor water quality areas, and also provide early warning of emerging contaminants of concern.²¹

OCWD's water quality monitoring programs are broadly classified into three categories; (1) regulatory or compliance with permits, environmental and groundwater drinking water regulations, (2) committed OCWD projects and research projects, and (3) basin management, i.e., or evaluating and protecting Basin water quality. OCWD is compliant with groundwater drinking water regulations and operates under a Department of Health Services' approved monitoring program that includes monitoring all drinking water wells within the OCWD, including the City's wells. Wells are sampled for regulated and unregulated chemicals at a required monitoring frequency.

OCWD operates an extensive groundwater quality management program that allows them to address current issues and develop strategies to anticipate and resolve future issues. OCWD's 2004 Groundwater Management Plan has a section devoted solely to groundwater quality management. The groundwater quality issues facing OCWD and the City and the programs implemented to address those issues are summarized in the following sections.

Nitrates

The Basin has a number of constituents that are water quality concerns. The early agricultural practices in Orange County contributed to the high concentrations of nitrates in the shallow groundwater. Although nitrates are present throughout the Basin, only a

²⁰ Metropolitan Water District of Southern California, Regional Urban Water Management Plan, September 2005 Draft

²¹ Orange County Water District, *Groundwater Management Plan*, March 2004.

small number of areas exceed the MCL. Nitrate management goals include remediating groundwater contaminated by nitrate, attaining the Regional Water Quality Control Board's (RWQCB) groundwater subbasin nitrate-nitrogen water quality objective of 3 mg/L (the MCL is 10 mg/L), and increasing the frequency of monitoring to quarterly for those wells having concentrations of nitrate above 50% of the MCL. The nitrate removal projects historically have included the Garden Grove Nitrate Blending Project and the Tustin Main Street Treatment Plant.

The Garden Grove Nitrate Blending Project utilizes the Lampson Well 28 for the extraction of high-nitrate Talbert Aquifer water for use in a blending program with a low nitrate concentration well, Well No. 23. The project was designed to produce approximately 5,000 AF of water per year that would otherwise not be available due to high concentration of nitrates. The project for the past two years has produced approximately 150 AF per month or 1,080 AFY.

Total Dissolved Solids (TDS)

Another water quality concern is TDS. OCWD has been proactive to combat the increase in salinity within the Basin, however, many wells within OCWD exceed the RWQCB's water quality objective of 500 mg/L. TDS concentrations range from 223 to over 600 mg/L and averages 461 mg/L. The average TDS concentration of untreated groundwater pumped by the City is 529 mg/L.²²

The TDS levels within the recharge waters are higher than the average TDS concentrations within the groundwater. As a result, TDS concentrations within the groundwater continue to rise. In response to the rising TDS concentrations, OCWD has implemented groundwater desalter projects (the Irvine Desalter and the Tustin Seventeenth Street Desalter), has expanded barrier injection facilities, cooperates with upper Santa Ana watershed stakeholders to control TDS at the source, supports Metropolitan's efforts to import high quality water, maintains an aggressive monitoring program, and will implement the Groundwater Replenishment System.²³

One of the major challenges for OCWD is the contamination of groundwater by saltwater intrusion and therefore OCWD has implemented two seawater intrusion barriers: the Talbert Barrier and the Alamitos Barrier. The coastal seawater monitoring program focuses on the effectiveness of the barriers and the following parameters are monitored: water level elevations, chloride, TDS, electrical conductivity, and bromide. Each of these parameters allow OCWD to track the extent and movement of saline waters throughout the Basin.

²² Orange County Water District, *Draft 2003-2004 Engineer's Report on Groundwater Conditions, Water Supply and Basin Utilization in the Orange County Water District*, February 2005.

²³ Orange County Water District, *Groundwater Management Plan*, March 2004

Volatile Organic Compounds (VOC)

OCWD has an aggressive VOC monitoring program. Because of the monitoring program, VOC's have been detected in a number of wells within OCWD and several drinking water wells have been taken out of service, however not within the City. OCWD implemented the Irvine Desalter Project to address the VOC's and high TDS concentrations in the Basin near Irvine. OCWD is also proposing the Forebay VOC Cleanup project to prevent further spread of groundwater contaminated with VOC's. The other VOC removal project is a well within the City of Santa Ana that treats water for irrigation at the River View Golf Course.

Methyl Tertiary-Butyl Ether (MTBE)

Drinking water wells within OCWD are tested for MTBE at least annually, and in some cases, quarterly. OCWD aggressively monitors for MTBE to detect a problem before it reaches a drinking water well.²⁴ The U.S. EPA currently classifies MTBE as a possible human carcinogen.

There are hundreds of sites with leaky underground storage tanks throughout Orange County. The majority of these sites do not have a groundwater cleanup program to remove the MTBE from the shallow groundwater. In response to the MTBE contamination, OCWD filed a lawsuit in 2003 against numerous oil and petroleum-related companies. The suit seeks funding from the responsible parties to pay for the investigation, monitoring, and removal of oxygenates from the Basin.²⁵ Two wells within OCWD, but not within the City, have been taken out of service because of MTBE contamination. Fortunately, a thick underground clay layer helps protect most of the Basin from near surface contaminants such as MTBE.

N-nitrosodimethylamine (NDMA)

In 2000, OCWD discovered NDMA, a known carcinogen, in the injection water used to prevent seawater intrusion at the Talbert Barrier. OCWD adjusted the treatment system to include ultraviolet light and has since eliminated NDMA from the injection water.

There is currently one NDMA removal project within OCWD. Mesa Consolidated Water District provides wellhead treatment for the removal of NDMA. The treatment process meets the current NDMA notification level of 10 nanograms per liter and minimizes further down gradient migration of NDMA. The City's wells have been tested for NDMA and have not exceeded the notification level.

Emerging Contaminants

Pharmaceuticals, personal care products, and endocrine disruptors are considered emerging environmental contaminants. There are water quality concerns associated with these emerging contaminants because of their widespread use and their possible impact

²⁴ Orange County Water District, 2001-2002 Annual Report

²⁵ Orange County Water District, *Groundwater Management Plan*, March 2004

on human health when exposed to low doses over long periods of time. OCWD is aware of these contaminants and is working with DHS to track and report their concentrations in the groundwater.

Colored Groundwater

Colored groundwater is encountered over a broad region of Orange County and is estimated to total over 1 MAF. The area identified as the “colored water” area includes the southern part the Basin near the coastal area. The colored water is located at depths deeper than the clear zone and if a deep well can be constructed, a new source of water may be available. The OCWD 2004 Groundwater Management Plan reports nine wells have been drilled in the colored zone. These wells aid in reducing the groundwater level of the colored aquifer and thus minimize the potential for upward vertical migration of colored water into the clear zones. It is unlikely the City would benefit from wells drilled to the colored zone since the colored water area is mostly outside the City’s service area.

Water Quality Programs

OCWD supports and is involved in many other programs that address water quality concerns of the Basin. Some of these programs and activities include:

- Source Water Protection – Similar to Metropolitan, OCWD has completed a drinking water source assessment for the existing drinking supply wells. The goal of the source water assessment is to provide public information and increase public awareness on the vulnerability of wells to potential contamination and encourage voluntary local source water protection activities.²⁶
- Surface Water Monitoring – OCWD also conducts routine monitoring of the Santa Ana River and other surface waterways in the upper watershed. OCWD completed the Santa Ana River Water Quality and Health Study to verify the sustainability of continued use of river water for recharge and its impact on groundwater quality.
- Constructed Wetlands – OCWD operates the Prado Basin Wetlands in cooperation with the US Army Corps of Engineers and the US Fish and Wildlife Service to reduce the nitrogen concentration of river water. The constructed wetlands include 465 acres.
- Public Outreach – OCWD has implemented a public education outreach program called the Groundwater Guardian Team to inform the public about the benefits of protecting the Basin.
- Regulation – In May of 1987, OCWD adopted a Groundwater Quality Protection Policy. The policy established the following objectives:
 - 1) Maintain a suitable groundwater supply for all existing and potential beneficial uses
 - 2) Prevent degradation of the quality of the groundwater supply
 - 3) Assist responsible regulatory agencies in identifying sources of pollution to assure cleanup by the responsible party(s)

²⁶ Orange County Water District, Groundwater Management Plan, 2004.

- 4) Maintain or increase the Basin's usable storage capacity
- 5) Inform the general public of water quality problems as they are encountered as well as the overall condition of the groundwater supply, through appropriate regulatory agencies and groundwater producers

3.2 WATER QUALITY EFFECT ON WATER MANAGEMENT STRATEGIES AND SUPPLY RELIABILITY

The previous section summarized the general water quality issues of Metropolitan's imported water and OCWD's groundwater supplies. The same water quality concerns apply to the City's water. Similar to Metropolitan and OCWD, the City prepared an assessment of the City's drinking water in December 2002. The groundwater sources were found to be most vulnerable to possible contamination from the following activities: known contaminant plumes, historic agricultural activities including the application of fertilizer, confirmed leaking underground storage tanks, dry cleaners, gas stations, and photo processing/printing.²⁷ The City continues to monitor its groundwater wells for the first indication of problems as part of their water management strategy.

The City has not experienced any significant water quality problems in the past and does not anticipate any significant changes in the future. In the near future, EPA's Stage 2 regulation of the DBPs rule will be in effect. Stage 1 was implemented in 2002 and lowered the total THM maximum annual average concentration level in water supplies; Stage 2 will further lower the THM concentration level. The City's water supplies meet the requirements of Stage 1 and will be required to meet Stage 2 levels when they become finalized.

The City does not anticipate any changes in its available water supplies due to water quality issues in part because of the mitigation actions undertaken by Metropolitan and OCWD as described earlier.

²⁷ City of Garden Grove, 2004 Water Quality Report.

SECTION 4 WATER RELIABILITY PLANNING

4.1 RELIABILITY OF WATER SUPPLIES

The City of Garden Grove and all of Orange County communities and water agencies in Orange County are facing increasing challenges in their role as stewards of water resources in the region. The region faces a growing gap between its water requirements and its firm water supplies. Increased environmental regulations and the collaborative competition for water from outside the region has resulted in reduced supplies of imported water. Continued population and economic growth in Orange County increase water demand within the region, putting an even larger burden on local supplies.

The City receives approximately 64 percent of its water supply from local groundwater, managed by the OCWD, and 36 percent from import water through the MWDOC.

MWDOC and OCWD are implementing water supply alternative strategies for the region and on behalf of their member agencies to insure available water in the future. Strategies are identified in the MWDOC 2005 Regional UWMP, the OCWD Long Term Facilities Plan (LTFP) (Draft October 2005), and the OCWD 2004 Groundwater Management Plan. The optimum water supply strategy should attempt to meet the following objectives:

- Ensure that the Basin is protected
- Ensure available water for Orange County residents and businesses in the future
- Minimize the consumers water supply cost
- Use a variety of sources
- Reverse the adverse salt balance in the Basin
- Provide flexibility to allow both MWDOC and OCWD to quickly take advantage of changing and new markets if and when they develop

The reliability of the City's water supply is currently dependent on the reliability of both groundwater and imported water supplies, which are managed and delivered by OCWD and Metropolitan, respectively. The following sections will discuss these agencies, and others throughout the region, roles in water supply reliability, and the near and long-term efforts they are involved with to ensure future reliability of water supplies to the City and the region as a whole.

4.1.1 Regional Agencies and Water Reliability

Metropolitan Water District of Southern California (Metropolitan)

Metropolitan's primary goal is to provide reliable water supplies to meet the water needs of its service area at the lowest possible cost. The reliability of Metropolitan's water supply has been threatened as existing imported water supplies from the Colorado River

and SWP face increasing challenges. Despite these challenges, Metropolitan continues to develop and encourage projects and programs to ensure reliability now and into the future. One such project is Metropolitan's Diamond Valley Lake in Hemet, California, an 800,000 AF capacity reservoir for regional seasonal and emergency storage for SWP and Colorado River water. The reservoir began storing water in November 1999 and reached the sustained water level by early 2002.²⁸

Colorado River Aqueduct (CRA)

Water supplies from the Colorado River have been, and continue to be, a topic of negotiation and intense debate. The 1964 Court Decree required the state of California to limit its annual use to 4.4 MAF basic annual apportionment of Colorado River water plus any available surplus. To keep California at 4.4 MAF, Metropolitan reduces its level of diversions in years when no surplus is available.

Pursuant to the 1964 U.S. Supreme Court decree, Metropolitan's dependable supply of Colorado River water was limited to 550,000 AFY assuming no surplus or unused Arizona and Nevada entitlement was available and California agricultural agencies use all of their contractual entitlement. Metropolitan also possesses a priority for an additional 662,000 AFY depending upon availability of surplus water. Water under this priority, referred to as priority 5, can come from:

- Water unused by the California holders of priorities 1 through 3.
- Water conserved by the water conservation program with Imperial Irrigation District (IID).
- Water saved by the Palo Verde fallowing and forbearance program.
- When the U.S. Secretary of the Interior determines that surplus water is available or apportioned water to Arizona and Nevada are not used.

Surplus water under priority 5 is expected to decrease in the future as water demands increase in Arizona, Nevada, and California. Metropolitan continues to develop programs that will provide surplus water as discussed in Section 4.4.2. In an average year, the amount of surplus water available from these programs, above Metropolitan's dependable water supply of 550,000 AFY, ranges from 348,700 AFY in 2010 to 432,700 AFY in 2030.²⁹

In 1999, the Colorado River Board developed "California's Colorado River Water Use Plan," also known as the "California Plan" and the "4.4 Plan," which was endorsed by all seven Colorado River Basin states and the U.S. Department of the Interior. This plan developed the framework that specifies how California will transition and live within its basic apportionment of 4.4 MAF of Colorado River water.

²⁸ Metropolitan Water District of Southern California, Regional Urban Water Management Plan, September 2005 Draft

²⁹ Table A3-7 in the Metropolitan Water District of Southern California, Draft Regional Urban Water Management Plan, September 2005.

To implement these plans, a number of agreements have been executed. One such agreement, the Quantification Settlement Agreement (QSA) is a landmark agreement, signed by the four California Colorado River water use agencies and the U.S. Secretary of the Interior, which will guide reasonable and fair use of the Colorado River by California through the year 2037. In October 2003, the QSA was authorized defining Colorado River water deliveries and transfers, thus facilitating the transfer of water from agricultural agencies to urban uses. The QSA is a critical component of the California's Colorado River Water Use Plan.

Metropolitan's 2003 IRP Update recognizes that the QSA supports Metropolitan's development plans for CRA deliveries and demonstrates the reliability benefits as a result of the QSA and existing supply enhancement programs.

State Water Project (SWP)

The reliability of the SWP impacts Metropolitan's member agencies' ability to plan for future growth and supply. DWR's Bulletin 132-03, December 2004, provides certain SWP reliability information, and in 2002, the DWR Bay-Delta Office prepared a report specifically addressing the reliability of the SWP.³⁰ This report, *The State Water Project Delivery Reliability Report*, provides information on the reliability of the SWP to deliver water to its contractors assuming historical precipitation patterns. The following SWP reliability information is included in these reports.

On an annual basis, each of the 29 SWP contractors including Metropolitan request an amount of SWP water based on their anticipated yearly demand. In most cases, Metropolitan's requested supply is equivalent to its full Table A Amount; currently at 1,911,500 AFY. The full Table A amount is defined as the maximum amount of imported water to be delivered and is specified in the contract between the DWR and the contractor. A contractor may chose to request an amount of SWP water that is less than their full Table A amount and for that year the amount requested becomes the contractor's Table A amount. Since Metropolitan's request is typically its full Table A amount, Metropolitan's Table A amount is 1,911,500 AFY.

After receiving the requests, DWR assesses the amount of water supply available based on precipitation, snow pack on northern California watersheds, volume of water in storage, projected carry over storage, and Sacramento-San Joaquin Bay Delta regulatory requirements. For example, the SWP annual delivery of water to contractors has ranged from 552,600 AFY in 1991 to 3.5 MAF in 2000. Due to the uncertainty in water supply, contractors are not typically guaranteed their full Table A Amount, but instead a percentage of that amount based on the available supply.

Typically, around December of each year, DWR provides the contractors with their first estimate of allocation for the following year. For example, on November 23, 2005 DWR announced a 55 percent initial allocation of contractor's Table A Amounts for the year

³⁰ Department of Water Resources, State Water Project Delivery Reliability Report. 2002.

2006. Due to the variability in water supply for any given year, it is important to understand the reliability of the SWP to supply a specific amount of water each year to the contractors. As hydrologic and water conditions develop throughout the year, DWR revises the allocations.

On January 14, 2005, SWP supplies were projected to meet 60 percent of most SWP contractor's Table A Amounts. This allocation was increased to 70 percent on April 1, 2005 and to 80 percent on April 21, 2005. The final allocation increase occurred on May 27, 2005 and the notice projected SWP would meet 90 percent of most contractor's Table A Amounts.

DWR is preparing an update to the SWP Reliability Report issued in 2003 and expects it to be complete by the end of 2005.³¹ In order to assist agencies to prepare their 2005 UWMP Updates, DWR provided relevant sections from the working draft of the 2005 Reliability Report and recommended the results of studies 4 and 5 since they contain the most current information for assumed demands. The results of studies 4 and 5 show average deliveries of 69 percent of full Table A under current conditions and 77 percent under future conditions. These amounts are shown in Table 4.1.1-1 on the following page compared to the earlier CALSIM modeling as discussed below.

DWR analyzed the SWP's reliability using the California Water Allocation and Reservoir Operations Model (CALSIM II model) in their Reliability Report. The CALSIM II model was developed by DWR and the U.S. Bureau of Reclamation (USBR) to simulate operations of the SWP and the Central Valley Project (CVP). The CALSIM II model is used to estimate water deliveries to both SWP and CVP users under various assumptions such as hydrologic conditions, land use, regulations, and facility configurations. Documentation for CALSIM II, including assumptions, can be found on the DWR Web site at <http://modeling.water.ca.gov>.

One of the key assumptions of the CALSIM II model is that past weather patterns will repeat themselves in the future. The model uses a monthly time step to calculate available water supply based on historical rainfall data from 73 years of records (1922 – 1994). The model scenarios used in the preparation of the Reliability Report also assumed that regulatory requirements and facilities would not change in the future. DWR considered this assumption conservative since additional facilities such as reservoirs may be implemented in the future to specifically increase the SWP's reliability.

The CALSIM II model was used to complete three benchmark studies dated May 17, 2002 for the Reliability Report. The benchmark studies evaluated the water supply and demand at the 2001 condition and at the 2021 condition. In 2001, SWP water demand was estimated to vary from 3.0 to 4.1 MAF per year depending on the weather conditions (wet or dry years). SWP water demands in 2021 were estimated to range from 3.3 to 4.1 MAF per year. DWR prepared two benchmark studies for the 2021 condition. The first

³¹ The State Water Project Reliability Report 2005, Figure 5-1, Public Review Draft, November 16, 2005., Department of Water Resources

study assumed that SWP water demands would depend on weather conditions, whereas the second study assumed the contractor's water demand would be their maximum Table A Amount; 4.1 MAF per year regardless of weather. Table 4.1.1-1 presents the all five study results, which demonstrate that SWP deliveries, on average, can meet 77 percent of the maximum Table A Amount under study 5. The State Water Project Reliability Report 2005, Public Review Draft dated November 16, 2005, further discusses probability of reliability. According to the Report the average SWP Table A Deliveries of 77% under Study 5 can be met 50% of the time. However, Table A Deliveries remain relatively high a large percentage of the time: 60% of the maximum Table A amount can be met approximately 78% percent of the time, and 50% of the maximum Table A amount approximately 83% of the time.³²

**Table 4.1.1-1
SWP Table A Deliveries from the Delta
Percent of Total Table A Amount of 4.133 MAF
(MAF)**

| Study # | Study | Average (% of Max Table A) | Maximum Table A | Minimum (Single Dry Year) |
|---|---|----------------------------|-----------------|---------------------------|
| SWP Delivery Reliability Report (2003) | | | | |
| 1 | 2001 Study | 2.962 (72%) | 3.845 (93%) | 0.804 (19%) |
| 2 | 2021 Study A ^[1] | 3.083 (75%) | 4.133 (100%) | 0.830 (20%) |
| 3 | 2021 Study B ^[2] | 3.130 (76%) | 4.133 (100%) | 0.830 (20%) |
| Update Studies | | | | |
| 4 | Revised-Demand Today ^[3] (2005 Study) | 2.818 (69%) | 3.848 (94%) | 0.159 (4%) |
| 5 | Revised-Demand Future ^[4] (2025 Study) | 3.178 (77%) | 4.133 (100%) | 0.187 (5%) |

Source: Department of Water Resources, Excerpts from Working Draft of 2005 SWP Delivery Reliability Report – Attachment 1, May 25, 2005 and Public Review Draft dated November 16, 2005.

- ^[1] Assumes demands depend on weather conditions.
- ^[2] Assumes demands at maximum Table A amount.
- ^[3] Revises demands to current conditions.
- ^[4] Revises demands at levels of use projected to occur by 2025.

The Monterey Agreement states that contractors will be allocated part of the total available project supply in proportion to their Table A Amount. The Monterey Agreement changed SWP water allocation rules by specifying that, during drought years,

³² The State Water Project Reliability Report 2005, Figure 5-1, Public Review Draft, November 16, 2005., Department of Water Resources

project supplies be allocated proportionately based on the maximum contractual Table A Amount. Water is allocated to urban and agricultural purposes on a proportional basis, deleting a previous initial supply reduction to agricultural contractors. The agreement further defines and permits permanent sales of SWP Table A Amounts and provides for transfer of up to 130,000 AF of annual Table A Amounts from agricultural use to municipal use. The Agreement also allows SWP contractors to store water in another agency's reservoir or groundwater basin, facilitates the implementation of water transfers and provides a mechanism for using SWP facilities to transport non-project water for SWP water contractors. The Agreement provides greater flexibility for SWP contractors to use their share of storage in SWP reservoirs.

Report on Metropolitan's Water Supplies, A Blueprint for Water Reliability

Metropolitan released a *Report on Metropolitan's Water Supplies, A Blueprint for Water Reliability* on March 25, 2003, to provide updated information on Metropolitan's projected supply and demand for incorporation into Water Verification and Water Supply Assessments for compliance with SB 221 and SB 610, respectively. These bills implement requirements to connect land use to a sufficient water supply before a development can be approved. The Metropolitan report addresses water supply reliability issues and states Metropolitan's roles and responsibilities, which include the following: (1) implementing water management programs that support the development of cost-effective local resources; (2) securing additional imported supplies as necessary through programs that increase the availability of water delivered through the CRA and the SWP; (3) providing the infrastructure needed to integrate imported and local sources; (4) establishing a comprehensive management plan dealing with periodic surplus and shortage conditions; and (5) developing a rate structure that strengthens Metropolitan's financial capabilities to implement water supply programs and make infrastructure improvements.

The report details that Metropolitan's regional water demand projections are 6 percent to 16 percent *higher*, depending on what 5-year projection period and 11 percent for Year 2025, than the aggregated projections of Metropolitan's member agencies. As stated in the Report, "this difference indicated that Metropolitan supplies would provide a level of 'margin of safety' or flexibility to accommodate delays in local resources development or adjustments in development plans."³³ Additionally, the report concludes that "current practices allow Metropolitan to bring water supplies on-line at least ten years in advance of demand with a very high degree of reliability." More particularly, Metropolitan documented sufficient currently available supplies to meet 100 percent of member agencies' supplemental water demands for 20 years under Average and Wet Year conditions, for 15 years under Multiple Dry Year conditions (with 8 to 26 percent reserve capacity), and for 15 years under Single Dry Year conditions (with 8-25 percent reserve capacity). With the addition of supplies under development, Metropolitan will be able to meet 100 percent of its agencies' supplemental water needs under all supply and demand conditions through 2030 with 20-25 percent reserve capacity.³⁴

³³ Metropolitan Water District of Southern California. Report on Metropolitan Water Supplies, A Blueprint for Water Reliability, p. 9. March 25, 2003.

³⁴ Metropolitan Water District of Southern California. Report on Metropolitan Water Supplies, A Blueprint for Water Reliability, p. 24-25. March 25, 2003.

The Report also identifies the ways Metropolitan is managing changes in Southern California's water supplies, including reduced Colorado River deliveries and water quality constraints. In addition, opportunities for additional supplies are currently being implemented in the following ways:

- 1) Full Diamond Valley Lake: The Lake is now fully operational with an increased conveyance capacity for refill system storage.
- 2) Re-Operation of Storage and Transfer Programs: In 2003, Metropolitan developed additional storage and transfer capabilities and completed filling local resources to achieve full storage accounts in operational reservoirs and banking/transfer programs.
- 3) Enhanced Conservation Programs: A new campaign is designed to encourage more efficient outdoor water use and promote innovative conservation measures.
- 4) Development of Additional Local Resources: There are promising opportunities identified to develop seawater desalination and expand the Local Resources Program (LRP). Metropolitan developed the LRP to provide financial assistance (subsidy per acre foot of product water) to participating projects such as water recycling and groundwater recovery that offer regional benefits to offset regional supply shortages and reduce the demands for imported water supplies.

In addition to the *Report on Metropolitan's Water Supplies, A Blueprint for Water Reliability*, Metropolitan's September 2005 Draft Regional Urban Water Management Plan (RUWMP) demand and supply analysis also projects surpluses (of regional supplies compared with regional demands) ranging from 5 percent to 35 percent in all years and all drought scenarios through 2030.³⁵

As demand forecasts are refined, supply goals are also refined. Metropolitan has consistently supplied over 50 percent of water supplies to the Southern California region. To continue to meet this percent of water supply, Metropolitan continues to develop new and innovative projects and programs to ensure reliability. For example, Metropolitan supports seawater desalination projects, increases in commercial conservation efforts, improvements in water quality by decreasing salinity in supplies from the SWP and the Colorado River, increases in underground storage and retrieval facilities, adoption of principles for establishing cooperative programs, and endorses legislation that would further water reliability. Some of these projects are further described in Section 4.4.

Integrated Water Resources Plan (IRP)

To address Metropolitan's reliability challenges, Metropolitan and its member agencies developed an Integrated Water Resources Plan (IRP) in 1996. The overall objective of the IRP process is the selection and implementation of a Preferred Resource Mix (or strategy) consisting of complementary investments in local water resources, imported supplies and demand-side management that meet the region's desired reliability goal in a cost-effective and environmentally sound manner. The 1996 IRP was reviewed as part of Metropolitan's strategic plan and rate refinement to guide the development and

³⁵ Tables II-7, 8 and 9 of Metropolitan's September 2005 Draft Regional Urban Water Management Plan

implementation of revised Metropolitan water management programs through the year 2005.

The IRP 2003 Update was approved July 13, 2004, and includes various projects and programs that contribute to the reliability of Metropolitan's imported water supplies. The IRP Update concluded that the resource targets from the 1996 IRP, factored in with changed conditions, will continue to provide for 100 percent reliability through 2025.

While the IRP 2003 Update includes goals for a variety of resource targets, it identified the most significant programs as conservation and local supply development among the Preferred Resource Mix. The IRP includes the LRP and the Seawater Desalination Program as a means to increase reliability of local supplies. Metropolitan initiated the LRP to promote the development of water recycling projects that reduced demand for imported water and improved regional water supply reliability in 1982. In 1991, the Groundwater Recovery Program was implemented to similarly promote the recovery of local degraded groundwater supplies. In 1995, both programs were combined into the LRP. Currently, the LRP, including both recycling and groundwater recovery, has invested over \$121 million and partnered with member agencies on 53 recycled water projects and 22 groundwater recovery projects generating 251,000 AF of local supply in 2002.³⁶

The IRP 2003 Update states that Metropolitan's regional production target is 500,000 AF by 2020 for its LRP. Metropolitan's current projection of regional implementation of recycling, groundwater recovery, and seawater desalination resource targets exceeds the 1996 IRP goals. Although in FY 2002, recycling and groundwater recovery programs narrowly missed their target, the region is expected to meet its 2010 and 2020 targets. Meeting the targets will require the region to produce 159,000 AF of additional local project and/or seawater desalination supply by 2010 and 249,000 AF by 2020. Overall, the region has developed about 50 percent of the 1996 IRP local resources target for 2020.

Metropolitan continues to encourage development of local water resource process by offering financial incentives through the LRP to its member agencies. These anticipated water supply benefits are incorporated into the forecasts of demand on Metropolitan.

In addition to the LRP, Metropolitan also provides financial and technical assistance for implementing water conservation Best Management Practices, as well as a significant investment in regional and local water conservation programs. Metropolitan was also responsible for distributing \$45 million in funds from Proposition 13 funding for development of conjunctive management programs in Southern California.

³⁶ Metropolitan Water District of Southern California. Integrated Water Resources Plan, 2003 Update. May 2004.

Municipal Water District of Orange County (MWDOC)

MWDOC represents its members at regional, state and federal levels, and advocates for the development and protection of imported water supplies and planning along with coordinating the water needs for its service area.³⁷ MWDOC's water management goals and objectives include working together with Orange County water agencies, including the City, to focus on solutions and priorities for improving Orange County's future water supply reliability.

MWDOC's engineering and planning staffs also represent its member agencies' interests in such water planning efforts as Metropolitan's IRP and Water Surplus and Drought Management (WSDM) Plan, the focus on Orange County's water future effort, and the Orange County Water Plan. Through these efforts, the goal is to improve water planning in Orange County to ensure a high degree of reliability and quality in future water supplies.³⁸

Efforts of MWDOC to maintain a reliable water supply include a commitment to the intensive and cost-effective development of Orange County's water resources. Development of local water supplies will lessen Orange County's dependence on imported water. Therefore, in order to maintain a more reliable water supply, a number of projects including storage, recycling, conjunctive use with groundwater basins, ocean desalination and new groundwater development will contribute to enhanced water reliability.

Programs and projects directly managed by MWDOC include exchanges and transfers, participation with the Best Management Practices (BMPs) as well as extensive conservation and educational programs available to its member agencies. These programs and projects support further water reliability for its member agencies and throughout Orange County.³⁹

Integrated Regional Water Management Plan

MWDOC has been working with the County of Orange, as the lead agency, and 24 other cities and special districts to develop and integrate regional strategies for water management within the region. In an effort to manage local and imported water supplies, projects have been identified that protect communities from drought, enhance water supply reliability, ensure continued water security, optimize watershed and coastal resources, improve water quality, and protect habitat. To date, nearly 100 projects have been identified and the responsibility of implementing the projects has been granted to the South Orange County Integrated Regional Water Management Group.

³⁷ [On-Line]. Municipal Water District of Orange County. Available: <http://www.mwdoc.com>. 2002.

³⁸ MWDOC. Regional Urban Water Management Plan, p. 1-7. 2000.

³⁹ MWDOC. Regional Urban Water Management Plan. 2000.

South Orange County Water Reliability Study

To ensure continued water reliability for south Orange County, 11 Orange County agencies, Metropolitan, and the USBR joined together to fund the South Orange County Water Reliability Study (SOCWRS). MWDOC served as the lead agency in this effort.

The SOCWRS provides an objective plan that addresses the pressing need to ensure water supply in the event of future water supply outages and/or emergencies. Although the study is focused on south Orange County, implementing measures recommended in the study will provide regional benefits for all of Orange County's water supply, and thus benefit the City.

The purpose of the SOCWRS was to do the following:⁴⁰

1. Identify risks, including earthquakes that pose the greatest threat to the regional water treatment and distribution infrastructure.
2. Identify ways to bolster source-of-supply and regional distribution systems, building on earlier engineering investigations and studies.
3. Develop a list of projects that accomplish the above objectives, and identify appropriate investments.
4. Allow for flexibility in phasing. Most notably project operational dates and sizing should be flexible to account for changes in local resources development.
5. The plan builds on a number of prior studies, including: SOCWRS Phase 1, which served as the foundation for this effort; Metropolitan's Central Pool Augmentation Project, currently in project right-of-way refinement; Santa Margarita Water District's Lined and Covered Reservoir investigations to increase local storage for emergency need; Irvine Ranch Water District's Water Resources Master Plan Update and Planning Area-6 Sub-Area Master Plan; and various OCWD plans and Basin operations studies.

The SOCWRS also identifies key planning principles that were used to guide the formulation of alternatives, including such items as accommodating Metropolitan planned shutdowns, regional project planning, Metropolitan system investments for improved system operation and capability, and assessment of risks and scenarios.

Based on the analysis of water supply outages, the SOCWRS recommended projects that would provide a reliable supply for south Orange County in the event of an emergency. The projects are grouped into the following three categories: 1) regional distribution system; 2) storage/treatment; and 3) ocean desalination. The projects are expected to minimize shortages. Currently, MWDOC is seeking to implement the recommended plan with south Orange County agencies.

⁴⁰ MWDOC. South Orange County Water Reliability Study: Phase 2 System Reliability Plan. June 2004.

Orange County Water District (OCWD)

OCWD is responsible for the protection of water rights to the Santa Ana River in Orange County as well as the management and replenishment of the Basin.⁴¹ OCWD replenishes and maintains the Basin at safe levels while more than doubling the Basin's annual yield with the best available technology. OCWD primarily recharges the Basin with water from the Santa Ana River and to a lesser extent with imported water purchased from Metropolitan. Other processes such as recycling of wastewater, conservation and water use efficiency programs, and creative water purchases have aided in replenishing the Basin to desired levels to meet required demands.

Since its formation in 1933, OCWD has made substantial investment in facilities, basin management and water rights protection, resulting in the elimination and prevention of adverse long-term "mining" overdraft conditions. OCWD continues to develop new replenishment supplies, recharge capacity and Basin protection measures to meet projected production from the Basin during average/normal rainfall and drought periods. Furthermore, OCWD has invested in seawater intrusion control (injection barriers), recharge facilities, laboratories, and basin monitoring to effectively manage the Basin.

OCWD Long Term Facilities Plan (LTFP)

OCWD is preparing the LTFP to evaluate potential projects that may be implemented in the 20-year planning period. The LTFP's goal is to enhance basin management and water quality management activities. The LTFP is proposed to do the following:

- Evaluate projects to cost effectively increase the amount of sustainable basin production and protect water quality
- Develop an implementation program for the recommended projects
- Establish the Basin's future maximum (target) annual production amount and correspondingly how much new recharge capacity would be required
- Estimate impacts to potential future RA rates and long-term BPP

A Program Environmental Impact Report (EIR), pursuant to California Environmental Quality Act (CEQA), is being prepared to evaluate environmental impacts of projects in the LTFP and increased levels of basin production to serve lands currently within OCWD plus proposed annexations of lands, including expansions by the City of Anaheim and Irvine Ranch Water District. In the Program EIR, OCWD's groundwater model would be used to evaluate groundwater conditions, such as groundwater elevations and protection of basin water supplies from seawater intrusion, for specified amounts of basin production with and without annexation.

The LTFP utilizes information recently developed in OCWD's Groundwater Management Plan and Recharge Development Study. The LTFP includes a master list of developed and proposed projects. The various projects are grouped into five categories:

⁴¹ Orange County Water District, Groundwater Management Plan, 2004.

1) recharge facilities, 2) water source facilities, 3) basin management facilities, 4) water quality management facilities, 5) operational improvements facilities. Each project is evaluated using criteria such as technical feasibility, cost, institutional support, functional feasibility, and environmental compliance. The LTFP develops an implementation plan for the 28 recommended projects over the 20 year planning period.

At the time of this Plan, the LTFP was scheduled to be complete in 2005, and would be updated periodically to reflect changes in pumping and basin response forecasts to future production increases.

OCWD 2020 Water Master Plan Report (MPR)

OCWD's 2020 Water Master Plan Report (MPR) describes local water supplies and estimates their availability extending to the year 2020. Specifically, OCWD states in their 2020 Water MPR that significant water supply sources will be available in the future for potable, non-potable, and recharge purposes. The 2020 Water MPR discusses source waters such as imported water from Metropolitan, base flows from the Santa Ana River, treated wastewater through the OCWD/OCSD GWRS program, and possibly desalinated ocean water. The local supplies' availability and projections from the 2020 Water MPR are not being pursued, but instead will be revised and replaced with the LTFP.

Orange County Sanitation District (OCSD)

Wastewater from the City's service area is collected and treated by OCSD. OCSD manages wastewater collection and treatment for approximately 471 square miles in central and northwest Orange County, which includes 21 cities, 3 special districts, and 2.4 million residents.⁴² OCSD utilizes the following two facilities: Reclamation Plant No. 1 in Fountain Valley and Treatment Plant No. 2 in Huntington Beach to treat a combined daily average of 264 MG of wastewater.⁴³ Effluent from Reclamation Plant No. 1 is either routed to the ocean disposal system or is sent to the OCWD facility, Green Acres Project (GAP), for advanced treatment and recycling. The GAP supplies recycled water to various municipal users in Orange County and offsets the demand for potable water supplies.

OCWD/OCSD Groundwater Replenishment System (GWRS)

The GWRS is a jointly funded project of OCWD and OCSD. The GWRS is a water supply project designed to ultimately reuse approximately 110,000 AFY of advanced treated wastewater.⁴⁴ The objective of the project is to develop a new source of reliable, high quality, low salinity water that will be used to replenish the Basin and expand the existing seawater intrusion barrier. Additional information regarding the GWRS is presented in Section 8. The benefits of the proposed GWRS include:

⁴² Orange County Sanitation District Facts and Key Statistics. www.ocsd.com. January 2005

⁴³ MWDOC 2005 Regional Urban Water Management Plan

⁴⁴ Orange County Water District, Draft Long-Term Facilities Plan Review Draft, August 2005.

- Supply a significant amount of highly treated recycled water required by OCWD to maintain a higher basin production percentage through and beyond the year 2020.
- Provide a reliable replenishment water supply in times of drought.
- Expand the seawater intrusion barrier to allow for additional groundwater production in the coastal zone.

Santa Ana Watershed Project Authority

The Santa Ana Watershed Project Authority (SAWPA) is a Joint Powers Authority and carries out functions useful to its member agencies. SAWPA is located in the geographic center of the Santa Ana Watershed in Riverside, California. SAWPA was formed in 1968 as a planning agency and reformed in 1972 with a mission to plan and build facilities to protect the water quality of the Santa Ana River Watershed. OCWD is a member agency of SAWPA, whose activities and projects significantly contribute to the health of the watersheds and the Orange County Groundwater Basin, and therefore provides significant benefits to the City and continued reliability of its groundwater source.

Watersheds and the state as a whole are facing many challenges in ensuring there is sufficient, high-quality water for the ever-growing population of the region. SAWPA works with planners, water experts, design and construction engineers, other government agencies to identify issues and solutions, and then use innovation to resolve many water-related problems. SAWPA also works with legislators on ensuring there are useful laws on water resources, with funding sources to ensure that necessary projects can be completed, with planners to ensure that there is enough water in the future, with regulators to ensure that the water is safe and clean, and with all other stakeholders (including the concerned public) to build collaborative, regional solutions to the area's water needs.

SAWPA owns and operates the Santa Ana Regional Interceptor (SARI) line, a buried pipeline that captures Desalter Brine and other industrial/private waste waters and sends them to wastewater treatment facilities in Orange County before they can degrade the water quality in the watershed. The SARI line is designed to convey 30 MGD of non-reclaimable wastewater from the upper Santa Ana River basin to the ocean for disposal, after treatment. The non-reclaimable wastewater consists of Desalter concentrate and industrial wastewater. Domestic wastewater is also received on a temporary basis.

The SARI System Enhancements Program Feasibility Study is the preliminary evaluation of the feasibility for segregating brine flows from domestic wastewater, for discharge to an ocean outfall. The concept considers installation of a new “brine-only” pipeline through Orange County. Treatment of waters prior to discharge into the brine line or rerouting certain non-brine discharges to traditional domestic wastewater treatment plants in the Upper Santa Ana River area would also be required. The Study is intended to evaluate the benefits of a brine-only pipeline in all three counties such as, reuse of a portion of the flow in the GWRS being constructed by OCWD and OCSD, making

available additional Orange County pipeline and treatment plant capacities and reducing disposal costs for brine-only discharges which meet ocean discharge water quality requirements.

Finally, the Arlington Desalter removes salt from water extracted from the Arlington Groundwater Basin and delivers the treated water to OCWD for percolation into Orange County's groundwater basin. In order to reduce reliance on imported State Project and Colorado River water, to remove salts from the groundwater basins, and to provide additional water for the Orange County Groundwater Basin recharge, a number of additional desalters are under construction, or planned for the near future.

Regional Water Quality Control Board – Region 8

Background

The State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (Regional Boards) are responsible for the protection and, where possible, the enhancement of the quality of California's waters. The SWRCB sets statewide policy, and together with Regional Boards, implements state and federal laws and regulations. Each of the nine Regional Boards adopts a Water Quality Control Plan or Basin Plan, which recognizes and reflects regional differences in existing water quality, the beneficial uses of the region's ground and surface waters, and local water quality conditions and problems.⁴⁵

In 1975, the Santa Ana RWQCB adopted the original Water Quality Control Plan (Basin Plan) for the Santa Ana River Basin. In 1995, the RWQCB updated the Basin Plan to address issues that had evolved over time due to increasing populations and changing water demands in the region. The scope of the document covers the Santa Ana River Basin, which includes the upper and lower Santa Ana River watersheds including northwestern Orange County. In 2002, a triennial review of the Basin Plan was performed. In July 2002, at a public hearing, the RWQCB adopted Resolution No. R8-2002-0070, approving the Triennial Review Priority List and Work Plan.

The Basin Plan is more than just a collection of water quality goals and policies, descriptions of conditions, and discussions of solutions. It is also the basis for the RWQCB's regulatory programs. The Basin Plan establishes water quality standards for all the ground and surface waters of the region. The RWQCB also regulates water discharges to minimize and control their effects on the quality of the region's ground and surface water. Permits are issued under a number of programs and authorities.

Water quality problems in the region are listed in the Basin Plan, along with the causes, where they are known. For water bodies with quality below the levels necessary to allow all the beneficial uses of the water to be met, plans for improving water quality are included. Legal basis and authority for the RWQCB reflects, incorporates, and implements applicable portions of a number of national and statewide water quality plans

⁴⁵ Santa Ana Regional Water Quality Control Board. Region 8 Water Quality Control Plan (Santa Ana River Basin). January 1995.

and policies, including the California Water Code (Porter-Cologne Water Quality Control Act) and the Clean Water Act.⁴⁶

Key Regional Issues

Water quality degradation due to high concentrations of nitrogen and TDS is the most significant regional water quality problem in the Santa Ana River Watershed (Watershed). Historically, the Santa Ana River likely flowed during most of the year, recharging deep alluvial groundwater basins in the inland valley and the coastal plain. However, irrigation projects eventually led to the diversion of all surface flow in the river, and the quantity of groundwater recharge diminished greatly.

Water quality concerns in the Watershed focus on elevated concentrations of TDS and total inorganic nitrogen (TIN). A Task Force was formed in 1995 to provide oversight, supervision, and approval of a study to evaluate the impact of TIN and TDS on water resources in the Watershed. The study is coordinated by the Santa Ana Watershed Project Authority (SAWPA), a joint powers agency of which OCWD and OCSD are member agencies, and is investigating questions related to TIN and TDS management in the Watershed, including groundwater subbasin water quality objectives, subbasin boundaries, and regulatory approaches to wastewater reclamation and recharge.⁴⁷

Water Resources and Water Quality Management

Numerous water resource management studies and projects, focused on water quality and/or water supply, are in progress in the Region under the auspices of a variety of parties. As stated above, the RWQCB has been working with SAWPA concerning water supply and reliability issues. SAWPA has been studying TIN and TDS issues and is a valuable partner in water resource and water quality management. SAWPA, and its member agencies, conduct water related investigations and planning studies, and build physical facilities where needed for water supply, wastewater treatment or water quality remediation. Other studies and projects ongoing and planned that will affect reliability and quality of water supplies to the Region, including areas affecting water supplies in the Orange County Basin, are discussed further in following sections of this Assessment.

Some of these activities bear directly on the implementation of the Basin Plan, while others may lead to future Basin Plan amendments to incorporate appropriate changes, such as revised regulatory strategies for various dischargers. These investigations and the implementation of appropriate physical solutions are an essential and integral part of the effort to restore and maintain water quality in the Region.

⁴⁶ Santa Ana Regional Water Quality Control Board. Region 8 Water Quality Control Plan (Santa Ana River Basin). January 1995.

⁴⁷ Santa Ana Regional Water Quality Control Board. Watershed Management Initiative. Revised May 2004.

4.2 DEMAND AND SUPPLIES RELIABILITY COMPARISON

Metropolitan Water District Supplies and Demand

As previously noted, the City is a member agency of MWDOC, which is a member agency of Metropolitan. Therefore, the reliability of Metropolitan's system does impact the City and will be discussed in this Section.

In its September 2005 Draft Regional UWMP, Metropolitan chose the year 1977 as the single driest year since 1922 and the years 1990-1992 as the multiple driest years over that same period. These years have been chosen because they represent the timing of the least amount of available water resources from the SWP, a major source of Metropolitan's supply.

Over the 20-year period beginning in 2010 and ending in 2030, Metropolitan projects a 0.5 percent decrease in available supply during an average year, a 4.5 percent increase during a single dry year, and a 3.8 percent increase during the third year of the multiple dry year period. The increased available supplies during drought year scenarios are primarily due to increased contract allotments of in-basin storage as well as a number of supplies under development.

In its draft UWMP, Metropolitan also projects an increase in member agency demands. Specifically, they project a 10.2 percent increase over the same 20-year period in the average demand, an 8.5 percent increase during the single dry year scenario, and an 8.9 percent increase during the multiple dry year scenario. However, in all cases, the projected regional increase in demands by member agencies are offset by available surpluses in the Metropolitan supply.

Table 4.2-1 summarizes Metropolitan's current imported supply availability projections for average and single dry years over the 20-year period beginning in 2010 and ending in 2030. Based on these projections, Metropolitan will be able to meet all of its projected single dry year service area demands through the year 2030.

**Table 4.2-1
Metropolitan Regional Imported Water Supply Reliability Projections
for Average and Single Dry Years⁴⁸
(AFY)**

| Row | Region Wide Projections | 2010 | 2015 | 2020 | 2025 | 2030 |
|--------------------------------------|--|--------------|--------------|--------------|--------------|--------------|
| Supply Information | | | | | | |
| A | Projected Supply During an Average Year ^[1] | 2,668,000 | 2,600,000 | 2,654,000 | 2,654,000 | 2,654,000 |
| B | Projected Supply During a Single Dry Year ^[1] | 2,842,000 | 3,033,000 | 3,002,000 | 2,970,000 | 2,970,000 |
| C = B/A | Projected Supply During a Single Dry Year as a % of Average Supply | 106.5 | 116.7 | 113.1 | 111.9 | 111.9 |
| Demand Information | | | | | | |
| D | Projected Demand During an Average Year | 2,040,000 | 2,053,000 | 1,989,000 | 2,115,000 | 2,249,000 |
| E | Projected Demand During a Single Dry Year | 2,293,000 | 2,301,000 | 2,234,000 | 2,363,000 | 2,489,000 |
| F = E/D | Projected Demand During a Single Dry Year as a % of Average Demand | 112.4 | 112.0 | 112.3 | 111.7 | 110.7 |
| Surplus Information | | | | | | |
| G = A-D | Projected Surplus During an Average Year | 628,000 | 547,000 | 665,000 | 539,000 | 405,000 |
| H = B-E | Projected Surplus During a Single Dry Year | 549,000 | 732,000 | 768,000 | 607,000 | 481,000 |
| Additional Supply Information | | | | | | |
| I = A/D | Projected Supply During an Average Year as a % of Demand During an Average Year | 130.8 | 126.6 | 133.4 | 125.5 | 118.0 |
| J = A/E | Projected Supply During an Average Year as a % of Demand During a Single Dry Year | 116.3 | 113.0 | 118.8 | 112.3 | 106.6 |
| K = B/E | Projected Supply During a Single Dry Year as a % of Single Dry Year Demand (including surplus) | 123.9 | 131.8 | 134.3 | 125.6 | 119.3 |

^[1] Projected supplies include current supplies and supplies under development, but are limited by Metropolitan's 1.25 MAF allotment to Colorado River Water; data obtained from Metropolitan September 2005 Draft RUWMP supply/demand projections.

⁴⁸ Metropolitan Water District of Southern California, Regional UWMP, September 2005 Draft

Table 4.2-2 summarizes Metropolitan's current imported supply availability projections over the 20-year period beginning in 2010 and ending in 2030 for average and multiple dry year scenarios. When reviewing Table 4.2-2, it is important to note that Metropolitan is projecting a surplus of supply for all multiple dry year scenarios through 2030.

The findings in this plan were derived based upon Metropolitan's September 2005 Draft Regional UWMP. These figures can be interpolated to project Metropolitan's ability to meet a specified demand expressed in terms of a percentage of average demand and supply availability. When viewed on a regional basis, some member agency demands will exceed these averages, while others will fall below the stated averages. However, when viewed from the regional perspective, it is reasonable to assume that these averages will apply to all local water purveyors.

Although a less conservative assumption might suggest surplus water supplies not used by agencies experiencing low or no growth may be freed up for use by those water purveyors experiencing more growth, this is not borne out by the overall Metropolitan supply and demand picture. In fact, Metropolitan is projecting a 19.4 percent increase in total demand (including local supplies) over its entire service area between 2005 and 2030 (4,115,700 AFY to 4,914,000 AFY)⁴⁹ compared with a 20.9 percent increase in population over the same period of (18,233,700 to 22,053,200).⁵⁰ In other words, Metropolitan's projected increase in demand roughly parallels its projected increase in population.

⁴⁹ Table A.1-5 from Metropolitan Water District of Southern California, Regional UWMP, September 2005 Draft

⁵⁰ Table A.1-2 from Metropolitan Water District of Southern California, Regional UWMP, September 2005 Draft

**Table 4.2-2
Metropolitan Regional Imported Water Supply Reliability Projections
for Average and Multiple Dry Years⁵¹
(in AFY)**

| Row | Region Wide Projections | 2010 | 2015 | 2020 | 2025 | 2030 |
|--------------------------------------|--|--------------|--------------|--------------|--------------|--------------|
| Supply Information | | | | | | |
| A | Projected Supply During an Average Year ^[1] | 2,668,000 | 2,600,000 | 2,654,000 | 2,654,000 | 2,654,000 |
| B | Projected Supply During Year 3 of a Multiple Dry Year Period ^[1] | 2,619,000 | 2,776,600 | 2,741,000 | 2,719,000 | 2,719,000 |
| C = B/A | Projected Supply During Year 3 of a Multiple Dry Year as a % of Average Supply | 98.2 | 106.8 | 103.3 | 102.4 | 102.4 |
| Demand Information | | | | | | |
| D | Projected Demand During an Average Year | 2,040,000 | 2,053,000 | 1,989,000 | 2,115,000 | 2,249,000 |
| E | Projected Demand During Year 3 of a Multiple Dry Year Period ^[2] | 2,376,000 | 2,389,000 | 2,317,000 | 2,454,000 | 2,587,000 |
| F = E/D | Projected Demand During Year 3 of a Multiple Dry Year Period as a % of Average Demand | 116.5 | 116.4 | 116.5 | 116.0 | 115.0 |
| Surplus Information | | | | | | |
| G = A-D | Projected Surplus During an Average Year | 549,000 | 732,000 | 768,000 | 607,000 | 481,000 |
| H = B-E | Projected Surplus During Year 3 of a Multiple Dry Year Period | 243,000 | 377,000 | 424,000 | 265,000 | 132,000 |
| Additional Supply Information | | | | | | |
| I = A/D | Projected Supply During an Average Year as a % of Demand During an Average Year | 130.8 | 126.6 | 133.4 | 125.5 | 118.0 |
| J = A/E | Projected Supply During an Average Year as a % of Demand During Year 3 of a Multiple Dry Year | 112.3 | 108.8 | 114.5 | 108.1 | 102.6 |
| K = B/E | Projected Supply During a Multiple Dry Year as a % of Multiple Dry Year Demand (including surplus) | 110.2 | 116.2 | 118.3 | 110.7 | 105.1 |

^[1] Projected supplies include current supplies and supplies under development, but are limited by Metropolitan's 1.25 MAF allotment to Colorado River Water; data obtained from Metropolitan's September 2005 final draft RUWMP.

^[2] Metropolitan only projects demands for year 3 of a multiple dry year period.

⁵¹ Metropolitan Water District of Southern California, Regional UWMP, September 2005 Draft

In addition to Metropolitan's Regional UWMP, MWDOC has also prepared a draft 2005 UWMP for the Orange County region and has also held a series of workshops for its member agencies including direct Metropolitan member agencies in Orange County. MWDOC is also looking at the 1922 through 2004 period and has adopted the same average year scenario as Metropolitan; however, they differ in the selection of a single dry year and the multiple dry year scenario. MWDOC has chosen to determine these years based on hydrologic records for Orange County rather than on the State Water Project availability. That methodology has resulted in the selection of 1961 as the single driest year on record and the years 1959 through 1961 as the multiple dry years.

In viewing its entire service area, MWDOC projects single dry year demands that are 105.5 percent of normal and three multiple dry years demands that are 106.7, 103.7 and 105.5 percent of normal. These same factors are representative of all of Orange County and will be applied to project the City's demands in single and multiple dry years.

Water demands in the City are estimated to increase by 10.4 percent over the next 25 years.⁵² Table 4.2-3 summarizes this growth in demand through the year 2030 and compares it with Metropolitan's ability to meet demands on a regional basis. As noted in the table, Metropolitan's (and therefore MWDOC's) available supply during average years will greatly exceed the City's demands over the next 25 years.

The City of Garden Grove works toward water supply reliability through implementing security, water main improvements, SCADA system improvements, and capital improvement project, including the addition of Well #30 to system in cooperation with Metropolitan and OCWD.

Tables 4.2-4 through 4.2-10 compare current and projected water supplies and demands in normal, single dry year, and multiple dry year scenarios. As noted in these tables and in the previously presented data, sufficient amounts of water are available to meet customer needs through 2030 in all normal, single, and multiple dry year scenarios.

⁵² Based on City projections.

**Table 4.2-3
Comparison Between Metropolitan Supply Availability and
Garden Grove Demand During an Average Year**

| Row | Projection | 2010 | 2015 | 2020 | 2025 | 2030 |
|--------------------------------|---|-------|-------|-------|-------|-------|
| A | Projected Increase in Demand During an Average Year as a % of 2005 Average Demand ^[1] | 102.0 | 104.0 | 106.1 | 108.2 | 110.4 |
| B | Metropolitan Projected Increase in Regional Supply Availability During an Average Year as a % of 2005 Average Year ^[2] | 104.9 | 102.2 | 104.4 | 104.4 | 104.4 |
| C (from Row I, Table 4.2-1) | Metropolitan Projected Regional Supply During an Average Year as a % of Demand During an Average Year ^[3] | 130.8 | 126.6 | 133.4 | 125.5 | 118.0 |
| D = (C-A) | Percentage Difference Between Growth in Metropolitan Supply Availability (including surplus supply) During an Average Year Compared with Growth in Garden Grove Demand During an Average Year | 28.8 | 22.6 | 27.3 | 17.3 | 7.6 |

[1] Projected increase in demand provided by City staff based on historical usage records.

[2] Metropolitan did not include any supply projections for 2005 in its final draft RUWMP supply/demand tables released in September 2005. The 2005 supply projection released in May 2005 (2,542,800 AFY) is therefore used as a base year for calculating the increase in supply availability in future years as compared with 2005 average year supply.

[3] Values extracted from Table 4.2-1.

**Table 4.2-4
Garden Grove Water Services
Projected Water Supply and Demand
Normal Water Year**

| Water Sources | 2010 | 2015 | 2020 | 2025 | 2030 |
|--|---------------------------|---------------|---------------|---------------|---------------|
| Supply | Normal Water Years | | | | |
| Projected Supply During an Average Year as a % of Demand During an Average Year ^[1] | 130.8 | 126.6 | 133.4 | 125.5 | 118.0 |
| Imported ^[2] | 11,500 | 11,360 | 12,210 | 11,710 | 11,230 |
| Local (Groundwater) ^[3] | 20,510 | 20,920 | 21,340 | 21,770 | 22,200 |
| Total Supply | 32,010 | 32,280 | 33,550 | 33,480 | 33,430 |
| % of Normal Year ^[4] | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Demand | | | | | |
| Imported ^[2] | 8,790 | 8,970 | 9,150 | 9,330 | 9,520 |
| Local (Groundwater) ^[3] | 20,510 | 20,920 | 21,340 | 21,770 | 22,200 |
| Total Demand | 29,300 | 29,890 | 30,490 | 31,100 | 31,720 |
| % of Year 2005 Demand (28,731 AF) | 102.0 | 104.0 | 106.1 | 108.2 | 110.4 |
| Supply/ Demand Difference | 2,710 | 2,390 | 3,060 | 2,380 | 1,710 |
| Difference as % of Supply | 8.5 | 7.4 | 9.1 | 7.1 | 5.1 |
| Difference as % of Demand | 9.2 | 8.0 | 10.0 | 7.7 | 5.4 |

[1] From Table 4.2-1, Row I.

[2] Imported water supply = (imported water demand) x (Metropolitan Projected Supply Available During an Average Year as a % of Demand During an Average Year (from Table 4.2-1, Row I)); Imported demand = Total Demand – Local (Groundwater) demand.

[3] Groundwater demand is estimated to comprise 70% of the total potable demand based on a BPP of 70%; groundwater supply is estimated to equal demand.

[4] Normal Year supply is assumed to reflect the total supply available in the row labeled "Total Supply."

[5] Actual 2005 demand of 28,731 AF based on data provided by City staff.

Table 4.2-5
Garden Grove Water Services
Projected Water Supply and Demand
Single Dry Water Year
(AFY – All projections rounded to nearest 10 AF)

| Water Sources | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|-------------------------|---------------|---------------|---------------|---------------|
| Supply | Single Dry Years | | | | |
| Metropolitan Projected Supply Available During an Average Year as a % of Demand During a Single Dry Year ^[1] | 116.3 | 113 | 118.8 | 112.3 | 106.6 |
| MWD Projected Supply Available During a Single Dry Year as a % of Single Dry Year Demand (including surplus) ^[2] | 123.9 | 131.8 | 134.3 | 125.6 | 119.3 |
| Imported ^[3] | 14,250 | 14,970 | 16,400 | 14,710 | 13,400 |
| Local (Groundwater) ^[4] | 21,640 | 22,070 | 22,520 | 22,970 | 23,420 |
| Total Supply | 35,890 | 37,040 | 38,920 | 37,680 | 36,820 |
| Normal Year Supply ^[5] | 32,010 | 32,280 | 33,550 | 33,480 | 33,430 |
| % of Normal Year | 112.1 | 114.7 | 116.0 | 112.5 | 110.1 |
| Demand | | | | | |
| Imported ^[3] | 9,270 | 9,460 | 9,650 | 9,840 | 10,040 |
| Local (Groundwater) ^[4] | 21,640 | 22,070 | 22,520 | 22,970 | 23,420 |
| Total Demand^[6] | 30,910 | 31,530 | 32,170 | 32,810 | 33,460 |
| Normal Year Demand ^[5] | 29,300 | 29,890 | 30,490 | 31,100 | 31,720 |
| % of normal year demand | 105.5 | 105.5 | 105.5 | 105.5 | 105.5 |
| % of Year 2005 Demand (28,731 AF) | 107.6 | 109.7 | 112.0 | 114.2 | 116.5 |
| Supply/ Demand Difference | 4,980 | 5,510 | 6,750 | 4,870 | 3,360 |
| Difference as % of Supply | 13.9 | 14.9 | 17.3 | 12.9 | 9.1 |
| Difference as % of Demand | 16.1 | 17.5 | 21.0 | 14.8 | 10.0 |

[1] From Table 4.2-1, Row J

[2] From Table 4.2-1, Row K (includes MWD surplus supplies)

[3] Available Imported supply is estimated to equal Metropolitan's September 2005 Final Draft RUWMP projected available supplies including surplus supplies = (normal year import supply) x (Metropolitan projected supply as a % of the single dry year demand); Imported demand = normal year demand x 105.5% single dry year demand, based on historical records.

[4] Groundwater demand is estimated to comprise 70% of the total potable demand based on a BPP of 70%; groundwater supply is estimated to equal demand.

[5] Normal year supplies and demands and taken from Table 4.2-4

[6] Total Demand = (normal year demand) x (105.5% single dry year demand)

Table 4.2-6
Garden Grove Water Services
Projected Water Supply and Demand
Multiple Dry Water Years 2006-2010
(AFY – All projections rounded to nearest 10 AF)

| Water Sources | 2006 | 2007 | 2008 | 2009 | 2010 |
|--|---------------------|---------------|------------------|---------------|---------------|
| Supply | Normal Years | | Dry Years | | |
| Metropolitan Projected Supply During a Multiple Dry Year as a % of Average Supply ^[1] | | | 98.2 | 98.2 | 98.2 |
| Imported ^[2] | 13,330 | 13,320 | 12,020 | 11,650 | 11,290 |
| Local (Groundwater) ^[3] | 18,460 | 18,530 | 21,710 | 21,190 | 21,640 |
| Total Supply | 31,790 | 31,850 | 33,730 | 32,840 | 32,930 |
| Normal Year Supply ^[4] | 31,790 | 31,850 | 31,900 | 31,960 | 32,010 |
| % of Normal Year | 100.0 | 100.0 | 105.7 | 102.8 | 102.9 |
| Demand | | | | | |
| MWD Projected Multiple Dry Year Demand as % of Normal Year ^[5] | | | 116.5 | 116.5 | 116.5 |
| Imported ^[2] | 10,390 | 10,430 | 9,310 | 9,080 | 9,270 |
| Local (Groundwater) ^[3] | 18,460 | 18,530 | 21,710 | 21,190 | 21,640 |
| Total Demand | 28,850 | 28,960 | 31,020 | 30,270 | 30,910 |
| Normal Year Demand ^[6] | 28,850 | 28,960 | 29,070 | 29,190 | 29,300 |
| % of Normal Year | 100.0 | 100.0 | 106.7 | 103.7 | 105.5 |
| % of Year 2005 Demand (28,731 AF) | 100.4 | 100.8 | 108.0 | 105.4 | 107.6 |
| Supply/ Demand Difference | 2,940 | 2,890 | 2,710 | 2,570 | 2,020 |
| Difference as % of Supply | 9.2 | 9.1 | 8.0 | 7.8 | 6.1 |
| Difference as % of Demand | 10.2 | 10.0 | 8.7 | 8.5 | 6.5 |

[1] From Table 4.2-2, Row C

[2] Imported supply = (imported supply interpolated from Table 4.2-5) x (escalation factor from Table 4.2-2, Row C); Imported demand = (normal year demand) x (106.7%, 103.7% or 105.5% Year 1, 2 and 3 multiple dry year demand factors determined from historical records. Imported demand for normal years is 100% of normal demand interpolated from Table 4.2-4.

[3] Groundwater demand is estimated to comprise 70% of the total potable demand based on a BPP of 70%; groundwater supply is estimated to equal demand.

[4] Interpolated from Table 4.2-5

[5] From Table 4.2-2, Row F; In its September 2005 Draft UWMP Multiple Dry Year Projections, Metropolitan only projected demands for Year 3, therefore Years 1 and 2 are assumed to equal Year 3 demand; these percentages are presented only to reflect the fact that the City's demand is well below the factor presented in the table, e.g., 2010 multiple dry year demand is 105.5% as opposed to 116.5%.

[6] Interpolated from Table 4.2-4

**Table 4.2-7
Garden Grove Water Services
Projected Water Supply and Demand
Multiple Dry Water Years 2011-2015**
(AFY – All projections rounded to nearest 10 AF)

| Water Sources | 2011 | 2012 | 2013 | 2014 | 2015 |
|--|---------------------|---------------|------------------|---------------|---------------|
| Supply | Normal Years | | Dry Years | | |
| Metropolitan Projected Supply During a Multiple Dry Year as a % of Average Supply ^[1] | | | 106.8 | 106.8 | 106.8 |
| Imported ^[2] | 11,470 | 11,440 | 12,190 | 12,160 | 12,130 |
| Local (Groundwater) ^[3] | 20,590 | 20,680 | 22,150 | 21,610 | 22,070 |
| Total Supply | 32,060 | 32,120 | 34,340 | 33,770 | 34,200 |
| Normal Year Supply ^[4] | 32,060 | 32,120 | 32,170 | 32,230 | 32,280 |
| % of Normal Year | 100.0 | 100.0 | 106.7 | 104.8 | 105.9 |
| Demand | | | | | |
| MWD Projected Multiple Dry Year Demand as % of Normal Year ^[5] | | | 116.4 | 116.4 | 116.4 |
| Imported ^[2] | 8,830 | 8,860 | 9,490 | 9,260 | 9,460 |
| Local (Groundwater) ^[3] | 20,590 | 20,680 | 22,150 | 21,610 | 22,070 |
| Total Demand | 29,420 | 29,540 | 31,640 | 30,870 | 31,530 |
| Normal Year Demand ^[6] | 29,420 | 29,540 | 29,650 | 29,770 | 29,890 |
| % of Normal Year | 100.0 | 100.0 | 106.7 | 103.7 | 105.5 |
| % of Year 2005 Demand (28,731 AF) | 102.4 | 102.8 | 110.1 | 107.4 | 109.7 |
| Supply/ Demand Difference | 2,640 | 2,580 | 2,700 | 2,900 | 2,670 |
| Difference as % of Supply | 8.2 | 8.0 | 7.9 | 8.6 | 7.8 |
| Difference as % of Demand | 9.0 | 8.7 | 8.5 | 9.4 | 8.5 |

[1] From Table 4.2-2, Row C

[2] Imported supply = (imported supply interpolated from Table 4.2-5) x (escalation factor from Table 4.2-2, Row C); Imported demand = (normal year demand) x (106.7%, 103.7% or 105.5% Year 1, 2 and 3 multiple dry year demand factors determined from historical records. Imported demand for normal years is 100% of normal demand interpolated from Table 4.2-4.

[3] Groundwater demand is estimated to comprise 70% of the total potable demand based on a BPP of 70%; groundwater supply is estimated to equal demand.

[4] Interpolated from Table 4.2-5

[5] From Table 4.2-2, Row F; In its September 2005 Draft UWMP Multiple Dry Year Projections, Metropolitan only projected demands for Year 3, therefore Years 1 and 2 are assumed to equal Year 3 demand; these percentages are presented only to reflect the fact that the City's demand is well below the factor presented in the table, e.g., 2010 multiple dry year demand is 105.5% as opposed to 116.4%.

[6] Interpolated from Table 4.2-4

Table 4.2-8
Garden Grove Water Services
Projected Water Supply and Demand
Multiple Dry Water Years 2016-2020
(AFY – All projections rounded to nearest 10 AF)

| Water Sources | 2016 | 2017 | 2018 | 2019 | 2020 |
|--|---------------------|---------------|------------------|---------------|---------------|
| Supply | Normal Years | | Dry Years | | |
| Metropolitan Projected Supply During a Multiple Dry Year as a % of Average Supply ^[1] | | | 103.3 | 103.3 | 103.3 |
| Imported ^[2] | 11,530 | 11,700 | 12,260 | 12,440 | 12,610 |
| Local (Groundwater) ^[3] | 21,010 | 21,090 | 22,600 | 22,040 | 22,520 |
| Total Supply | 32,540 | 32,790 | 34,860 | 34,480 | 35,130 |
| Normal Year Supply ^[4] | 32,530 | 32,790 | 33,040 | 33,300 | 33,550 |
| % of Normal Year | 100.0 | 100.0 | 105.5 | 103.5 | 104.7 |
| Demand | | | | | |
| MWD Projected Multiple Dry Year Demand as % of Normal Year ^[5] | | | 116.5 | 116.5 | 116.5 |
| Imported ^[2] | 9,000 | 9,040 | 9,680 | 9,450 | 9,650 |
| Local (Groundwater) ^[3] | 21,010 | 21,090 | 22,600 | 22,040 | 22,520 |
| Total Demand | 30,010 | 30,130 | 32,280 | 31,490 | 32,170 |
| Normal Year Demand ^[6] | 30,010 | 30,130 | 30,250 | 30,370 | 30,490 |
| % of Normal Year | 100.0 | 100.0 | 106.7 | 103.7 | 105.5 |
| % of Year 2005 Demand (28,731 AF) | 104.5 | 104.9 | 112.4 | 109.6 | 112.0 |
| Supply/ Demand Difference | 2,530 | 2,660 | 2,580 | 2,990 | 2,960 |
| Difference as % of Supply | 7.8 | 8.1 | 7.4 | 8.7 | 8.4 |
| Difference as % of Demand | 8.4 | 8.8 | 8.0 | 9.5 | 9.2 |

[1] From Table 4.2-2, Row C

[2] Imported supply = (imported supply interpolated from Table 4.2-5) x (escalation factor from Table 4.2-2, Row C); Imported demand = (normal year demand) x (106.7%, 103.7% or 105.5% Year 1, 2 and 3 multiple dry year demand factors determined from historical records. Imported demand for normal years is 100% of normal demand interpolated from Table 4.2-4.

[3] Groundwater demand is estimated to comprise 70% of the total potable demand based on a BPP of 70%; groundwater supply is estimated to equal demand.

[4] Interpolated from Table 4.2-5

[5] From Table 4.2-2, Row F; In its September 2005 Draft UWMP Multiple Dry Year Projections, Metropolitan only projected demands for Year 3, therefore Years 1 and 2 are assumed to equal Year 3 demand; these percentages are presented only to reflect the fact that the City's demand is well below the factor presented in the table, e.g., 2010 multiple dry year demand is 105.5% as opposed to 116.5%.

[6] Interpolated from Table 4.2-4

Table 4.2-9
Garden Grove Water Services
Projected Water Supply and Demand
Multiple Dry Water Years 2021-2025
(AFY – All projections rounded to nearest 10 AF)

| Water Sources | 2021 | 2022 | 2023 | 2024 | 2025 |
|--|---------------------|---------------|------------------|---------------|---------------|
| Supply | Normal Years | | Dry Years | | |
| Metropolitan Projected Supply During a Multiple Dry Year as a % of Average Supply ^[1] | | | 102.4 | 102.4 | 102.4 |
| Imported ^[2] | 12,110 | 12,010 | 12,200 | 12,090 | 11,990 |
| Local (Groundwater) ^[3] | 21,430 | 21,510 | 23,050 | 22,490 | 22,970 |
| Total Supply | 33,540 | 33,520 | 35,250 | 34,580 | 34,960 |
| Normal Year Supply ^[4] | 33,540 | 33,520 | 33,510 | 33,490 | 33,480 |
| % of Normal Year | 100.0 | 100.0 | 105.2 | 103.3 | 104.4 |
| Demand | | | | | |
| MWD Projected Multiple Dry Year Demand as % of Normal Year ^[5] | | | 116.0 | 116.0 | 116.0 |
| Imported ^[2] | 9,180 | 9,220 | 9,880 | 9,640 | 9,840 |
| Local (Groundwater) ^[3] | 21,430 | 21,510 | 23,050 | 22,490 | 22,970 |
| Total Demand | 30,610 | 30,730 | 32,930 | 32,130 | 32,810 |
| Normal Year Demand ^[6] | 30,610 | 30,730 | 30,860 | 30,980 | 31,100 |
| % of Normal Year | 100.0 | 100.0 | 106.7 | 103.7 | 105.5 |
| % of Year 2005 Demand (28,731 AF) | 106.5 | 107.0 | 114.6 | 111.8 | 114.2 |
| Supply/ Demand Difference | 2,930 | 2,790 | 2,320 | 2,450 | 2,150 |
| Difference as % of Supply | 8.7 | 8.3 | 6.6 | 7.1 | 6.1 |
| Difference as % of Demand | 9.6 | 9.1 | 7.0 | 7.6 | 6.6 |

[1] From Table 4.2-2, Row C

[2] Imported supply = (imported supply interpolated from Table 4.2-5) x (escalation factor from Table 4.2-2, Row C); Imported demand = (normal year demand) x (106.7%, 103.7% or 105.5% Year 1, 2 and 3 multiple dry year demand factors determined from historical records. Imported demand for normal years is 100% of normal demand interpolated from Table 4.2-4.

[3] Groundwater demand is estimated to comprise 70% of the total potable demand based on a BPP of 70%; groundwater supply is estimated to equal demand.

[4] Interpolated from Table 4.2-5

[5] From Table 4.2-2, Row F; In its September 2005 Draft UWMP Multiple Dry Year Projections, MWD only projected demands for Year 3, therefore Years 1 and 2 are assumed to equal Year 3 demand; these percentages are presented only to reflect the fact that the City's demand is well below the factor presented in the table, e.g., 2010 multiple dry year demand is 105.5% as opposed to 116.0%.

[6] Interpolated from Table 4.2-4

Table 4.2-10
Garden Grove Water Services
Projected Water Supply and Demand
Multiple Dry Water Years 2026-2030
(AFY – All projections rounded to nearest 10 AF)

| Water Sources | 2026 | 2027 | 2028 | 2029 | 2030 |
|--|---------------------|---------------|------------------|---------------|---------------|
| Supply | Normal Years | | Dry Years | | |
| Metropolitan Projected Supply During a Multiple Dry Year as a % of Average Supply ^[1] | | | 102.4 | 102.4 | 102.4 |
| Imported ^[2] | 11,610 | 11,520 | 11,700 | 11,600 | 11,500 |
| Local (Groundwater) ^[3] | 21,850 | 21,950 | 23,510 | 22,940 | 23,420 |
| Total Supply | 33,460 | 33,470 | 35,210 | 34,540 | 34,920 |
| Normal Year Supply ^[4] | 33,470 | 33,460 | 33,450 | 33,440 | 33,430 |
| % of Normal Year | 100.0 | 100.0 | 105.3 | 103.3 | 104.5 |
| Demand | | | | | |
| MWD Projected Multiple Dry Year Demand as % of Normal Year ^[5] | | | 115.0 | 115.0 | 115.0 |
| Imported ^[2] | 9,370 | 9,400 | 10,070 | 9,830 | 10,040 |
| Local (Groundwater) ^[3] | 21,850 | 21,950 | 23,510 | 22,940 | 23,420 |
| Total Demand | 31,220 | 31,350 | 33,580 | 32,770 | 33,460 |
| Normal Year Demand ^[6] | 31,220 | 31,350 | 31,470 | 31,600 | 31,720 |
| % of Normal Year | 100.0 | 100.0 | 106.7 | 103.7 | 105.5 |
| % of Year 2005 Demand (28,731 AF) | 108.7 | 109.1 | 116.9 | 114.1 | 116.5 |
| Supply/ Demand Difference | 2,240 | 2,120 | 1,630 | 1,770 | 1,460 |
| Difference as % of Supply | 6.7 | 6.3 | 4.6 | 5.1 | 4.2 |
| Difference as % of Demand | 7.2 | 6.8 | 4.9 | 5.4 | 4.4 |

[1] From Table 4.2-2, Row C

[2] Imported supply = (imported supply interpolated from Table 4.2-5) x (escalation factor from Table 4.2-2, Row C); Imported demand = (normal year demand) x (106.7%, 103.7% or 105.5% Year 1, 2 and 3 multiple dry year demand factors determined from historical records. Imported demand for normal years is 100% of normal demand interpolated from Table 4.2-4.

[3] Groundwater demand is estimated to comprise 70% of the total potable demand based on a BPP of 70%; groundwater supply is estimated to equal demand.

[4] Interpolated from Table 4.2-5

[5] From Table 4.2-2, Row F; In its September 2005 Draft UWMP Multiple Dry Year Projections, Metropolitan only projected demands for Year 3, therefore Years 1 and 2 are assumed to equal Year 3 demand; these percentages are presented only to reflect the fact that the City's demand is well below the factor presented in the table, e.g., 2010 multiple dry year demand is 105.5% as opposed to 115.0%.

[6] Interpolated from Table 4.2-4

4.3 VULNERABILITY OF SUPPLY TO SEASONAL OR CLIMATIC SHORTAGE

The City's climate is a semi-arid environment with mild winters, warm summers and moderate rainfall, consistent with coastal Southern California. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The average annual temperature is 75 degrees Fahrenheit. Annual precipitation is typically 9-14 inches, occurring mostly between November and April.

Climatological data in California has been recorded since the year 1858. During the twentieth century, California has experienced three periods of severe drought: 1928-34, 1976-77 and 1987-91. The year 1977 is considered to be the driest year of record in the Four Rivers Basin by the DWR. These rivers flow into the San Francisco Bay Delta and are the source of water for the SWP.

Southern California and, in particular, Orange County sustained few adverse impacts from the 1976-77 drought, due in large part to the availability of Colorado River water and groundwater stored in the Santa Ana Basin. But the 1987-91 drought created considerably more concern for Southern California and Orange County.

It's likely that the City is vulnerable to water shortages due to extensive droughts and seasonally hot summer months. While the data in Tables 4.2.-2 through 4.2-7 identify water availability during single and multiple dry year scenarios, response to a future drought may require the implementation of the water use efficiency mandates of MWDOC and its support of the Metropolitan WSDM Plan, along with implementation of the appropriate stage of the City's Water Conservation Program. These programs are more specifically discussed in Section 7.

4.4 PLANNED WATER SUPPLY PROJECTS AND PROGRAMS TO MEET PROJECTED WATER USE

4.4.1 City of Garden Grove Projects

The City continually reviews practices that will provide its customers with adequate and reliable supplies. Trained staff ensures the water is safe and the supply will meet present and future needs in an environmentally and economically responsible manner. The City coordinates its long-term water shortage planning with MWDOC and OCWD, which is further described in the MWDOC 2005 Regional UWMP and OCWD's LTFP.

The City projects water demand in the City could remain relatively constant over the next 20 years due to minimal growth combined with water use efficiency measures. The City plans to update its water master plan and will identify future projects to meet projected water use at that time. The water master plan is expected to be updated in 2005-2006.

Any new water supply sources will be developed primarily to better manage the Basin and to replace or upgrade inefficient wells, rather than to support population growth and new development. The projects that have been identified by the City to improve the City's water supply reliability and enhance the operations of the City's include replacement of water meters, fire hydrants, valves, and pipelines; security improvements; and improvement projects on water supply wells. The improvement projects identified for production purposes include:

- Well 16: Improve, replace, or construct building and SCADA system, and convert to sodium hypochlorite bulk system (2004-2006)
- Well 19: Improve, replace, or construct building and SCADA system, and convert to sodium hypochlorite bulk system (2006-2007)
- Westhaven Reservoir: Improve, replace, or construct building and SCADA system, and convert to sodium hypochlorite bulk system (2007-2008)
- Wells 24 & 25: Improve, replace, or construct building and SCADA system, and convert to sodium hypochlorite bulk system (2004-2005)
- Well 30: Design and construct a new well, building, and SCADA system, including on-site generation (chlorination) (2006-2007)

Orange County Groundwater Conjunctive Use Program

As mentioned earlier, Metropolitan provided funding under Proposition 13 for groundwater conjunctive use projects that would store within their service area imported water in wet years for use in dry years. One of the selected projects was the Orange County Groundwater Conjunctive Use Program. In June 2003, MWDOC, OCWD, and Metropolitan signed a 25-year agreement to store imported water in the Basin for use during dry years and emergencies. The proposed project will store up to 60,000 AF of imported water during wet periods and will be able to extract between 20,000 – 22,000 AF of water during dry periods from eight strategically sited wells. The wells will be used to pump in excess of the existing pumping demand when needed. The City is participating in this program with the construction of Well 30. The City's well and the program's additional wells would reduce the region's dependence on imported water during dry periods and would provide greater reliability. Estimated production is shown in Table 4.4.1. Although Well 30 will provide additional capacity to the City, the City is still regulated by the BPP and, therefore, pumping above the BPP is not expected.

4.4.2 Regional Agency Projects

Since the City purchases imported water from the SWP and the Colorado River through Metropolitan's member agency MWDOC, the projects implemented by Metropolitan and MWDOC to secure their water supplies have a direct effect on the City. In addition, OCWD's planned projects and programs for groundwater and recycled water will also impact the City.

Metropolitan Water District of Southern California Projects

Metropolitan is implementing water supply alternative strategies for the region and on behalf of their member agencies to ensure available water in the future. Some of the strategies identified in Metropolitan’s 2005 UWMP include:

- Conservation
- Water recycling and groundwater recovery
- Storage and groundwater management programs within the Southern California region
- Storage programs related to the SWP and the Colorado River
- Other water supply management programs outside of the region

Metropolitan has made investments in conservation, water recycling, storage, and supply that are all part of Metropolitan’s long-term water management strategy. Metropolitan’s approach to a long-term water management strategy was to develop an Integrated Resource Plan that depended on many sources of supply. Metropolitan’s implementation approach for achieving the goals of the Integrated Resource Plan Update is summarized in Table 4.4.2-1. A comprehensive description of Metropolitan's implementation approach is contained in their 2003 report on Metropolitan water supplies "A Blueprint for Water Reliability" as well as their 2005 Regional Urban Water Management Plan. A brief description of the various programs implemented by Metropolitan is also included following Table 4.4.2-1.

**Table 4.4.2-1
Metropolitan Integrated Resource Plan Update Resources Status**

| Target | Programs and Status |
|--|---|
| <ul style="list-style-type: none"> • Conservation | <p>Current</p> <ul style="list-style-type: none"> - Conservation Credits Program - Residential; Non-residential Landscape Water Use Efficiency;, Commercial, Industrial, and Institutional Programs - Grant Programs <p>In Development or Identified</p> <ul style="list-style-type: none"> - Innovative Conservation Program |
| <ul style="list-style-type: none"> • Recycling • GW Recovery • Desalination | <p>Current</p> <ul style="list-style-type: none"> - LRP Program <p>In Development or Identified</p> <ul style="list-style-type: none"> - Additional LRP Requests for Proposals - Seawater Desalination Program - Innovative Supply Program |
| <ul style="list-style-type: none"> • In Region Dry-Year Surface Water Storage | <p>Current</p> <ul style="list-style-type: none"> - Diamond Valley Reservoir, Lake Mathews, Lake Skinner - SWP Terminal Reservoirs (Monterey Agreement) |

| Target | Programs and Status |
|---|--|
| <ul style="list-style-type: none"> In Region Groundwater Conjunctive Use | <p>Current</p> <ul style="list-style-type: none"> - North Las Posas (Eastern Ventura County) - Cyclic Storage - Replenishment Deliveries - Proposition 13 Programs (short listed) <p>In Development or Identified</p> <ul style="list-style-type: none"> - Raymond Basin GSP - Proposition 13 Programs (wait listed) - Expanding existing programs - New groundwater storage programs |
| <ul style="list-style-type: none"> SWP | <p>Current</p> <ul style="list-style-type: none"> - SWP Deliveries - San Luis Carryover Storage (Monterey Agreement) - SWP Call Back with DWCV Table A transfer <p>In Development or Identified</p> <ul style="list-style-type: none"> - Sacramento Valley Water Management Agreement - CALFED Delta Improvement Program (Phase 8 Agreement) |
| <ul style="list-style-type: none"> CRA | <p>Current</p> <ul style="list-style-type: none"> - Base Apportionment - IID/Metropolitan Conservation Program - Coachella and All American Canal Lining Programs - PVID Land Management Program <p>In Development or Identified</p> <ul style="list-style-type: none"> - Lower Coachella Storage Program - Hayfield Storage Program - Chuckwalla Storage Program - Storage in Lake Mead |
| <ul style="list-style-type: none"> CVP/SWP Storage and Transfers Spot Transfers and Options | <p>Current</p> <ul style="list-style-type: none"> - Arvin Edison Program - Semitropic Program - San Bernardino Valley Municipal Water District Program - Kern Delta Program <p>In Development or Identified</p> <ul style="list-style-type: none"> - Mojave Storage Program - Other Central Valley Transfer Programs |

Conservation Target

Metropolitan’s conservation policies and practices are shaped by Metropolitan’s Integrated Resource Plan and the California Urban Water Conservation Council *Memorandum of Understanding Regarding Water Conservation in California* and the 14 Best Management Practices.

Recycled Water, Groundwater Recovery, and Desalination Target

Metropolitan supports the use of alternative water supplies such as recycled water and degraded groundwater when there is a regional benefit to offset imported water supplies.

Currently, 355 thousand acre-feet (TAF) of recycled water is permitted for use within Metropolitan service area.⁵³ Metropolitan estimates that an additional 480 TAF per year of new recycled water could be developed and used by 2025 with an additional 130 TAF per year by 2050. Approximately 30 percent of the recycled water use within Metropolitan's service area is for groundwater replenishment and seawater barriers. In the future it is anticipated that up to 90 percent of all water used for seawater barriers will be recycled water.

Metropolitan recognizes the importance of member agencies developing local supplies and has implemented several programs to provide financial assistance. Metropolitan's incentive programs include:

- **Competitive LRP:** Supports the development of cost-effective water recycling and groundwater recovery projects that reduce demands for imported supplies.
- **Seawater Desalination Program:** Supports the development of seawater desalination within Metropolitan's service area.
- **Innovative Supply Program:** Encourages investigations into alternative approaches to increasing the region's water supply.

According to Metropolitan's 2005 UWMP, 13 projects were selected in 2004 for implementation under the Competitive LRP. None of the projects are within the City's service area, however two projects are proposed under MWDOC. The projects include the GWRS and a recycled water upgrade within Irvine Ranch Water District's service area. The GWRS is discussed as a planned project under OCWD. Under the Innovative Supply Program, Metropolitan selected 10 projects for grant funding. Proposals included harvesting storm runoff, onsite recycling, and desalination. The project findings will be presented to member agencies in 2006.

Regional Groundwater Conjunctive Use Target

Other programs within Metropolitan to maximize water supplies include storage and groundwater management programs. The IRP Update identified the need for dry-year storage within surface water reservoirs and the need for groundwater storage. In 2002, Diamond Valley Lake reached its full storage capacity of 800,000 AF. Approximately 400,000 AF are dedicated for dry-year storage. Metropolitan has developed a number of local programs to increase storage in the groundwater basins. The programs include:

- **North Las Posas** – In 1995, Metropolitan and Calleguas Municipal Water District developed facilities for groundwater storage and extraction from the North Las Posas Basin. Metropolitan has the right to store up to 210,000 AF of water. The well fields are expected to be fully operational in 2007 with Phases I and II already complete. It is expected the North Las Posas program will yield 47,000 AF of groundwater from the basin each year.

⁵³ Metropolitan Water District of Southern California, Regional UWMP, Draft September 2005

- Proposition 13 Projects – In 2000, DWR selected Metropolitan to receive financial funding to help fund the Southern California Water Supply Reliability Projects Program. The program coordinates eight conjunctive use projects with a total storage capacity of 195 TAF and a dry-year yield of 65 TAF per year. One of the projects selected through the request for proposals for Proposition 13 funding includes the Orange County Groundwater Conjunctive Use Program. This program was submitted by OCWD and MWDOC and is discussed in Section 4.
- Raymond Basin – In January 2000, Metropolitan entered into agreements with the City of Pasadena and Foothill Municipal Water District to implement a groundwater storage program that is anticipated to yield 22 TAF per year by 2010.
- Other Programs – Metropolitan intends to expand the conjunctive use programs to add another 80 TAF to groundwater storage. Other basins in the area are being evaluated for possible conjunctive use projects.

State Water Project (SWP) Target

The major actions Metropolitan is completing to improve SWP reliability include the following:

- Delta Improvements Package – The actions outlined in this package are related to water project operations in the Delta. The actions are designed to allow the SWP to operate the Banks Pumping Plant in the Delta at 8,500 CFS. Currently Banks Pumping Plant operates at 6,680 CFS. Metropolitan anticipates that increase diversion from the Delta will result in an increase of 130 TAF per year will be available for groundwater and surface water storage.
- Phase 8 Settlement – This agreement includes various recommended water supply projects that meet demand and water quality objectives within the Sacramento Valley. The various conjunctive use projects will yield approximately 185 TAF per year in the Sacramento Valley of which approximately 55 TAF would be available to Metropolitan through its SWP allocation.
- Monterey Amendment – The Monterey Amendment enables Metropolitan to use a portion of the San Luis Reservoir's capacity for carryover storage. This will increase SWP delivery to Metropolitan by 93 to 285 TAF depending on supply conditions.
- SWP Terminal Storage – Metropolitan has water rights for storage at Lake Perris and Castaic Lake. The storage provides Metropolitan with options for managing SWP deliveries and store up to 73 to 219 TAF of carryover water.
- Desert Water Agency/Coachella Valley Water District (DWCV) SWP Table A Transfer – This transfer to DWCV includes 100 TAF of Metropolitan SWP Table A amount in exchange for other rights such as its full carryover amounts in San Luis and full use of flexible storage in Castaic and Perris Reservoirs. It is anticipated that the call-back provision of the entitlement transfer can provide between 5 and 26 TAF of water depending on the water year.

- Desert Water Agency/Coachella Valley Water District (DWCV) Advance Delivery Program – Under this program Metropolitan delivers Colorado River water to the DWCV in exchange for their SWP Contract Table A allocations. Metropolitan can expect increases in SWP Table A deliveries of 6 to 18 TAF depending on the water year.

Colorado River Aqueduct (CRA) Target

Metropolitan also receives imported water from the CRA. Metropolitan, IID and Coachella Valley Water District executed the QSA in October 2003. The QSA established the baseline water use for each agency and facilitated the transfer agricultural water to urban uses. A number of programs have been identified to assist Metropolitan meet their target goal of 1.2 MAF per year from the CRA. These programs include the following:

- Coachella and All-American Canal Lining Project – The Coachella Canal Lining Project is scheduled to be completed in January 2007 and is expected to conserve 26,000 AFY. The All-American Canal Lining Project is scheduled to be completed in 2008 and is expected to conserve 67,700 AFY. The conserved water will be made available in Lake Havasu for diversion from Metropolitan. In exchange, Metropolitan will supply a like amount to the San Luis Rey Settlement Parties and San Diego County Water Authority.
- IID/San Diego County Water Authority Transfer – IID has agreed to implement a conservation program and transfer water to San Diego County Water Authority. The transfer began in 2003 with 10 TAF and will increase yearly until 2023 where the transfer will be 200 TAF annually. Water will be conserved through land fallowing and irrigation efficiency measures. Metropolitan will supply the water conserved to San Diego County Water Authority in exchange for a like amount out of Lake Havasu.
- Imperial Irrigation District/Metropolitan Conservation Program – The program originally provided funding from Metropolitan to implement water efficiency improvements within IID. Metropolitan in turn would reserve the right to divert the water conserved by those investments. Execution of the QSA extended the term of the program to 2078 and guaranteed Metropolitan at least 80 TAF per year.
- Palo Verde Land Management and Crop Rotation Program – This program offers financial incentives to farmers with Palo Verde Irrigation District to not irrigate a portion of their land. A maximum of 29 percent of lands within Palo Verde Irrigation District can be fallowed in any year. The water conserved will be available to Metropolitan with a maximum of 111 TAF per year expected.
- Hayfield Groundwater Storage Program – Metropolitan will divert Colorado River water and store it in the Hayfield Groundwater Basin in east Riverside County. Currently there is 73 TAF of water in storage. Metropolitan expects the program to eventually develop a storage capacity of approximately 500 TAF.

- Chuckwalla Groundwater Storage Program – Metropolitan proposes to store water when available in the Upper Chuckwalla Groundwater Basin for future delivery to Metropolitan.
- Lower Coachella Valley Groundwater Storage Program – Metropolitan, Coachella Valley Water District, and the Desert Water Agency are investigating the feasibility of a conjunctive use program in the Lower Coachella Groundwater Basin. The basin has the potential to store 500 TAF of groundwater for Metropolitan.
- Salton Sea Restoration Transfer – A transfer of up to 1.6 MAF would be conserved by IID and made available to Metropolitan. The proceeds from the DWR transfer would be placed in the Salton Sea Restoration Fund.
- Lake Mead Storage – Metropolitan is exploring options for storing water in Lake Mead.

CVP/SWP Storage and Transfers Target

Metropolitan has focused on voluntary short and long-term transfer and storage programs with CVP and other SWP contractors. Currently, Metropolitan has enough transfer and storage programs to meet their 2010 target goal of 300 TAF. Metropolitan has four CVP/SWP transfer and storage programs in place for a total of 317,000 AF of dry-year supply. Metropolitan is also pursuing a new storage program with Mojave Water Agency and continues to pursue Central Valley water transfers on an as needed basis. The operational programs include:

- Semitropic – 107,000 AF dry-year supply
- Arvin-Edison – 90,000 AF dry-year supply
- San Bernardino Valley Municipal Water District – 70,000 AF dry-year supply
- Kern Delta Water District – 50,000 AF dry-year supply
- Mojave Storage Program – 35,000 AF dry-year supply
- Central Valley Transfer Program – 160,000 AF dry-year supply

Municipal Water District of Orange County (MWDOC) Projects

Sufficient water storage programs will help to ensure adequate water supplies in the future and in time of drought. The need for local storage intensifies with Southern California's and the Orange County region's dependence on imported water to serve water demands. One of the most effective forms of storage in a highly dry and arid climate is conjunctive use wherein water is stored under ground during wet periods and pumped out during dry or drought periods.

The MWDOC 2005 Regional UWMP discusses a number of water supply opportunities in Orange County, including the GWRS, to protect and maximize the yield of the Basin.

Orange County Water District (OCWD) Projects

OCWD is dedicated to maintaining a reliable supply of water for its groundwater users. OCWD has identified reliability measures to help mitigate emergency water shortages or increase water supply, including the following:

- OCWD has an agreement with San Bernardino Valley Municipal Water District (SBVMWD) to purchase groundwater supplies. SBVMWD's groundwater table is very high, making excess supply available for pumping to the Santa Ana River for OCWD's use.
- OCWD continues to discuss the purchase of non-SWP water supplies via SBVMWD's capacity in the SWP system.
- OCWD previously entered into a one-year contract with Western Water Company to purchase water from Northern California and plans to continue with similar contracts in the future.
- Wheeled water supplies are available for purchase through Metropolitan.
- Facilities to capture greater amounts of Santa Ana River Storm flows are being proposed and constructed such as recharge basins.
- OCWD continues to work with the Army Corps of Engineers to allow an increase in the water conservation pool level behind Prado Dam. An increase in the conservation pool level allows more storage of storm flows for later use as recharge water.

Orange County Sanitation Districts (OCS D) Projects

OCS D supplies treated wastewater to OCWD for further treatment. OCWD relies on recycled water from OCS D's treatment facilities to protect the Basin through seawater intrusion barriers and landscape irrigation. OCS D in conjunction with OCWD have implemented the GWRS, beginning in October 2002 with OCWD and OCS D signing a Joint Exercise of Powers Agreement for the GWRS. The first phase is currently underway, which will treat wastewater to drinking water standards for direct injection into the existing seawater intrusion barrier and percolation through recharge basins in Anaheim, California.⁵⁴ The project is scheduled to go online in 2007 and will maintain and improve the reliability of the region's water supply. Further discussion on water recycling is included in Section 8 of this Plan.

4.5 TRANSFER AND EXCHANGE OPPORTUNITIES

The City maintains four connections to the Metropolitan system and eight emergency inter-connections with surrounding communities. In aggregate, these connections have the ability to transfer about 22,500 GPM into the City distribution system.

⁵⁴ Orange County Water District, *Draft 2002-2003 Engineer's Report on Groundwater conditions, Water Supply and Basin Utilization in the Orange County Water District*, February 2004

The Metropolitan connections are typically operating as constant flow sources, but they function as emergency standby sources when pressures drop significantly. The other interconnections are normally closed, but the valves can be manually opened in emergency situations. The capacity of the emergency inter-connections equals approximately 13,200 GPM or one major booster pumping station.

The City has not entered into any agreements for transfer or exchange of water. However, Metropolitan, MWDOC, and OCWD are exploring options that would benefit the entire Orange County region. These exchanges were discussed earlier under proposed projects.

4.6 DESALINATED WATER OPPORTUNITIES

Desalination is viewed as a way to develop a local, reliable source of water that assists agencies reduce their demand on imported water, reduce groundwater overdraft, and in some cases make unusable groundwater available for municipal uses. Currently, there are no identified projects within the City for desalination of seawater or impaired groundwater. However, from a regional perspective, desalination projects within the region indirectly benefit the City.

Department of Water Resources Desalination Task Force

Assembly Bill 2717 called for DWR to establish a Desalination Task Force to evaluate the following: 1) Potential opportunities for desalination of seawater and brackish water in California, 2) Impediments to using desalination technology, and 3) the role of the State in furthering the use of desalination.⁵⁵ In October 2003, the task force, comprised of 27 organizations, provided a list of recommendations related to the following issues: general, energy, environment, planning, and permitting.

Metropolitan's Seawater Desalination Program

In August 2001, Metropolitan launched its Seawater Desalination Program. The program objectives were to provide financial and technical support for the development of cost-effective seawater desalination projects that will contribute to greater water supply reliability. In 2004, Metropolitan adopted an IRP Plan Update that includes a target of 150,000 AFY for seawater desalination projects to meet future demands. A call for proposals, under the Seawater Desalination Program, produced five projects by member agencies including the Los Angeles Department of Water and Power, Long Beach Water Department, MWDOC, San Diego County Water Authority, and West Basin Municipal Water District. Collectively, the projects could produce approximately 126,000 AFY. This additional source of water supply would provide greater water reliability for Southern California residents.

Metropolitan has also provided funding to five member agencies to research specific aspects of seawater desalination. The agencies are reviewing and assessing treatment

⁵⁵ DWR, California Water Plan Update 2005, Volume 2 – Resource Management Strategies

technologies, pretreatment alternatives, brine disposal, permitting, and regulatory approvals associated with delivery of desalinated seawater to the local distribution system.⁵⁶ Metropolitan continues to work with its member agencies to develop local projects, inform decision makers about the role of desalinated sea water on future supplies, and secure funding from various state and federal programs.

Department of Water Resources Proposition 50 Funding

In January 2005, DWR received 42 eligible applications requesting \$71.3 million from funds available through Proposition 50, Water Quality, Supply and Safe Drinking Water Projects, Coastal Wetlands Purchase and Protection Act of 2002. Projects eligible for the program include construction projects, research and development, feasibility studies, pilot projects, and demonstration programs. Local agencies, water districts, academic and research institutions will be able to use the funds in the development of new water supplies through brackish water and seawater desalination.

DWR is recommending funding for 25 of the 42 projects with the available \$25 million under the current desalination grant cycle. With this funding recommendation, 54 percent of the fund will support brackish water desalination related projects and 46 percent will support ocean desalination related projects. The projects recommended for funding include facilities in Marin, Alameda, and San Bernardino counties. Pilot projects in Long Beach, Santa Cruz, San Diego and Los Angeles are among those that will receive grants under the proposed funding plan. Research and development activities at the Lawrence Livermore National Laboratory and the University of California, Los Angeles are included in the recommendations, as are feasibility studies by agencies in the Bay Area, Monterey, and Riverside County.

MWDOC and OCWD's Seawater Desalination Concept Analysis

MWDOC and OCWD conducted a study, *Seawater Desalination Concept Analysis*, in March 1999 to determine the relative cost-effectiveness of ocean desalting compared to other potential supplies. They continued to develop a program concept and in 2003 published their draft *Ocean Water Desalination Program Concept Development Paper* (Concept Paper). The Concept Paper was prepared to provide OCWD and MWDOC with additional information on potentially developing an ocean water desalter at the AES Huntington Beach Generating Station site, owned by AES Corporation.

The purpose was to outline the AES site opportunities and identify the key issues to be resolved before moving forward with planning and implementation efforts. The project continues to be conceptual in nature; however, the concept paper investigates the opportunities surrounding the planning and feasibility of ocean desalination in Orange County using a specified site with existing infrastructure. The project concept is the development of a 50 MGD ocean water desalination plant to provide base water supply for the OCWD service area. A 50 MGD plant could be expected to produce 50,000 AFY.

⁵⁶ Metropolitan Water District of Southern California, Regional UWMP, September 2005 Draft

The implementation of an ocean water desalination plant can reduce groundwater pumping levels in coastal OCWD and assist in refilling the Basin. It could serve as an emergency backup supply for South Orange County as well as reduce the amount of water required for seawater barrier injection. Implementation of the ocean water desalination plant would require regulatory compliance, environmental stewardship stakeholder interface, and a lengthy completion schedule.

Proposed Projects for Desalination

In Orange County, there are three proposed ocean desalination projects that could serve MWDOC, including one specifically that may benefit the City. The proposed projects are discussed in MWDOC's 2005 Regional UWMP and summarized below.

Poseidon Resources Corporation Proposed Project – Poseidon Resources Corporation, a private company, is proposing a seawater desalination project to be located adjacent to the AES Generation Power Plant in Huntington Beach. The proposed project would provide 50 MGD of water supply to coastal and south Orange County. In 2003, the City of Huntington Beach denied certification of the EIR. A Recirculated EIR was subsequently prepared. The project is currently in the environmental review and permitting phase. There are no contractual agreements in place for the purchase of water.

Joint San Diego/Orange County Proposed Regional San Onofre Project – This joint project is currently being investigated to determine project feasibility. The project size is anticipated to range from 50 – 150 MGD and utilize the decommissioned Unit 1 San Onofre Nuclear Generation Station cooling water inlet and outlet conduits for feedwater and brine disposal. The project may be implemented in 2020.

MWDOC Proposed Dana Point Ocean Desalination Project – MWDOC is currently investigating the feasibility of a desalination project in Dana Point adjacent to San Juan Creek. The feasibility study will evaluate feedwater supply, concentrated RO reject disposal, and energy. The recommended capacity is 25 MGD. MWDOC received DWR Proposition 50 funding in the amount of \$1,000,000 to investigate horizontal directional drilling with water well technology for use in constructing feedwater supply wells in the marine alluvial channel system.⁵⁷

⁵⁷ MWDOC 2005 Draft Regional Urban Water Management Plan.

**SECTION 5
WATER USE PROVISIONS**

5.1 PAST, CURRENT AND PROJECTED WATER USE AMONG SECTORS

Since 1995, new connections are being added at a rate of approximately one to two percent per year. Combined with new plumbing efficiency standards, landscape guidelines, and other water use efficiency programs, water demand projections are shown to increase at a rate of less than one percent per year. Unaccounted-for water losses are currently estimated at about three percent of total production. Table 5.1-1 shows past, current and projected water use between 2000 and 2030.

**Table 5.1-1
Past, Current and Projected Water Use by Sector
(AF)**

| Sector | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Single Family Residential | 13,717 | 14,217 | 14,199 | 14,175 | 14,144 | 14,427 | 14,715 |
| Multi Family Residential | 5,521 | 5,924 | 6,344 | 6,779 | 7,229 | 7,374 | 7,521 |
| Commercial, Industrial, Institutional | 9,317 | 8,590 | 8,761 | 8,936 | 9,115 | 9,297 | 9,483 |
| Agriculture | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Recycled Water | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal | 28,555 | 28,731 | 29,304 | 29,890 | 30,488 | 31,098 | 31,719 |
| Unaccounted-for System Losses ^[1] | 932 | 889 | 906 | 924 | 943 | 962 | 981 |
| Total Water Use | 29,487 | 29,620 | 30,210 | 30,814 | 31,431 | 32,060 | 32,700 |

Source: City of Garden Grove data; all amounts are rounded to the nearest AF

^[1] Estimated at 3.0 % of total water use.

Table 5.1-2 shows the number of water service customers by sector between 2000 and 2005, and projections of customers through 2030.

**Table 5.1-2
Number of Water Service Connections by Sector**

| Sector | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Single Family Residential | 28,984 | 29,097 | 29,210 | 29,323 | 29,436 | 29,549 | 29,662 |
| Multi Family Residential ^[1] | 1,667 | 1,765 | 1,863 | 1,961 | 2,059 | 2,157 | 2,255 |
| Commercial ^[2] | 1,603 | 1,721 | 1,839 | 1,957 | 2,075 | 2,193 | 2,311 |
| Industrial | 464 | 415 | 415 | 415 | 415 | 415 | 415 |
| Institutional ^[3] | 179 | 104 | 111 | 118 | 125 | 132 | 139 |
| Landscape/Recreation ^[4] | 654 | 710 | 710 | 710 | 710 | 710 | 710 |
| Other ^[5] | 116 | 116 | 116 | 116 | 116 | 116 | 116 |
| Total Connections | 33,667 | 33,928 | 34,264 | 34,600 | 34,936 | 35,272 | 35,608 |

Source: City of Garden Grove data

[1] Includes Duplex, Apartments, and Town/Condos

[2] Includes Laundry and Carwash

[3] Includes Churches, Hospitals, and Schools

[4] Includes Agriculture and Freeway landscape

[5] Includes Sewer/Septic, Public School, and Parks

SECTION 6 WATER DEMAND MANAGEMENT

6.1 INTRODUCTION

On November 12, 1996, the Garden Grove City Council elected to become Signatory to the Memorandum of Understanding (MOU) Regarding Best Management Practices (BMP) for Urban Water Conservation with the California Urban Water Conservation Council (CUWCC).

MWDOC implements many of the urban water conservation BMPs on behalf of its member agencies, including the City of Garden Grove. MWDOC's 2005 Regional UWMP should be referred to for a detailed discussion of each regional BMP program.

6.2 DETERMINATION OF DMM IMPLEMENTATION

As Signatory to the MOU, the City has committed to use good-faith efforts to implement the 14 cost-effective BMPs, also known as demand management measures (DMM). "Implementation" means achieving and maintaining the staffing, funding, and in general, the priority levels necessary to achieve the level of activity called for in each BMP's definition, and to satisfy the commitment by the signatories to use good faith efforts to optimize savings from implementing BMP's as described in the MOU.

These 14 BMPs include technologies and methodologies that have been sufficiently documented in multiple demonstration projects that result in more efficient water use and conservation. Many of the BMPs are implemented by the City in coordination with MWDOC and their regional conservation programs.

As signatory to the MOU, the City is responsible for completing and submitting BMP Activity Reports to the CUWCC every two years for each year prior. The City's BMP Activity Report is a comprehensive document that shows implementation of each BMP and provides a determination of implementation from the City's 2000 UWMP. The City has maintained complete compliance with all the BMPs to date. Appendix E includes the Activity Reports for reporting years 2003-2004, Annual Reports for 2001-2002, and the Coverage Reports. The Coverage Report indicates that the City is on track for meeting BMP coverage in its service area according to the MOU.

6.3 DEMAND MANAGEMENT MEASURES

As signatory to the MOU, the City has committed to use good-faith efforts to implement the 14 cost-effective BMPs established by the CUWCC. The 14 BMPs include:

1. Water survey programs for single-family residential and multifamily residential customers
2. Residential plumbing retrofit
3. System water audits, leak detection, and repair
4. Metering with commodity rates for all new connections and retrofit of existing connections
5. Large landscape conservation programs and incentives
6. High-efficiency washing machine rebate programs
7. Public information programs
8. School education programs
9. Conservation programs for commercial, industrial, and institutional accounts
10. Wholesale agency programs
11. Conservation pricing
12. Water conservation coordinator
13. Water waste prohibition
14. Residential ultra-low-flush toilet replacement programs

The City works cooperatively with MWDOC for technical and financial support needed to facilitate meeting the terms of the MOU. MWDOC's current Water Use Efficiency Program includes regional programs, detailed in their 2005 Regional UWMP, implemented on behalf of its member agencies following three basic goals:

1. Provide on-going water use efficiency program support for member agencies.
2. Assume the position of lead agency to implement water use efficiency programs that are more cost-effectively implemented on a regional basis rather than a local basis.
3. Secure outside funding from Metropolitan's Conservation Credits Program, USBR, and other sources.

SECTION 7 WATER SHORTAGE CONTINGENCY PLAN

7.1 INTRODUCTION

California's extensive system of water supply infrastructure, its reservoirs, groundwater basins, and inter-regional conveyance facilities, mitigates the effect of short-term dry periods. Although droughts are sometimes characterized as emergencies, they differ from typical emergency events. Droughts occur slowly, over a multiyear period. Drought impacts increase with the length of a drought, as carry-over supplies in reservoirs are depleted and water levels in groundwater basins decline.

In order to meet short-term water demand deficiencies, and short- or long-term drought requirements, Garden Grove will implement its own water shortage policy in accordance with the City's Water Conservation Program, and MWDOC and OCWD water shortage/drought activities. MWDOC's policy is based on Metropolitan's adopted WSDM Plan. The WSDM Plan is designed to guide management of regional water supplies to achieve reliability goals for Southern California.

7.2 STAGES OF ACTION

City of Garden Grove Water Shortage Response

The City of Garden Grove adopted by ordinance a four phase Water Conservation Program in 1991 and by resolution a Water Shortage Contingency Plan in 1992, based upon the need to conserve water supplies and to avoid or minimize the effects of future shortage. The City's Water Conservation Program (Ordinance No 2172, Chapter 14.40 of the Municipal Code) and Resolution No 7438-92 adopting the City's Water Shortage Contingency Plan are included as Appendix F.

In the event of a water shortage, the City Manager or a designated representative is authorized and directed by the City Council to implement the provisions of the Water Conservation Program and Water Shortage Contingency Plan. The City would also consider and incorporate the policies of MWDOC and OCWD water shortage/drought activities, including Metropolitan's WSDM Plan. Details of the WSDM Plan can be reviewed in the Metropolitan 2005 Regional Urban Water Management Plan.

A water shortage is defined based on one or more of the following conditions:

- a) A general water supply shortage due to limited supplies or increased demand.
- b) Distribution or storage facilities of the Metropolitan, MWDOC or the City of Garden Grove, or other agencies become inadequate.

- c) A major failure of the supply, storage and distribution facilities of Metropolitan, MWDOC or of the City of Garden Grove occurs.
- d) A local or regional disaster, which limits the water supply.

The City Manager, with the assistance of the Public Works Director, determines the extent of conservation or water use efficiency required through the implementation and/or termination of particular conservation stages in order for the City to prudently plan for and supply water to its customers. The City Manager recommends the appropriate stage of water conservation. A recommendation for implementation beyond Stage 1 (Voluntary compliance - Water Watch) is reported to the City Council at its next regular meeting, whereby they will ratify, rescind, or direct a different stage of the declaration.

City's Stages of Action

The City's Water Conservation Program includes the following four stages of water shortage actions, which take effect upon declaration, as shown in Table 7.1-1.

**Table 7.1-1
Stages of Water Shortage Action**

| Shortage Stage | Type of Conservation | Description |
|----------------|--|--|
| 1 | Voluntary Conservation - Water Watch | Applies during times of regional drought when the City desires to assist in overall water conservation and water use efficiency. |
| 2 | Mandatory Conservation – Water Alert | Applies during periods when the probability exists that the City will not be able to meet all of the water demands of its customers. Water conservation measures would not apply to recycled water use. |
| 3 | Mandatory Conservation – Water Warning | Applies during periods when the City will not be able to meet all of the water demands of its customers. Water conservation measures would not apply to recycled water use. |
| 4 | Mandatory Conservation – Water Emergency | Applies during periods of severe drought and/or 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, MWDOC, or City of Garden Grove facilities. Water conservation measures would not apply to recycled water use. |

Rationing Stages and Reduction Goals

In order to meet short-term water demand deficiencies, and short- or long-term drought requirements, Garden Grove will implement its own water shortage policy in accordance with the City's Water Conservation Program and the policy of MWDOC, which is anticipated to be based on Metropolitan's WSDM Plan. The WSDM Plan defines the expected sequence of resource management actions Metropolitan will take during surpluses and shortages of water to minimize the probability of severe shortages that require curtailment of full-service demands. The MWDOC 2005 Regional UWMP details each of the surplus and shortage stages, actions by stage and allocation of supply for M&I demand. Mandatory allocations are avoided to the extent practicable, however, in the event of an extreme shortage, an allocation plan will be adopted in accordance with the principles of the WSDM Plan.

Metropolitan's Water Surplus and Drought Management (WSDM) Plan

In 1999, Metropolitan in conjunction with its member agencies developed the WSDM Plan. This plan addresses both surplus and shortage contingencies.

The WSDM Plan will guide management of regional water supplies to achieve the reliability goals of Southern California's IRP. The IRP sought to meet long-term supply and reliability goals for future water supply planning. The WSDM Plan guiding principle is to minimize adverse impacts of water shortage and ensure regional reliability. From this guiding principle come the following supporting principles:

- Encourage efficient water use and economical local resource programs.
- Coordinate operations with member agencies to make as much surplus water as possible available for use in dry years.
- Pursue innovative transfers and banking programs to secure more imported water for use in dry years.
- Increase public awareness about water supply issues.

The WSDM Plan guides the operations of water resources (local resources, Colorado River, State Water Project, and regional storage) to ensure regional reliability. It identifies the expected sequence of resource management actions Metropolitan will take during surpluses and shortages of water to minimize the probability of severe shortages that require curtailment of full-service demands. Mandatory allocations are avoided to the extent practicable, however, in the event of an extreme shortage an allocation plan will be adopted in accordance with the principles of the WSDM Plan.

The WSDM Plan distinguishes between *Surpluses*, *Shortages*, *Severe Shortages*, and *Extreme Shortages*. Within the WSDM Plan, these terms have specific meaning relating to Metropolitan's capability to deliver water to the City.

Surplus: Metropolitan can meet full-service and interruptible program demands, and it can deliver water to local and regional storage.

Shortage: Metropolitan can meet full-service demands and partially meet or fully meet interruptible demands, using stored water or water transfers as necessary.

Severe Shortage: Metropolitan can meet full-service demands only by using stored water, transfers, and possibly calling for extraordinary conservation. In a Severe Shortage, Metropolitan may have to curtail Interim Agricultural Water Program (IAWP) deliveries in accordance with IAWP.

Extreme Shortage: Metropolitan must allocate available supply to full-service customers.

The WSDM Plan also defines five surplus management stages and seven shortage management stages to guide resource management activities. Each year, Metropolitan will consider the level of supplies available and the existing levels of water in storage to determine the appropriate management stage for that year. Each stage is associated with specific resource management actions designed to: 1) avoid an Extreme Shortage to the maximum extent possible; and 2) minimize adverse impacts to retail customers should an “Extreme Shortage” occur. The current sequencing outline in the WSDM Plan reflects anticipated responses based on detailed modeling of Metropolitan’s existing and expected resource mix. This sequencing may change as the resource mix evolves.

WSDM Plan Shortage Actions by Shortage Stage

When Metropolitan must make net withdrawals from storage, it is considered to be in a shortage condition. However, under most of these stages, it is still able to meet all end-use demands for water. The following summaries describe water management actions to be taken under each of the seven shortage stages.

Shortage Stage 1. Metropolitan may make withdrawals from Diamond Valley Lake.

Shortage Stage 2. Metropolitan will continue Shortage Stage 1 actions and may draw from out-of-region groundwater storage.

Shortage Stage 3. Metropolitan will continue Shortage Stage 2 actions and may curtail or temporarily suspend deliveries to Long Term Seasonal and Replenishment Programs in accordance with their discounted rates.

Shortage Stage 4. Metropolitan will continue Shortage Stage 3 actions and may draw from conjunctive use groundwater storage (such as the North Las Posas program) and the SWP terminal reservoirs.

Shortage Stage 5. Metropolitan will continue Shortage Stage 4 actions. Metropolitan’s Board of Directors may call for extraordinary conservation through a coordinated outreach effort and may curtail IAWP deliveries in accordance with their discounted rates. In the event of a call for extraordinary conservation, Metropolitan’s Drought Program Officer will coordinate public information activities with member agencies and monitor the effectiveness of ongoing conservation programs. The Drought Program Officer will implement monthly reporting on conservation program

activities and progress and will provide quarterly estimates of conservation water savings.

Shortage Stage 6. Metropolitan will continue Shortage Stage 5 actions and may exercise any and all water supply option contracts and/or buy water on the open market either for consumptive use or for delivery to regional storage facilities for use during the shortage.

Shortage Stage 7. Metropolitan will discontinue deliveries to regional storage facilities, except on a regulatory or seasonal basis, continue extraordinary conservation efforts, and develop a plan to allocate available supply fairly and efficiently to full-service customers. The allocation plan will be based on the Board-adopted principles for allocation listed previously. Metropolitan intends to enforce these allocations using rate surcharges. Under the current WSDM Plan, the surcharges will be set at a minimum of \$175 per AF for any deliveries exceeding a member agency's allotment. *Any deliveries exceeding 102% of the allotment will be assessed a surcharge equal to three times Metropolitan's full-service rate.*

The overriding goal of the WSDM Plan is to never reach Shortage Stage 7, an Extreme Shortage. Given present resources, Metropolitan fully expects to achieve this goal over the next ten years.

Reliability Modeling of the WSDM Plan

Using a technique known as “sequentially indexed Monte Carlo simulation,” Metropolitan undertook an extensive analysis of system reservoirs, forecasted demands, and probable hydrologic conditions to estimate the likelihood of reaching each Shortage Stage through 2010. The results of this analysis demonstrated the benefits of coordinated management of regional supply and storage resources. Expected occurrence of a Severe Shortage is four percent or less in most years and never exceeds six percent; equating to an expected shortage occurring once every 17 to 25 years. An Extreme Shortage was avoided in every simulation run.

Metropolitan also tested the WSDM Plan by analyzing its ability to meet forecasted demands given a repeat of the two most severe California droughts in recent history. Hydrologic conditions for the years 1923–34 and 1980–91 were used in combination with demographic projections to generate two hypothetical supply and demand forecasts for the period 1999–2010. Metropolitan then simulated operation to determine the extent of regional shortage, if any. The results again indicate 100 percent reliability for full-service demands through the forecast period.

Allocation of Supply for M&I Demands

The equitable allocation of supplies is addressed by the Implementation Goals for the WSDM Plan, with the first goal being to “avoid mandatory import water allocations to the extent practicable.” The reliability modeling for the WSDM Plan discussed above results in 100 percent reliability for full-service demands through the year 2010.

However, the second fundamental goal of the WSDM Plan is to “equitably allocate imported water on the basis of agencies’ needs.” Factors for consideration in establishing the equitable allocation include retail and economic impacts, recycled water production, conservation levels, growth, local supply production, and participation and investment in Metropolitan’s system and programs. In the event of an extreme shortage, an allocation plan will be adopted in accordance with the principles of the WSDM Plan.

In an effort to avoid allocation, import water reliability is planned through the Southern California IRP and the WSDM Plan. The IRP presents a comprehensive water resource strategy to provide the region with a reliable and affordable water supply for the next 25 years. The WSDM Plan will guide management of regional water supplies to achieve the reliability goals of the IRP.

Under a drought scenario, OCWD may have Metropolitan replenishment water temporarily unavailable to them for replenishment of the groundwater basin. OCWD would first attempt to purchase other water supplies at a similar cost to replace the Metropolitan source. If no alternative water supply sources are economically available, OCWD may temporarily mine the basin by increasing the BPP to meet local demand and refill it in the future. OCWD used this strategy during the later years of the 1986-92 drought period. If this option is not available, then OCWD may lower the current BPP to match the basin’s Dependable Yield. Under this last scenario, the City may request increased imported water along with conservation and water use efficiency measures by customers to meet demand. The OCWD 2020 Master Plan Report, Chapter 14 – Basin Management Issues, further describes OCWD activities that may affect the City during a declared drought.

Health and Safety Requirements

The primary goal of the City’s water system is to preserve the health and safety of its personnel and the public. Meeting this goal is a continuous function of the system – before, during and after a disaster or water shortage. Fire suppression capabilities will continue to be maintained during any water shortage contingency stage. Some water needs are more immediate than others. The following sample list of public health needs and the allowable time without potable water is a guideline and will depend on the magnitude of the water shortage:

- Hospitals – continuous need
- Emergency shelters – immediate need
- Kidney dialysis – 24 hours
- Drinking water – 72 hours
- Personal hygiene, waste disposal – 72 hours

Based on commonly accepted estimates of interior residential water use in the United States, Table 7.2-1 indicates per capita health and safety water requirements. During the initial stage of a shortage, customers may adjust either interior and/or outdoor water use in order to meet the voluntary water reduction goal.

**Table 7.2-1
Per Capita Health and Safety Water Quantity Calculations**

| | Non-Conserving Fixtures | | Habit Changes ^[1] | | Conserving Fixtures ^[2] | |
|-------------------------|-------------------------|------|------------------------------|------|------------------------------------|------|
| Toilet | 5 flushes x 5.5 gpf | 27.5 | 3 flushes x 5.5 gpf | 16.5 | 5 flushes x 1.6 gpf | 8.0 |
| Shower | 5 min. x 4.0 gpm | 20.0 | 4 min. x 3.0 gpm | 12.0 | 4 min. x 2.5 gpm | 10.0 |
| Washer | 12.5 gpcd | 12.5 | 11.5 gpcd | 11.5 | 11.5 gpcd | 11.5 |
| Kitchen | 4 gpcd | 4.0 | 4 gpcd | 4.0 | 4 gpcd | 4.0 |
| Other | 4 gpcd | 4.0 | 4 gpcd | 4.0 | 4 gpcd | 4.0 |
| Total | | 68.0 | | 48.0 | | 37.5 |
| CCF per capita per year | | 33.0 | | 23.0 | | 18.0 |

gpcd = gallons per capita per day

gpf = gallons per flush

gpm = gallons per minute

ccf = hundred cubic feet

^[1] Reduced shower use results from shorter and reduced flow. Reduced washer use results from fuller loads.

^[2] Fixtures include ULF 1.6 gpf toilets, 2.5 gpm showerheads, and efficient clothes washers.

Priority by Use

Conditions prevailing in the Garden Grove area require that the water resources available be put to maximum beneficial use to the extent to which they are capable. The waste or unreasonable use, or unreasonable method of use of water should be prevented, and that water conservation and water use efficiency is encouraged with a view to the maximum reasonable and beneficial use thereof in the interests of the people of the City and for the public welfare. The use of water for irrigation, sprinkling, wetting, construction or industrial purposes may be restricted if and when it is contrary to the public safety or welfare. Preservation of health and safety is a top priority for the City.

7.3 ESTIMATE OF MINIMUM SUPPLY FOR NEXT THREE YEARS

According to MWDOC, Metropolitan projects 100 percent reliability for full-service demands through the year 2025.⁵⁸ Additionally, through a variety of groundwater reliability programs conducted by OCWD and participated in by the City, local supplies are projected to be maintained at demand levels. The City anticipates the ability to meet

⁵⁸ Metropolitan Water District of Southern California. Regional UWMP. September 2005 Draft

water demand through the next three years based on the driest historic three-years as shown in Table 7.3-1.

Table 7.3-1
Three Year Estimated Minimum Water Supply
(Based on Driest 3-Year Historic Sequence)
(AF)

| Source | Normal | | | Multiple Dry Year | | |
|-----------------|---------------|---------------|---------------|-------------------|---------------|---------------|
| | 2006 | 2007 | 2008 | 2006 | 2007 | 2008 |
| Local Supplies | 18,460 | 18,530 | 18,600 | 23,270 | 23,250 | 23,220 |
| Imported Supply | 13,330 | 13,320 | 13,300 | 13,090 | 13,080 | 13,060 |
| Total | 31,790 | 31,850 | 31,900 | 36,360 | 36,330 | 36,280 |

Source: Table 4.2-6; assumes 64% BPP in 2006-2008

The City relies on groundwater wells accessing the Santa Ana River groundwater basin managed by OCWD and imported water from Metropolitan through MWDOC. Both sources of water are vitally important to the City. MWDOC and OCWD are implementing water supply alternative strategies for the region and on behalf of its member agencies to insure available water in the future and during shortages.

Supplemental water supplies are discussed in Section 4, Water Reliability Planning. Supplies discussed include regionally beneficial programs, including management of water system pressures and peak demands, water exchanges or transfers, conjunctive use programs, recycled water projects, and desalination. These options include programs for expanded local supplies. Additional actions to manage limited supplies would include both operational and demand management measures, encompassing alternative rate structures, distribution of water use efficiency devices, and enhanced school education and public information.

The MWDOC 2005 Regional UWMP further discusses programs by MWDOC, OCWD and Metropolitan for the benefit of the region and its member agencies, including the City.

7.4 CATASTROPHIC SUPPLY INTERRUPTION PLAN

Water Shortage Emergency Response

A water shortage emergency could be the result of a catastrophic event such as result of drought, failures of transmission facilities, a regional power outage, earthquake, flooding, supply contamination from chemical spills, or other adverse conditions. The City maintains and exercises a comprehensive Emergency Management Program for such emergencies including Water Shortage Emergency Response. The Water Services Division of the Public Works Department is responsible for water operations and the

maintenance of the Water & Wastewater section of the City of Garden Grove Emergency Management Plan.

The plan describes the organizational and operational policies and procedures required to meet the needs of sufficient water for firefighting operations and safe drinking water, and provides a system for organizing and prioritizing water repairs. It also cites authorities and specifies the public and private organizations responsible for providing water service.

The Water Services Division will operate under normal operating procedures until a situation is beyond its control. This includes implementation of any allocation plan passed through by MWDOC for Metropolitan and water shortage contingency plans of OCWD.

If the situation is beyond the Water Services Division's control, the Water Emergency Operations Center (WOC) may be activated to better manage the situation. If the situation warrants, the City Emergency Operations Center (EOC) may be activated, at which time a water representative will be sent to the EOC to coordinate water emergency response with all other City department's emergency response.

In the event the EOC is activated, the City Management Policy Group will set priorities. When the EOC is activated, the WOC will take its direction from the EOC. An EOC Action Plan will be developed in the EOC that will carry out the policies dictated by the Policy Group. The WOC will use the EOC Action Plan in determining its course of action. Coordination between the WOC and the EOC will be done by the Water Services Manager in the WOC and the Operations Section Chief located in the EOC.

If the situation is beyond the Water Division's and the City's control, additional assistance will be sought through coordination with the Water Emergency Response Organization of Orange County and the County Operational Area.

Water Emergency Response Organization of Orange County (WEROC)

The City of Garden Grove Water Services Division actively participates in the WEROC. WEROC performs coordination of information and mutual-aid requests among Orange County water agencies, and conducts disaster training exercises for the Orange County water community and with Metropolitan.

In 1983, the Orange County water community developed a *Water Supply Emergency Preparedness Plan* to respond effectively to disasters impacting the regional water distribution system. This plan was jointly funded by three regional water agencies: Coastal Municipal Water District, MWDOC, and OCWD, with the support and guidance from the Orange County Water Association (OCWA). The collective efforts of these agencies resulted in the formation of the countywide WEROC, which is unique in its ability to provide a single point of contact for water representation in Orange County during a disaster. The MWDOC 2005 Regional Urban Water Management Plan presents further details of WEROC.

Additional emergency services available to the City of Garden Grove in the State of California include the Master Mutual Aid Agreement, the California Water Agencies Response Network (WARN) and Plan Bulldozer. The Master Mutual Aid Agreement includes all public agencies that have signed the agreement and is planned out of the California Office of Emergency Services. WARN includes all public agencies that have signed the agreement to WARN and provides mutual aid assistance. It is managed by a State Steering Committee. Plan Bulldozer provides mutual aid for construction equipment to any public agency for the initial time of disaster when danger to life and property exists.

7.5 PROHIBITIONS, PENALTIES, AND CONSUMPTION REDUCTION METHODS

As detailed in Garden Grove's Ordinance No. 2172, to establish a water conservation program, the City of Garden Grove will follow a series of water conservation stages in the event of a severe water shortage.

Stage 2

During periods that the probability exists that the City will not be able to meet all of the water demands of its customers, the City will enter into Stage 2 of Mandatory Conservation - Water Alert. During Stage 2, water conservation measures shall be applied to the following activities on a mandatory basis, except when reclaimed or recycled water is used.

- (a) Lawn watering and landscape irrigation, including construction meter irrigation.
- (b) Agricultural users and commercial nurseries.
- (c) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment.
- (d) Filling or refilling of swimming pools, spas, ponds, and artificial lakes.
- (e) Watering of golf courses, parks, schools, grounds, and recreational fields.
- (f) The use of water from fire hydrants shall be limited to fire fighting, system testing, and related activities, for construction activities, or for other activities necessary to maintain the public health, safety, and welfare.
- (g) 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.
- (h) Restaurants shall not serve water to their customers except when specifically requested.
- (i) The operation of any ornamental fountain or similar structure is prohibited.

Stage 3

In the event that the City will not be able to meet all of the water demands of its customers, the City will enter into Stage 3 of Mandatory Conservation - Water Warning. During Stage 3, water conservation measures shall be applied to the following activities on a mandatory basis, except when reclaimed water is used.

- (a) Lawn watering and landscape irrigation, including construction meter irrigation.
- (b) Agricultural users and commercial nurseries.
- (c) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment.
- (d) The use of water by all types of commercial car washes not using reclaimed or recycled water shall be reduced in volume by twenty (20) percent.
- (e) Filling or refilling of swimming pools, spas, ponds, and artificial lakes.
- (f) The use of water softening devices is prohibited.
- (g) Watering of golf courses, parks, school grounds, and recreational fields.
- (h) The use of water from fire hydrants shall be limited to fire fighting, system testing, and related activities, for construction activities, or for other activities necessary to maintain the public health, safety, and welfare.
- (i) 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.
- (j) Restaurants shall not serve water to their customers except when specifically requested.
- (k) The operation of any ornamental fountain or similar structure is prohibited.
- (l) All water leaks shall be prepared immediately.
- (m) New construction meters or permits for unmetered services will not be issued.
- (n) The prohibited use of water as described above are not applicable to that use of water necessary for public health, safety, and welfare or for essential governmental services such as police, fire, and other similar emergency services.

Stage 4

In the event of a severe drought and/or 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, MWD, or the City of Garden Grove facilities, the City will enter into Stage 4 of Mandatory Conservation - Water Emergency. During Stage 4, water conservation measures shall be applied to the following activities on a mandatory basis, except when reclaimed or recycled water is used:

- (a) All outdoor irrigation of vegetation is prohibited.
- (b) The use of water for agricultural or commercial nursery purposes, except for livestock watering, is prohibited.

- (c) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment.
- (d) Filling or refilling of swimming pools, spas, ponds, and artificial lakes.
- (e) The use of water softening devices is prohibited.
- (f) Watering of golf courses, parks, school grounds, and recreational fields.
- (g) The use of water by all types of commercial car washes not using reclaimed or recycled water.
- (h) 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.
- (i) Restaurants shall not serve water to their customers except when specifically requested.
- (j) The operation of any ornamental fountain or similar structure is prohibited.
- (k) New construction meters or permits for unmetered services will not be issued.
- (l) The use of water for commercial, manufacturing, or processing purposes shall be reduced in volume by fifty (50) percent.
- (m) No water shall be used for air conditioning purposes.
- (n) All water leaks shall be prepared immediately.
- (o) The prohibited use of water as described above are not applicable to that use of water necessary for public health, safety, and welfare or for essential governmental services such as police, fire, and other similar emergency services.

As shown above, item (d) of Stage 3 includes consumption reduction methods to reduce demand by 20%; while item (l) of Stage 4 includes consumption reduction methods to reduce demand by 50%. Further, in a Stage 4 Water Emergency, each of the water mandatory conservation measures included in the ordinance would be strictly enforced, and it is anticipated that collectively this would generate at least a 50% overall water demand reduction. Item (a), All outdoor irrigation of vegetation is prohibited, alone is anticipated to reduce consumption by nearly 40%.⁵⁹ This is calculated based on residential consumption comprises approximately 67% of the City's water demand. A 58% reduction of this demand equals an overall reduction of 40% of total demand. All other Stage 4 actions are anticipated to reduce demand at least another 10%.

Any violation of the City's Water Conservation Program, including waste of water and excessive use, is a misdemeanor. A written notice containing the description of the violation will be given to the person who is suspected of the violation and they have 24 hours to correct the violation. The first failure to comply will result in a flow restricting device to be installed in the customers' water service line for at least 48 hours and until the customer satisfies compliance. A charge of \$50.00 is to be paid for installing and removing the flow-restricting device before the device is removed. The City may also

⁵⁹ Approximately 58% of residential water demand is used for outdoor purposes, primarily for home landscape irrigation. AWWARF Residential End Uses of Water, 1999.

discontinue water service for 24 hours and until the customers satisfies compliance. The customer is charged \$150.00 for restoration of water service.

The City will also follow the allocation plan guidelines of MWDOC as adopted by Metropolitan once an extreme shortage is declared. This allocation plan will be enforced by Metropolitan using rate surcharges. MWDOC will follow the guidelines of the allocation plan and impose the surcharge that Metropolitan applies to its member agencies that exceed their water allocation. The City would correspondingly impose surcharges or penalties in accordance with its ordinance on excessive use of water.

7.6 REVENUE AND EXPENDITURE IMPACTS OF REDUCED SALES DURING SHORTAGES AND MEASURES TO OVERCOME THOSE IMPACTS

The City receives water revenue from a commodity charge, a fixed customer minimum charge and a capital recovery charge. The rates have been designed to recover the full cost of water service in the commodity charge. Therefore, the cost of purchasing water and producing groundwater would decrease as the usage or sale of water decreases. Should an extreme shortage be declared and a large reduction in water sales occurs for an extended period of time, the Water Services Division would reexamine its water rate structure and monitor projected expenditures. In most cases, the City would first utilize water reserve funds to meet the adjusted revenues. If needed, the City would additionally increase rates to overcome revenue lost.

The City will also follow the allocation plan guidelines of MWDOC as adopted by Metropolitan once an extreme shortage is declared. This allocation plan will be enforced by Metropolitan using rate surcharges. MWDOC will follow the guidelines of the allocation plan and impose the surcharge that Metropolitan applies to its member agencies that exceed their water allocation. The City would correspondingly impose surcharges or penalties in accordance with its ordinance on excessive use of water.

In September 2003, MWDOC partnered with the Orange County Business Council and prepared a report, “*Determining the Value of Water Supply Reliability in Orange County, California.*” The study provides insights into how to value water supply reliability by providing projected estimates of the economic impacts of different water shortages that could result in Orange County. The study does not assess the likelihood of different disruptions to water supply, but instead estimates the economic impacts of the resulting water shortages if a particular supply interruption occurs. Two types of shortages are examined in the study – short-term emergency disruptions and multiple-year droughts. A range of scenarios was examined for both situations. Those scenarios were:

- Emergency Disruptions: Water supply reductions of 20%, 40%, 60% and 80% for 10, 20, 30, and 60 days.
- Drought: Water supply reductions of 5% and 20% for one, two, and three years.

The estimated economic impacts are separated into business impacts and residential impacts. Residential users are often required to reduce their water usage by more than business customers during water shortages to help preserve the economic base of the area. In addition to residential and business impacts, this report also includes an estimate of the value of landscape losses that would be expected during droughts, and a discussion of the impact of emergency outages on damages from firestorms due to a lack of water supply for firefighting.

The study has produced dollar estimates of economic impacts of given water shortages to both the business and residential sectors of three regions within Orange County. The water shortage scenarios analyzed included both short-term emergency disruptions (10 to 60 days in duration) and multiple-year drought situations (1 to 3 years). The three regions of the County analyzed were defined based on the availability of local supplies and the potential risk of supply reliability impacts.

The results revealed that business impacts are larger than residential impacts. For short-term, emergency disruptions, the difference between business impacts and residential impacts varies depending on the magnitude and length of a shortage. For an 80% water loss in South Orange County for 60 days, business impacts are approximately five times as large as residential impacts. For a 20% water loss in the Basin, business impacts are approximately ten times as large as resident impacts. At low levels of water disruption, resident impacts more closely approximate business impacts. For example, the residential impacts from a 20% water loss for 10 days in South Orange County are about 75% of the business impacts from the same disruption.

For all of Orange County during an emergency outage that causes a 20% water supply shortfall and lasts from 10 to 60 days, the economic impacts range from \$400 million to \$3 billion. Employment losses were estimated at 3,000 to 23,000 over the 10 to 60 days. For all of Orange County during a drought that results in a 5% shortage to the Basin area and 20% shortage outside the basin area for a one to three year period, the economic impacts range from \$15 to \$43 billion. Employment losses were estimated at 75,000 to 225,000 over the one to three-year period.

If shortages were to occur:

- South Orange County would experience approximately 12% of the business and employment impacts, but 25% of the residential and landscape losses. South Orange County has a higher dependence on imported water supplies and hence is more vulnerable to supply outages.
- The Orange County Basin would experience 84% of the business impacts and 71% of the residential and landscape losses, but has a significant supply of water available from the groundwater basin and hence is somewhat insulated from imported water supply emergency disruptions.
- Brea/La Habra area would experience about 3% of all impacts.

Drought scenarios generally cause a higher level of impact than do emergency outages and exceed all but the worst-case emergency disruptions. The exception is a 60-day 60% reduction in water supplies to the Basin business sector, which would exceed the impact of a yearlong 5% drought in the Basin (20% reduction in imported supply assuming a 75% BPP). In most scenarios, about half of the business losses are in the manufacturing and service sectors. Employment losses are highest in services and retail throughout the County.

This report demonstrates the extensive importance to the City's water reliability and water shortage contingency plan for planning for the future. If such impacts occur in the residential and business community, the municipal community will be impacted correspondingly. Economic impacts to the community create economic impacts to the City revenue from water sales, among other City revenue sources. The City must and will continue to be diligent in maintaining appropriate water rates and rate structure, and making reasonable adjustments as justified; maintaining sufficient water reserve funds; and managing expenses accordingly.

7.7 WATER SHORTAGE CONTINGENCY ORDINANCE

The City adopted by resolution an ordinance a four stage Water Conservation Program in 1991, based upon the need to conserve water supplies and avoid or minimize the effects of a future shortage.

In the event of a declared water shortage, the City will implement its water shortage contingency plan stages through adoption of a City resolution. A draft Water Shortage Stage Resolution implementing a stage of the water shortage contingency plan is included in Appendix G.

7.8 MECHANISM TO DETERMINE REDUCTIONS IN WATER USE

Under normal conditions, potable water production figures are recorded daily. Weekly and monthly reports are prepared and monitored. This data will be used to measure the effectiveness of any water shortage contingency stage that may be implemented.

As stages of water shortage are declared by MWDOC, the City of Garden Grove will follow implementation of those stages and continue to monitor water demand levels. It is not until Shortage Stage 5 that Metropolitan may call for extraordinary conservation. During this stage, Metropolitan's Drought Program Officer will coordinate public information activities with MWDOC and monitor the effectiveness of ongoing conservation programs. Monthly reporting on estimated conservation water savings will be provided.

The City will participate in monthly member agency manager meetings with both MWDOC and OCWD to monitor and discuss monthly water allocation charts. This will enable Garden Grove to be aware of import and groundwater use on a timely basis as a result of specific actions taken responding to the City's Water Shortage Contingency Plan.

SECTION 8 WATER RECYCLING

8.1 RECYCLED WATER IN SOUTHERN CALIFORNIA

The Southern California region, from Ventura to San Diego, discharges over 1 billion gallons of treated wastewater to the ocean each day. This is considered a reliable and drought-proof water source and could greatly reduce the region's reliance on imported water. As technological improvements continue to reduce treatment costs, and as public perception and acceptance continue to improve, numerous reuse opportunities should develop. Recycled water is a critical part of the California water picture because of the area's high likelihood of drought. As treatment technology continues to improve, demand for recycled water will also increase.

8.2 COORDINATION OF RECYCLED WATER IN SERVICE AREA

Currently, the City does not utilize or serve directly applied recycled water to any of its customers or for municipal purposes. However, the City produces a majority of its water supply from the Basin. OCWD utilizes recycled water generated from OCS D's treatment facilities to protect the Basin through seawater intrusion barriers and groundwater recharge basins. The City, therefore, indirectly benefits from this regional use of recycled water. The regional projects are discussed later in this section.

8.3 WASTEWATER COLLECTION AND TREATMENT

The Garden Grove Sanitary District (GGSD) was formed in 1924 for the purpose of providing sanitary sewer service to the unincorporated Orange County area known as Garden Grove. It provided service to most of the areas within the corporate boundaries of the City of Garden Grove, as well as to portions of the Cities of Stanton, Anaheim, Orange, Santa Ana, Garden Grove, and Westminster. In 1997, the Orange County Local Agency Formation Commission revised the boundaries of the GGSD and reorganized it as a subsidiary district of the City of Garden Grove. The service area is divided into two areas. The larger area includes the entire City of Garden Grove, and several unincorporated Orange County areas contiguous with Garden Grove boundaries. The smaller area serves a small unincorporated Orange County area and a small portion of the City of Garden Grove.

The City of Garden Grove sewer system includes 327 miles of sewer lines, 9,100 manholes and 3 lift stations. Garden Grove's wastewater flows are conveyed through OCS D trunk sewer lines directed for treatment. OCS D operates the third largest wastewater system on the west coast, consisting of nearly 600 miles of trunk sewers and 200 miles of subtrunk sewers, two regional treatment plants, and an ocean disposal system.

The OCSD sewerage system collects wastewater through an extensive system of gravity flow sewers, pump stations, and pressurized sewers (force mains). The sewer system consists of 12 trunk sewer systems ranging in size from 12 to 96 inches in diameter and collectively over 500 miles long. Additionally, there are 39 sewer interconnections and 87 diversions to maximize conveyance of flows through the system. Twenty pump stations are used to pump sewage from lower lying areas to the treatment plants. Wastewater treatment is provided by OCSD at two regional plants.

Orange County Sanitation Districts (OCSD) Treatment Plants

OCSD's Reclamation Plant No. 1 is located in the City of Fountain Valley about 4 miles northeast of the ocean and adjacent to the Santa Ana River. The plant provides advanced primary and secondary treatment and supplies secondarily treated water to OCWD which further treats and distributes the water for various uses, including irrigation, groundwater recharge, and operation of the coastal seawater barrier system.

The treatment process at Reclamation Plant No. 1 includes secondary treatment through an activated sludge system. This plant receives raw wastewater from six major sewer pipes, often called "interceptors" or "trunk lines." The secondary effluent is either blended with the advanced primary effluent and routed to the ocean disposal system, or is sent to the OCWD facilities for advanced treatment and recycling. The solid materials removed in the treatment systems are processed in large tanks to facilitate natural decomposition. Half of the material is converted to methane, which is burned as fuel in the energy recovery system, and the remaining solids are used as a soil amendment or fertilizer in Kern, Kings, Riverside, and San Diego counties.

OCSD's Treatment Plant No. 2 is located in the City of Huntington Beach adjacent to the Santa Ana River and about 1,500 feet from the ocean. This plant provides a mix of advanced primary and secondary treatment. The plant receives raw wastewater through five major sewers. The treatment process is similar to Plant No. 1. Approximately 33 percent of the influent receives secondary treatment through an activated sludge system, and all of the effluent is discharged to the ocean disposal system.

OCSD's treated wastewater is discharged through a 120-inch outfall at a depth of approximately 200 feet below sea level and nearly five miles offshore from the mouth of the Santa Ana River. Its high tide hydraulic capacity is 480 MGD. A 78-inch standby outfall stretches approximately one mile from shore that is used for emergency purposes. Table 8.3-1 projects the treated wastewater discharged to the ocean from Treatment Plant No. 1 and 2.

Table 8.3-1
Wastewater Discharged to the Ocean
(AFY)

| Year | Wastewater Discharged to the Ocean |
|------|------------------------------------|
| 2005 | 249,678 |
| 2010 | 197,055 |
| 2015 | 217,209 |
| 2020 | 200,414 |
| 2025 | 200,414 |
| 2030 | 200,414 |

Source: MWDOC 2005 Regional UWMP

Current capacity for Reclamation Plant No. 1 is 218 MGD of wastewater, with an average day flow of 120 MGD. Current capacity for Plant No. 2 is 168 MGD of wastewater, with an average flow of 144 MGD.⁶⁰ The City provides a significant amount of wastewater to OCSD's plants. The quantities of wastewater generated are generally proportional to the population and the water use in the service area. Estimates of the wastewater flows in the City are included in Table 8.3-2. The wastewater flows were calculated using the population projections included in Section 1.

Table 8.3-2
Wastewater Generated Within the City
(AFY)

| Year | Unit Flow Coefficient (gpcd) ¹ | Wastewater Generated by the City |
|------|---|----------------------------------|
| 2000 | 104 | 18,380 |
| 2005 | 106 | 20,150 |
| 2010 | 109 | 21,805 |
| 2015 | 112 | 23,010 |
| 2020 | 115 | 24,055 |
| 2025 | 115 | 24,290 |
| 2030 | 115 | 24,420 |

¹ The OCSD Interim Strategic Plan Update, September 2002. Years 2025 and 2030 were assumed to be the same as 2020. (gpcd – gallons per capita per day)

⁶⁰ MWDOC Draft 2005 Regional Urban Water Management Plan.

8.4 REGIONAL RECYCLED WATER PLANNING

Since the City depends on groundwater for at least 64 percent of its total water supply, the City supports the efforts of the regional water management agencies to utilize recycled water in Orange County. Recycled water is used to protect the Basin through recharge and prevention of saltwater intrusion. Recycled water in Orange County is also used to irrigate crops, golf courses, parks, schools, business landscapes, residential lawns, and some industrial uses thus offsetting potable water demands. In 2003/2004, over 10,000 AF of recycled water was applied by water retailers in the County.⁶¹ The regional projects planned or currently used to provide recycled water are discussed in the following sections.

Green Acres Project (GAP)

OCSD produces recycled water year round for OCWD's GAP, providing recycled water for industrial customers and landscape irrigation in the cities of Santa Ana, Fountain Valley, Costa Mesa, and Newport Beach. The GAP has the capacity to treat up to 7.5 MGD of recycled water.

Water Factory 21

Although currently offline due to the construction of the GWRS, Water Factory 21 had been used by OCWD since 1976 to produce recycled water for injection into the Basin to protect against seawater intrusion. Water Factory 21 purified approximately 4 MGD of recycled water and deep well water. This blended water supplied a hydraulic barrier system that consisted of a series of injection wells, located approximately four miles inland, to produce a fresh water mound within the groundwater aquifer to block further passage of seawater. The GWRS will replace Water Factory 21 and continue to provide recycled water for injection into the Basin.

Southern California Comprehensive Water Reclamation and Reuse Study (SCCWRRS)

In 1993, the DWR, in cooperation with the USBR and seven southern California water agencies, including Metropolitan, undertook a study to evaluate the feasibility of a regional water reclamation plan. The Southern California Comprehensive Water Reclamation and Reuse Study (SCCWRRS) is a six-year effort to identify regional reclamation systems, and promote efficient use of total water resources by increasing the use of recycled water and identifying opportunities for and constraints to maximizing water reuse in Southern California.

Based upon draft findings of the SCCWRRS, a regional water recycling system that spans the entire study area is not practical or feasible; however, subregional systems warrant further evaluation. Orange County and the Lower Santa Ana River Watershed

⁶¹ OCWD, 2003-2004 Engineer's Report, February 2005.

has been identified as one of the four geographical regions, and is being examined for a regional water recycling system for short-term (2010) and long-term (2040) applications.

OCWD/OCSD Groundwater Replenishment System (GWRS)

The most immediate potential use for recycled water in Orange County is for Basin recharge. To supplement regional water recycling projects such as the GAP, the GWRS (a groundwater recharge project) jointly sponsored by OCWD and OCSD is being implemented.

The GWRS is a water supply project designed to ultimately reuse approximately 110,000 AFY of advanced treated wastewater. The first phase is currently underway and is scheduled to go online in 2007. The first phase anticipates treating 61,000 AFY in 2007/08, 68,000 AFY in 2008/09, and eventually 72,000 AFY.⁶² Timing of future phases will be determined by projected flow requirements for anticipated water demands.

The objective of the project is to develop a new source of reliable, high quality, low salinity water that will be used to replenish the Basin and expand the existing seawater intrusion barrier. The GWRS supplements existing water supplies, and provides a new, cost-effective and reliable source of water to recharge the Basin, protect the Basin from further degradation due to seawater intrusion, and augment the supply of recycled water for irrigation and industrial use. Thus, the GWRS is comprised of three major components: (1) Advanced Water Purification Facilities and pumping stations; (2) A major pipeline connecting the treatment facilities to existing recharge basins; and (3) Expansion of an existing seawater intrusion barrier.

The GWRS will take secondary, treated municipal wastewater from the OCSD Treatment Plant No. 1 in Fountain Valley and further cleans this water to levels that exceed current drinking water standards. A portion of the treated product water would be pumped upstream via a major conveyance pipeline generally paralleling the Santa Ana River to the OCWD spreading basins where it would be allowed to percolate into the Orange County Groundwater Basin. The treated water will also be injected into the ground to create an expanded seawater intrusion barrier.

A small portion of the treated water will be made available to supplement the irrigation demands of OCWD's existing GAP. Some of the treated water may also be made available for use as industrial process water, irrigation water or for other approved uses in industrial areas, business parks, golf courses, and parks located near the Santa Ana River pipeline alignment.

⁶² Orange County Water District, Long Term Facilities Plan, Draft October 2005.

8.5 POTENTIAL USES OF RECYCLED WATER

While the City recognizes the potential uses of recycled water in its community, such as landscape irrigation, parks, industrial and other uses, the OCWD does not have the recycled water infrastructure to support the use of recycled water. The community is essentially built-out. The cost-effectiveness analyses that have been conducted throughout the years regarding recycled water infrastructure have not shown beneficial. Therefore, the City supports, encourages and contributes to the continued development of recycled water and potential uses throughout the region through the GWRs.

8.6 2000 PROJECTION COMPARED TO THE 2005 ACTUAL USE

In 2000, the City did not project any recycled water use by the year 2005, or any year thereafter. The City currently does not utilize or serve directly applied recycled water to any of its customers or for municipal uses.

8.7 ENCOURAGING RECYCLED WATER USE

Studies of water recycling opportunities within southern California provide a context for promoting the development of water recycling plans. It is recognized that broad public acceptance of recycled water requires continued education and public involvement. However, planning for most of the recycled water available is being directed toward replenishment of the Basin and improvements in groundwater quality. As a user of groundwater, the City supports the efforts of OCWD and OCSd to utilize recycled water as a primary resource for groundwater recharge in Orange County.

Public Education

The City participates in the MWDOC public education and school education programs, which include extensive sections on water recycling. MWDOC's water use efficiency public information programs are a partnership with agencies throughout the county.

Through a variety of public information programs, MWDOC assists the City in reaching the public with accurate information regarding present and future water supplies, the demands for a suitable quantity and quality of water, including recycled water, and the importance of implementing water efficient techniques and behaviors. Through MWDOC, water education programs have reached thousands of students with grade-specific programs that include information on recycled water. Between September 2004 and June 2005, school education presentations were made in nine City schools reaching over 4,220 students. Two schools are expected to participate between September 2005 and June 2006 with over 930 students in attendance.

Financial Incentives

The implementation of recycled water projects involves a substantial upfront capital investment for planning studies, EIRs, engineering design and construction before there

is any recycled water to market. For some water agencies, these capital costs exceed the short-term expense of purchasing additional imported water supplies from Metropolitan.

The establishment of new supplemental funding sources through federal, state and regional programs now provide significant financial incentives for local agencies to develop and make use of recycled water. Potential sources of funding include federal, state and local funding opportunities. These funding sources include the USBR, California Proposition 13 Water Bond, and Metropolitan LRP. These funding opportunities may be sought by the City or possibly more appropriately by regional agencies. The City will continue to support seeking funding for regional water recycling projects and programs.

8.8 OPTIMIZING RECYCLED WATER USE

In Orange County, the majority of recycled water is used for irrigating golf courses, parks, schools, business and communal landscaping. However, future recycled water use can increase by requiring dual piping in new developments, retrofitting existing landscaped areas and constructing recycled water pumping stations and transmission mains to reach areas far from the treatment plants. Gains in implementing some of these projects have been made throughout the county; however, the additional costs, large energy requirements and facilities to create such projects is very expensive to pursue.

To determine if a recycled water project is cost-effective, cost/benefit analyses must be conducted for each potential project. This brings about the discussion on technical and economic feasibility of a recycled water project requiring a relative comparison to alternative water supply options. For the City, analyses indicate that capital costs of water recycling in the City exceed the cost of purchasing additional imported water from Metropolitan through MWDOC.

The City will continue to conduct cost/benefit analyses for recycled water projects, and seek creative solutions and a balance to recycled water use, in coordination with MWDOC, OCWD, Metropolitan and other cooperative agencies. These include solutions for funding, regulatory requirements, institutional arrangements and public acceptance.

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APPENDIX A

***CALIFORNIA URBAN WATER MANAGEMENT
PLANNING ACT OF 1983 AS AMENDED TO 2005***

Established: AB 797, Klehs, 1983

Amended: AB 2661, Klehs, 1990

AB 11X, Filante, 1991

AB 1869, Speier, 1991

AB 892, Frazee, 1993

SB 1017, McCorquodale, 1994

AB 2853, Cortese, 1994

AB 1845, Cortese, 1995

SB 1011, Polanco, 1995

AB 2552, Bates, 2000

SB 553, Kelley, 2000

SB 610, Costa, 2001

AB 901, Daucher, 2001

SB 672, Machado, 2001

SB 1348, Brulte, 2002

SB 1384, Costa, 2002

SB 1518, Torlakson, 2002

AB 105, Wiggins, 2004

SB 318, Alpert, 2004

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

CHAPTER 1. GENERAL DECLARATION AND POLICY

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

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

- (1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.
- (2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.
- (3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.
- (4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.
- (5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

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

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

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

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

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

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

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

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

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

CHAPTER 2. DEFINITIONS

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

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

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

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

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

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

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

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

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

CHAPTER 3. URBAN WATER MANAGEMENT PLANS

Article 1. General Provisions

10620.

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

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

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

(d)

(1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those

plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

- (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.
- (e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.
- (f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621.

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

Article 2. Contents of Plans

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

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

- (a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.
- (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is

identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

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

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

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

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

- (1) An average water year.
- (2) A single dry water year.
- (3) Multiple dry water years.

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

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

(e)

- (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:
 - (A) Single-family residential.
 - (B) Multifamily.
 - (C) Commercial.
 - (D) Industrial.
 - (E) Institutional and governmental.
 - (F) Landscape.
 - (G) Sales to other agencies.
 - (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
 - (I) Agricultural.
- (2) The water use projections shall be in the same five-year increments described in subdivision (a).
 - (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:
 - (1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:
 - (A) Water survey programs for single-family residential and multifamily residential customers.
 - (B) Residential plumbing retrofit.
 - (C) System water audits, leak detection, and repair.
 - (D) Metering with commodity rates for all new connections and retrofit of existing connections.
 - (E) Large landscape conservation programs and incentives.
 - (F) High-efficiency washing machine rebate programs.
 - (G) Public information programs.
 - (H) School education programs.
 - (I) Conservation programs for commercial, industrial, and institutional accounts.
 - (J) Wholesale agency programs.
 - (K) Conservation pricing.
 - (L) Water conservation coordinator.
 - (M) Water waste prohibition.
 - (N) Residential ultra-low-flush toilet replacement programs.
 - (2) A schedule of implementation for all water demand management measures proposed or described in the plan.
 - (3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

- (4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.
- (g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:
 - (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.
 - (2) Include a cost-benefit analysis, identifying total benefits and total costs.
 - (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.
 - (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.
- (h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.
- (i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.
- (j) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or

scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).

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

10631.5. The department shall take into consideration whether the urban water supplier is implementing or scheduled for implementation, the water demand management activities that the urban water supplier identified in its urban water management plan, pursuant to Section 10631, in evaluating applications for grants and loans made available pursuant to Section 79163. The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities.

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

- (a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.
- (b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.
- (c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.
- (d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.
- (e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption

reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

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

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

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

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

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

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

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

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

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

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

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

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the

increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

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

Article 2.5 Water Service Reliability

10635.

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

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

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

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

Article 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.

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APPENDIX B

***2005 URBAN WATER MANAGEMENT PLAN “REVIEW
FOR COMPLETENESS” FORM***



Service Area Information

Water Code § 10631 (a)

- Include current and projected population Sec 1, p.1-5 Reference & Page Number
- Population projections were based on data from state, regional or local agency Sec 1, p.1-5 Reference & Page Number

| Table 2 | | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|-------------------|
| Population - Current and Projected | | | | | | |
| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Service Area Population | 171,042 | 178,457 | 183,249 | 186,593 | 188,446 | 189,445 |

- Describe climate characteristics that affect water management Sec 1, p.1-3 Reference & Page Number
- Describe other demographic factors affecting water management Sec 1, p.1-3 Reference & Page Number

| Table 3 | | | | | | |
|-----------------------------|----------------|-----------------|--------------|--------------|------------|-------------|
| Climate | | | | | | |
| | January | February | March | April | May | June |
| Standard Average ETo | 1.86 | 2.24 | 3.41 | 4.80 | 5.58 | 6.30 |
| Average Rainfall | 3.04 | 2.74 | 2.22 | 0.93 | 0.21 | 0.07 |
| Average Temperature | 68.1 | 69.4 | 70.2 | 72.7 | 74.5 | 77.8 |

| Table 3 (continued) | | | | | | | |
|----------------------------|-------------|---------------|------------------|----------------|-----------------|-----------------|---------------|
| Climate | | | | | | | |
| | July | August | September | October | November | December | Annual |
| Average ETo | 6.51 | 6.20 | 4.80 | 3.72 | 2.40 | 1.86 | 49.68 |
| Average Rainfall | 0.01 | 0.08 | 0.25 | 0.25 | 1.36 | 1.75 | 12.91 |
| Average Temperature | 82.7 | 84.1 | 83.6 | 79.3 | 73.7 | 68.8 | 75.41 |

Water Sources

(Water Code § 10631 (b))

- Identify existing and planned water supply sour Sec 2, p.2-1 Reference & Page Number
- Provide current water supply quantities Sec 2, p.2-3 Reference & Page Number
- Provide planned water supply quantities Sec 2, p.2-3 Reference & Page Number

| Table 4 Current and Planned Water Supplies - AFY | | | | | | |
|---|---------------|---------------|---------------|---------------|---------------|---------------|
| Water Supply Sources | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Water purchased from: | | | | | | |
| Municipal Water District of Orange County - Import | 11,168 | 11,500 | 11,360 | 12,210 | 11,710 | 11,230 |
| Orange County Wastewater District - Groundwater | 19,854 | 20,510 | 20,920 | 21,340 | 21,770 | 22,200 |
| Total | 31,022 | 32,010 | 32,280 | 33,550 | 33,480 | 33,430 |

If Groundwater identified as existing or planned source

(Water Code §10631 (b)(1-4))

| | | | |
|-------------------------------------|---|---------------------|-------------------------|
| <input type="checkbox"/> | Has management plan | _____ | Reference & Page Number |
| <input type="checkbox"/> | Attached management plan (b)(1) | _____ | Reference & Page Number |
| <input checked="" type="checkbox"/> | Description of basin(s) (b)(2) | <u>Sec 2, p.2-4</u> | Reference & Page Number |
| <input type="checkbox"/> | Basin is adjudicated | _____ | Reference & Page Number |
| <input type="checkbox"/> | If adjudicated, attached order or decree (b)(2) | _____ | Reference & Page Number |
| <input type="checkbox"/> | Quantified amount of legal pumping right (b)(2) | _____ | Reference & Page Number |

| Table 5 Groundwater Pumping Rights - AF Year | |
|---|---------------------|
| Basin Name | Pumping Right - AFY |
| Orange County Groundwater Basin | Managed Basin |
| Total | 0 |

| | | | |
|-------------------------------------|--|---------------------|-------------------------|
| <input checked="" type="checkbox"/> | DWR identified, or projected to be, in overdraft (b)(2) | <u>Sec 2, p.2-5</u> | Reference & Page Number |
| <input checked="" type="checkbox"/> | Plan to eliminate overdraft (b)(2) | <u>Sec 2, p.2-5</u> | Reference & Page Number |
| <input checked="" type="checkbox"/> | Analysis of location, amount & sufficiency, last five years (b)(3) | <u>Sec 2, p.2-9</u> | Reference & Page Number |
| <input checked="" type="checkbox"/> | Analysis of location & amount projected, 20 years (b)(4) | <u>Sec 2, p.2-9</u> | Reference & Page Number |

| Table 6 Amount of Groundwater pumped - AFY | | | | | |
|---|--------|--------|--------|--------|--------|
| Basin Name (s) | 2000 | 2001 | 2002 | 2003 | 2004 |
| Orange County Groundwater Basin | 23,438 | 21,846 | 21,019 | 17,673 | 20,554 |
| % of Total Water Supply | | | | | |

| Table 7 Amount of Groundwater projected to be pumped - AFY | | | | | | |
|---|--------|--------|--------|--------|--------|------------|
| Basin Name(s) | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Orange County Groundwater Basin | 19,549 | 20,510 | 20,920 | 21,340 | 21,770 | 22,200 |
| % of Total Water Supply | 63.0% | 64.1% | 64.8% | 63.6% | 65.0% | 66.4% |

Reliability of Supply

(Water Code §10631 (c) (1-3))

Describes the reliability of the water supply and vulnerability to seasonal or climatic shortage

Sec.4,4-1,25 Reference & Page Number

| Table 8 Supply Reliability - AF Year | | | | | |
|---|-----------------------|--------------------------|--------|--------|--------|
| Average / Normal Water Year | Single Dry Water Year | Multiple Dry Water Years | | | |
| | | Year 1 | Year 2 | Year 3 | Year 4 |
| 100.0 | 105.5 | 106.7 | 103.7 | 105.5 | |
| % of Normal | 105.5% | 106.7% | 103.7% | 105.5% | 0.0% |

Transfer or Exchange Opportunities

(Water Code §10631 (d))

- Describe short term and long term exchange or transfer opportunities
- No transfer opportunities

Sec 4, p.4-37 Reference & Page Number
Sec 4, p.4-37 Reference & Page Number

| 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
- Quantify current water use by sector
- Project future water use by sector

Sec 5, p.5-1 Reference & Page Number
Sec 5, p.5-1 Reference & Page Number
Sec 5, p.5-1 Reference & Page Number

| TABLE 12 - Past, Current and Projected Water Deliveries | | | | | | |
|---|---------------|----------------|---------------|----------------|---------------|----------------|
| Water Use Sectors | 2000 | | 2005 | | 2010 | |
| | metered | | metered | | metered | |
| | # of accounts | Deliveries AFY | # of accounts | Deliveries AFY | # of accounts | Deliveries AFY |
| Single family Residential | 28,984 | 13,717 | 29,097 | 14,217 | 29,210 | 14,199 |
| Multi-family Residential | 1,667 | 5,521 | 1,765 | 5,924 | 1,863 | 6,344 |
| Commercial, Industrial, Institutional | 2,246 | 9,317 | 2,240 | 8,590 | 2,365 | 8,761 |
| Agriculture | 0 | 0 | 0 | 0 | 0 | 0 |
| Recycled Water | 0 | 0 | 0 | 0 | 0 | 0 |
| Landscape/Recreation | 654 | 0 | 710 | 0 | 710 | 0 |
| Other | 116 | 0 | 116 | 0 | 116 | 0 |
| Total | 33,667 | 28,555 | 33,928 | 28,731 | 34,264 | 29,304 |

| TABLE12 (continued) - Past, Current and Projected Water Deliveries | | | | | | | | |
|--|---------------|----------------|---------------|----------------|---------------|----------------|---------------|----------------|
| | 2015 | | 2020 | | 2025 | | 2030 - opt | |
| | metered | | metered | | metered | | metered | |
| Water Use Sectors | # of accounts | Deliveries AFY |
| Single family Residential | 29,323 | 14,175 | 29,436 | 14,144 | 29,549 | 14,427 | 29,662 | 14,715 |
| Multi-family Residential | 1,961 | 6,779 | 2,059 | 7,229 | 2,157 | 7,374 | 2,255 | 7,521 |
| Commercial, Industrial, Institutional | 2,490 | 8,936 | 2,615 | 9,115 | 2,740 | 9,297 | 2,865 | 9,483 |
| Agriculture | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Recycled Water | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Landscape/Recreation | 710 | 0 | 710 | 0 | 710 | 0 | 710 | 0 |
| Other | 116 | 0 | 116 | 0 | 116 | 0 | 116 | 0 |
| Total | 34,600 | 29,890 | 34,936 | 30,488 | 35,272 | 31,098 | 35,608 | 31,719 |

- Identify and quantify sales to other agencies
 No sales to other agencies

Reference & Page Number
Sec 5, p.5-1 Reference & Page Number

| Table 13 Sales to Other Agencies - AF Year | | | | | | | |
|---|----------|----------|----------|----------|----------|----------|------------|
| Water Distributed | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| name of agency | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| name of agency | | | | | | | |
| name of agency | | | | | | | |
| Total | 0 |

- Identify and quantify additional water uses

Section 5,5-1 Reference & Page Number

| Table 14 Additional Water Uses and Losses - AF Year | | | | | | | |
|--|----------|----------|----------|----------|----------|----------|------------|
| Water Use | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| | | | | | | | |
| Total | 0 |

Any recycled water was included in table 12 should not be included in table 14.

| Table 15 Total Water Use - AF Year | | | | | | | |
|---------------------------------------|--------|--------|--------|--------|--------|--------|------------|
| Water Use | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Total of Tables 12, 13, 14 | 28,555 | 28,731 | 29,304 | 29,890 | 30,488 | 31,098 | 31,719 |

2005 Urban Water Management Plan "Review of DMMs for Completeness" Form (Water Code §10631 (f))

(Water Code §10631 (f) & (g), the 2005 Urban Water Management Plan "Review of DMMs for Completeness" Form is found on Sheet 2)

Planned Water Supply Projects and Programs, including non-implemented DMMs (Water Code §10631 (g))

- | | | | |
|-------------------------------------|--|-----------------------------|-------------------------|
| <input checked="" type="checkbox"/> | No non-implemented / not scheduled DMMs | <u>Sec 6, p.6-1</u> | Reference & Page Number |
| <input type="checkbox"/> | Cost-Benefit includes economic and non-economic factors (environmental, social, health, customer impact, and technological factors) | <u> </u> | Reference & Page Number |
| <input type="checkbox"/> | Cost-Benefit analysis includes total benefits and total costs | <u> </u> | Reference & Page Number |
| <input type="checkbox"/> | Identifies funding available for Projects with higher per-unit-cost than DMMs | <u> </u> | Reference & Page Number |
| <input checked="" type="checkbox"/> | Identifies Suppliers' legal authority to implement DMMs, efforts to implement the measures and efforts to identify cost share partners | <u>Sec 6, p.6-1</u> | Reference & Page Number |

| 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 Sec 4, p.4-29+ Reference & Page Number
- Timeline for each proposed project Sec 4, p.4-29+ Reference & Page Number
- Quantification of each projects normal yield (AFY) Sec 4, p.4-29+ Reference & Page Number
- Quantification of each projects single dry-year yield (AFY) _____ Reference & Page Number
- Quantification of each projects multiple dry-year yield (AFY) _____ Reference & Page Number

| 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 | Multiple-Dry-Year 3 AF |
| Well No. 16 | 2004 | 2006 | | | | | |
| Well No. 19 | 2006 | 2007 | | | | | |
| Westhave Reservoir | 2007 | 2008 | | | | | |
| Wells 24 & 25 | 2004 | 2005 | | | | | |
| Well 30 | 2006 | 2007 | | | | | |
| | | | | | | | |

Opportunities for development of desalinated water

(Water Code §10631 (i))

- Describes opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply
- No opportunities for development of desalinated water Sec 4, p.4-38 Reference & Page Number

| Table 18 Opportunities for desalinated water | |
|---|--------------|
| Sources of Water | Check if yes |
| Ocean Water (by Metropolitan) | X |
| Brackish ocean water | |
| Brackish groundwater | X |

District is a CUWCC signatory

(Water Code § 10631 (j))

Urban suppliers that are California Urban Water Conservation Council members may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g). The supplier's CUWCC Best Management Practices Report should be attached to the UWMP.

- Agency is a CUWCC member Sec 6, p.6-1 Reference & Page Number
- 2003-04 annual updates are attached to plan Sec 6, p.6-1 Reference & Page Number
- Both annual updates are considered completed by CUWCC website Sec 6, p.6-1 Reference & Page Number

If Supplier receives or projects receiving water from a wholesale supplier

(Water Code §10631 (k))

- Yes
- Agency receives, or projects receiving, wholesale water Sec 4, p.4-22 Reference & Page Number
 - Agency provided written demand projections to wholesaler, 20 years Sec 4, p.4-22 Reference & Page Number

| Table 19 Agency demand projections provided to wholesale suppliers - AFY | | | | | |
|---|-------|-------|-------|-------|------------|
| Wholesaler | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| MWDOC | 8,790 | 8,970 | 9,150 | 9,330 | 9,520 |

- Wholesaler provided written water availability projections, by source, to agency, 20 years Sec 4, p.4-22 Reference & Page Number
(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 |
| MWDOC | 11,500 | 11,360 | 12,210 | 11,710 | 11,230 |

- Reliability of wholesale supply provided in writing by wholesale agency Sec 4, p.4-22 Reference & Page Number
(if agency served by more than one wholesaler, duplicate this table and provide the source availability for each wholesaler)

| Table 21 Wholesale Supply Reliability - % of normal AFY | | | | | |
|--|--------------------------|---------------|---------------|---------------|---------------|
| Wholesaler sources | Multiple Dry Water Years | | | | |
| | Single Dry (2010) | Year 1 (2007) | Year 2 (2008) | Year 3 (2009) | Year 4 (2010) |
| MWDOC | 112.1% | 100.0% | 105.7% | 102.8% | 102.9% |

| 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))

- | | | |
|-------------------------------------|--|---|
| <input checked="" type="checkbox"/> | Provide stages of action | <u>Sec 7, p.7-1</u> Reference & Page Number |
| <input checked="" type="checkbox"/> | Provide the water supply conditions for each stage | <u>Sec 7, p.7-2</u> Reference & Page Number |
| <input checked="" type="checkbox"/> | Includes plan for 50 percent supply shortage | <u>Sec 7, p.7-2</u> Reference & Page Number |

| Table 23 Water Supply Shortage Stages and Conditions RATIONING STAGES | | |
|---|--|------------|
| Stage No. | Water Supply Conditions | % Shortage |
| Shortage Stage 1 | Regional drought | |
| Shortage Stage 2 | Probability cannot meet all water demands | |
| Shortage Stage 3 | Will not be able to meet all water demands | |
| Shortage Stage 4 | Severe drought/major failure of supply/distribution facilities | |
| | | |
| | | |

Three-Year Minimum Water Supply

(Water Code §10632 (b))

- | | | |
|-------------------------------------|---|--|
| <input checked="" type="checkbox"/> | Identifies driest 3-year period | <u>Sec 4, p.4-16</u> Reference & Page Number |
| <input checked="" type="checkbox"/> | Minimum water supply available by source for the next three years | <u>Sec 7, p.7-7</u> Reference & Page Number |

| Table 24 Three-Year Estimated Minimum Water Supply - AF Year | | | | | | |
|---|--------|--------|--------|-------------------|--------|--------|
| source** | Normal | | | Multiple Dry Year | | |
| | 2006 | 2007 | 2008 | 2006 | 2007 | 2008 |
| Local Supplies | 18,460 | 18,530 | 18,600 | 23,270 | 23,250 | 23,220 |
| Imported Supply | 13,330 | 13,320 | 13,300 | 13,090 | 13,080 | 13,060 |
| Total | 31,790 | 31,850 | 31,900 | 36,360 | 36,330 | 36,280 |

Preparation for catastrophic water supply interruption

(Water Code §10632 (c))

- | | | |
|-------------------------------------|--|---|
| <input checked="" type="checkbox"/> | Provided catastrophic supply interruption plan | <u>Sec 7, p.7-8</u> Reference & Page Number |
|-------------------------------------|--|---|

| Table 25 Preparation Actions for a Catastrophe | |
|---|---------------------------|
| Possible Catastrophe | Check if Discussed |
| Regional power outage | X |
| Earthquake | X |

Prohibitions

(Water Code § 10632 (d))

List the mandatory prohibitions against specific water use practices during water shortages

Sec 7, p.7-10 Reference & Page Number

| Table 26 Mandatory Prohibitions | |
|--|---|
| Examples of Prohibitions | Stage When Prohibition Becomes Mandatory |
| Lawn watering & landscape irrigation | Stage 2,3 |
| Agricultural users and commercial nurseries | Stage 2,3,4 |
| Washing of autos, trucks, trailers, boats, airplanes | Stage 2,3,4 |
| Refilling swimming pools, ponds, spa, fountains | Stage 2,3,4 |
| Watering of golf course, park, school grnds, recreational fields | Stage 2,3,4 |
| Use of water from fire hydrants | Stage 2,3 |
| Using potable water for streets, driveway, patio washing | Stage 2,3,4 |
| Restaurant water service unless requested | Stage 2,3,4 |
| Commercial washing of vehicles on commercial car was premises | Stage 3,4 |
| Use of water softening devices | Stage 3,4 |
| All water leaks must repaired immediately | Stage 3,4 |
| New construction meters and permits for unmetered services | Stage 3,4 |
| Water used for public health, safety, governmental services | Stage 3,4 |
| All outdoor irrigation of vegetation | Stage 4 |
| Commercial, manufacturing, processing purposes reduced vol. 50% | Stage 4 |
| Air conditioning purposes | Stage 4 |

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.

Sec. 7, p.7-2 Reference & Page Number

| Table 27 Consumption Reduction Methods | | |
|---|---------------------------------------|--------------------------------|
| Consumption Reduction Methods | Stage When Method Takes Effect | Projected Reduction (%) |
| WATER WATCH- Voluntary Conservation | 1 | |
| WATER ALERT- Mandatory Conservation | 2 | |
| WATER WARNING- Mandatory Conservation | 3 | 20 |
| WATER EMERGENCY- Mandatory Conservation | 4 | 50 |

Penalties**(Water Code § 10632 (f))**

List excessive use penalties or charges for excessive use

Sec 7, p.7-12 Reference & Page Number

| Table 28 Penalties and Charges | |
|---|--|
| Penalties or Charges | Stage When Penalty Takes Effect |
| Penalty for excess use- Misdemeanor | Violation of City's WCP |
| Written violation and 24 hours to correct violation | First Violation |
| Installation of flow restricting device (\$50-150) and discontinue water for 24 hrs. | Second Violation |
| MWDOC Allocation Plan Guidelines- Surcharges | Extreme shortage declared |

Revenue and Expenditure Impacts

(Water Code § 10632 (g))

- Describe how actions and conditions impact revenues
- Describe how actions and conditions impact expenditures
- Describe measures to overcome the revenue and expenditure impacts

Sec 7, p.7-13 Reference & Page Number
Sec 7, p.7-13 Reference & Page Number
Sec 7, p.7-13 Reference & Page Number

| Table 29 Proposed measures to overcome revenue impacts | |
|---|--------------------|
| Names of measures | Check if Discussed |
| Rate adjustment | X |
| Development of reserves | X |

| Table 30 Proposed measures to overcome expenditure impacts | |
|---|--------------------|
| Names of measures | Check if Discussed |
| Rate surcharge | X |

Water Shortage Contingency Ordinance/Resolution

(Water Code § 10632 (h))

- Attach a copy of the draft water shortage contingency resolution or ordinance.

Sec 7, p.7-15 Reference & Page Number

Reduction Measuring Mechanism

(Water Code § 10632 (i))

- Provided mechanisms for determining actual reductions

Sec 7, p.7-15 Reference & Page Number

| Table 31 Water Use Monitoring Mechanisms | |
|--|------------------------------|
| Mechanisms for determining actual reductions | Type data expected (pop-up?) |
| Daily/Weekly/Monthly Reports | Estimated water savings |
| Drought Program Officer activities | Monitored effectiveness |

Recycling Plan Agency Coordination

Water Code § 10633

- Describe the coordination of the recycling plan preparation information to the extent available.

Sec 8, p.8-1 Reference & Page Number

| Table 32 Participating agencies | |
|------------------------------------|--------------|
| | participated |
| Water agencies | |
| Wastewater agencies | OCSD |
| Groundwater agencies | OCWD |
| Planning Agencies | |

Wastewater System Description

(Water Code § 10633 (a))

- Describe the wastewater collection and treatment systems in the supplier's service area
- Quantify the volume of wastewater collected and treated

Sec 8, p.8-1 Reference & Page Number

Sec 8,p.8-3 Reference & Page Number

| Table 33 Wastewater Collection and Treatment - AF Year | | | | | | | |
|---|--------|---------|---------|---------|---------|---------|------------|
| Type of Wastewater | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Wastewater collected & treated in the City | 18,380 | 20,150 | 21,805 | 23,101 | 24,055 | 24,290 | 24,420 |
| Wastewater Discharged to the Ocean | N/A | 249,678 | 197,055 | 217,209 | 200,414 | 200,414 | 200,414 |

Wastewater Disposal and Recycled Water Uses

(Water Code § 10633 (a - d))

- Describes methods of wastewater disposal
- Describe the current type, place and use of recycled water
- None
- Describe and quantify potential uses of recycled water

Sec 8, p.8-1 Reference & Page Number

Sec 8, p.8-4 Reference & Page Number

Reference & Page Number

Sec 8, p.8-6 Reference & Page Number

| Table 34 Disposal of wastewater (non-recycled) AF Year (OC Region) | | | | | | | |
|---|-----------------|---------|---------|---------|---------|---------|------------|
| Method of disposal | Treatment Level | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Ocean Outfall | Secondary | 249,678 | 197,055 | 217,209 | 200,414 | 200,414 | 200,414 |
| | | | | | | | |
| | | 249,678 | 197,055 | 217,209 | 200,414 | 200,414 | 200,414 |

| Table 35 Recycled Water Uses - Actual and Potential (AFY) | | | | | | | |
|--|-----------------|------|------|------|------|------|------------|
| User type | Treatment Level | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Agriculture | | | | | | | |
| Landscape | | | | | | | |
| Wildlife Habitat | | | | | | | |
| Wetlands | | | | | | | |
| Industrial | | | | | | | |
| Groundwater Recharge | | | | | | | |
| Other (user type) | | | | | | | |
| Other (user type) | | | | | | | |
| | Total | 0 | 0 | 0 | 0 | 0 | 0 |

Determination of technical and economic feasibility of serving the potential uses

Sec 8, p.8-6 Reference & Page Number

Projected Uses of Recycled Water

(Water Code § 10633 (e))

Projected use of recycled water, 20 years

Sec 8, p.8-6 Reference & Page Number

| 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))

Sec 8, p.8-6 Reference & Page Number

None

Sec 8, p.8-6 Reference & Page Number

| 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

Sec 8, p.8-6 Reference & Page Number

Describe projected results of these actions in terms of acre-feet of recycled water used per year

Sec 8, p.8-6 Reference & Page Number

| Table 38 Methods to Encourage Recycled Water Use | | | | | |
|---|--|------|------|------|------------|
| Actions | AF of use projected to result from this action | | | | |
| | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Financial incentives | | | | | |
| Total | 0 | 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) Sec 8, p.8-7 Reference & Page Number

Water quality impacts on availability of supply

(Water Code §10634)

Discusses water quality impacts (by source) upon water management strategies and supply reliability

Sec 3, p.3-10 Reference & Page Number

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.

Sec 4, p.4-22 Reference & Page Number

| Table 40 Projected Normal Water Supply - AF Year | | | | | |
|---|--------|--------|--------|--------|------------|
| (from table 4) | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Supply | 32,010 | 32,280 | 33,550 | 33,480 | 33,430 |
| % of year 2005 | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

| Table 41 Projected Normal Water Demand - AF Year | | | | | |
|---|--------|--------|--------|--------|------------|
| (from table 15) | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Demand | 29,300 | 29,890 | 30,490 | 31,100 | 31,720 |
| % of year 2005 | 102.5% | 104.0% | 106.1% | 108.2% | 110.4% |

| Table 42 Projected Supply and Demand Comparison - AF Year | | | | | |
|--|--------|--------|--------|--------|------------|
| | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Supply totals | 32,010 | 32,280 | 33,550 | 33,480 | 33,430 |
| Demand totals | 29,300 | 29,890 | 30,490 | 31,100 | 31,720 |
| Difference | 2,710 | 2,390 | 3,060 | 2,380 | 1,710 |
| Difference as % of Supply | 8.5% | 7.4% | 9.1% | 7.1% | 5.1% |
| Difference as % of Demand | 9.2% | 8.0% | 10.0% | 7.7% | 5.4% |

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.

Sec 4, p.4-23

Reference & Page Number

| Table 43 Projected single dry year Water Supply - AF Year | | | | | |
|--|--------|--------|--------|--------|------------|
| | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Supply | 35,890 | 37,040 | 38,920 | 37,680 | 36,820 |
| % of projected normal | 112.1% | 114.7% | 116.0% | 112.5% | 110.1% |

| Table 44 Projected single dry year Water Demand - AF Year | | | | | |
|--|--------|--------|--------|--------|------------|
| | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Demand | 30,910 | 31,530 | 32,170 | 32,810 | 33,460 |
| % of projected normal | 107.6% | 109.7% | 112.0% | 114.2% | 116.5% |

| Table 45 Projected single dry year Supply and Demand Comparison - AF Year | | | | | |
|--|--------|--------|--------|--------|------------|
| | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Supply totals | 35,890 | 37,040 | 38,920 | 37,680 | 36,820 |
| Demand totals | 30,910 | 31,530 | 32,170 | 32,810 | 33,460 |
| Difference | 4,980 | 5,510 | 6,750 | 4,870 | 3,360 |
| Difference as % of Supply | 13.9% | 14.9% | 17.3% | 12.9% | 9.1% |
| Difference as % of Demand | 16.1% | 17.5% | 21.0% | 14.8% | 10.0% |

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

Sec 4, p.4-24 Reference & Page Number

| Table 46 | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|
| Projected supply during multiple dry year period ending in 2010 - AF Year | | | | | |
| | 2006 | 2007 | 2008 | 2009 | 2010 |
| Supply | 31,790 | 31,850 | 33,730 | 32,840 | 32,930 |
| % of projected normal | 100.0% | 100.0% | 105.7% | 102.8% | 102.9% |

| Table 47 | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|
| Projected demand multiple dry year period ending in 2010 - AFY | | | | | |
| | 2006 | 2007 | 2008 | 2009 | 2010 |
| Demand | 22,850 | 28,960 | 31,020 | 30,270 | 30,910 |
| % of projected normal | 100.4% | 100.8% | 108.0% | 105.4% | 107.6% |

| Table 48 | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|
| Projected Supply and Demand Comparison during multiple dry year period ending in 2010- AF Year | | | | | |
| | 2006 | 2007 | 2008 | 2009 | 2010 |
| Supply totals | 31,790 | 31,850 | 33,730 | 32,840 | 32,930 |
| Demand totals | 22,850 | 28,960 | 31,020 | 30,270 | 30,910 |
| Difference | 8,940 | 2,890 | 2,710 | 2,570 | 2,020 |
| Difference as % of Supply | 28.1% | 9.1% | 8.0% | 7.8% | 6.1% |
| Difference as % of Demand | 39.1% | 10.0% | 8.7% | 8.5% | 6.5% |

Project a multiple-dry year period (as identified in Table 9) occurring between 2011-2015 and compare projected supply and demand during those years

Sec 4, p.4-25 Reference & Page Number

| Table 49 | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|
| Projected supply during multiple dry year period ending in 2015 - AF Year | | | | | |
| | 2011 | 2012 | 2013 | 2014 | 2015 |
| Supply | 32,060 | 32,120 | 34,340 | 33,770 | 34,200 |
| % of projected normal | 100.0% | 100.0% | 106.7% | 104.8% | 105.9% |

| Table 50 | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|
| Projected demand multiple dry year period ending in 2015 - AFY | | | | | |
| | 2011 | 2012 | 2013 | 2014 | 2015 |
| Demand | 29,420 | 29,540 | 31,640 | 30,870 | 31,530 |
| % of projected normal | 102.4% | 102.8% | 110.1% | 107.4% | 109.7% |

| Table 51 | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|
| Projected Supply and Demand Comparison during multiple dry year period ending in 2015- AF Year | | | | | |
| | 2011 | 2012 | 2013 | 2014 | 2015 |
| Supply totals | 32,060 | 32,120 | 34,340 | 33,770 | 34,200 |
| Demand totals | 29,420 | 29,540 | 31,640 | 30,870 | 31,530 |
| Difference | 2,640 | 2,580 | 2,700 | 2,900 | 2,670 |
| Difference as % of Supply | 8.2% | 8.0% | 7.9% | 8.6% | 7.8% |
| Difference as % of Demand | 9.0% | 8.7% | 8.5% | 9.4% | 8.5% |

- Project a multiple-dry year period (as identified in Table 9) occurring between 2016-2020 Sec 4, p.4-26 Reference & Page Number and compare projected supply and demand during those years

| Table 52 | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|
| Projected supply during multiple dry year period ending in 2020 - AF Year | | | | | |
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| Supply | 32,540 | 32,790 | 34,860 | 34,480 | 35,130 |
| % of projected normal | 100.0% | 100.0% | 105.5% | 103.5% | 104.7% |

| Table 53 | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|
| Projected demand multiple dry year period ending in 2020 - AFY | | | | | |
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| Demand | 30,010 | 30,130 | 32,280 | 31,490 | 32,170 |
| % of projected normal | 104.5% | 104.9% | 112.4% | 109.6% | 112.0% |

| Table 54 | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|
| Projected Supply and Demand Comparison during multiple dry year period ending in 2020- AF Year | | | | | |
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| Supply totals | 32,540 | 32,790 | 34,860 | 34,480 | 35,130 |
| Demand totals | 30,010 | 30,130 | 32,280 | 31,490 | 32,170 |
| Difference | 2,530 | 2,660 | 2,580 | 2,990 | 2,960 |
| Difference as % of Supply | 7.8% | 8.1% | 7.4% | 8.7% | 8.4% |
| Difference as % of Demand | 8.4% | 8.8% | 8.0% | 9.5% | 9.2% |

- Project a multiple-dry year period (as identified in Table 9) occurring between 2021-2025 Sec 4, p.4-27 Reference & Page Number and compare projected supply and demand during those years

| Table 55 | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|
| Projected supply during multiple dry year period ending in 2025 - AF Year | | | | | |
| | 2021 | 2022 | 2023 | 2024 | 2025 |
| Supply | 33,540 | 33,520 | 35,250 | 34,580 | 34,960 |
| % of projected normal | 100.0% | 100.0% | 105.2% | 103.3% | 104.4% |

| Table 56 | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|
| Projected demand multiple dry year period ending in 2025 - AFY | | | | | |
| | 2021 | 2022 | 2023 | 2024 | 2025 |
| Demand | 30,610 | 30,730 | 32,930 | 32,130 | 32,810 |
| % of projected normal | 106.5% | 107.0% | 114.6% | 111.8% | 114.2% |

| Table 57 | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|
| Projected Supply and Demand Comparison during multiple dry year period ending in 2025- AF Year | | | | | |
| | 2021 | 2022 | 2023 | 2024 | 2025 |
| Supply totals | 33,540 | 33,520 | 35,250 | 34,580 | 34,960 |
| Demand totals | 30,610 | 30,730 | 32,930 | 32,130 | 32,810 |
| Difference | 2,930 | 2,790 | 2,320 | 2,450 | 2,150 |
| Difference as % of Supply | 8.7% | 8.3% | 6.6% | 7.1% | 6.1% |
| Difference as % of Demand | 9.6% | 9.1% | 7.0% | 7.6% | 6.6% |

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 Sec 1, p.1-2 Reference & Page Number

Does the Plan Include Public Participation and Plan Adoption (Water Code § 10642)

| | | | | |
|-------------------------------------|---|---------------------|---------------------|-------------------------|
| <input checked="" type="checkbox"/> | Attach a copy of adoption resolution | <u>Sec 1, p.1-2</u> | <u>Appendix C</u> | Reference & Page Number |
| <input checked="" type="checkbox"/> | Encourage involvement of social, cultural & economic community groups | | <u>Sec 1, p.1-2</u> | Reference & Page Number |
| <input checked="" type="checkbox"/> | Plan available for public inspection | | <u>Sec 1, p.1-2</u> | Reference & Page Number |
| <input checked="" type="checkbox"/> | Provide proof of public hearing | <u>Sec 1, p.1-2</u> | <u>Appendix C</u> | Reference & Page Number |
| <input checked="" type="checkbox"/> | Provided meeting notice to local governments | | <u>Sec 1, p.1-2</u> | Reference & Page Number |

Review of implementation of 2000 UWMP (Water Code § 10643)

| | | | | |
|-------------------------------------|---|---------------------|--|-------------------------|
| <input checked="" type="checkbox"/> | Reviewed implementation plan and schedule of 2000 UWMP | <u>Secs 4,6,7,8</u> | | Reference & Page Number |
| <input checked="" type="checkbox"/> | Implemented in accordance with the schedule set forth in plan | <u>Secs 4,6,7,8</u> | | Reference & Page Number |
| <input type="checkbox"/> | 2000 UWMP not required | | | Reference & Page Number |

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 Sec 1, p.1-2 Reference & Page Number

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 Back Cover Reference & Page Number

APPENDIX C

***NOTICE OF PUBLIC HEARING AND
RESOLUTION FOR PLAN ADOPTION***



GARDEN GROVE JOURNAL

PROOF OF PUBLICATION (2015.5 C.C.P.)

I am a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years, and not a part or interested in the above title matter. I am the principle clerk of The Garden Grove Journal, a newspaper of general circulation, published in the City of Garden Grove, County of Orange, and which a newspaper has been adjudicated a newspaper of general circulation by the Superior Court of the County of Orange, State of California on November 26, 1984, case number A 124641; that the notice, of which the annexed is a printed copy, has been published in regular and entire issue of said newspaper and not run in supplement there of on the following date, to wit:

Nov 24, Dec 1, 2005

I certify (or declare) under penalty of perjury that the foregoing is true and correct. Executed Garden Grove, California.

Date Dec 1, 2005

Mary Smith
Signature

This space is for the County Clerk's Filing Stamp

LEGAL NOTICE NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN THAT THE CITY COUNCIL OF THE CITY OF GARDEN GROVE WILL HOLD A PUBLIC HEARING IN THE COUNCIL CHAMBER OF THE COMMUNITY MEETING CENTER, 11301 STANFORD AVENUE, GARDEN GROVE, CALIFORNIA, ON TUESDAY, DECEMBER 13, 2005, 7:00 P.M. TO RECEIVE AND CONSIDER ALL EVIDENCE AND REPORTS RELATIVE TO THE APPLICATION(S) DESCRIBED BELOW:

The Garden Grove City Council will receive public comment on the City of Garden Grove's Urban Water Management Plan Update.

Copies of the Urban Water Management Plan are available for review in City Hall at the City Clerk's Office, 11222 Acacia Parkway.

For further information, please call Konya Vivanti at (714) 741-5398.

ALL INTERESTED PARTIES are invited to comment at the City Council public hearing, or by writing a letter, and express opinions or submit evidence for or against the proposal as outlined above. If you challenge the application in Court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the City Council at, or prior to, the public hearing. Written correspondence received before 3:00 p.m. on the Wednesday before the hearing will be given to the City Council in their packet. Information received after that time will be given to the City Council prior to the meeting.

/s/ RUTH E. SMITH
CITY CLERK

DATE: November 15, 2005
PUBLISH: November 24 and December 1, 2005

Publish Nov. 24, Dec. 1, 2005
Garden Grove Journal (GG 05-47-1)

GARDEN GROVE JOURNAL

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GARDEN GROVE JOURNAL

PROOF OF PUBLICATION (2015.S. C.C.P.)

I am a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years, and not a part or interested in the above title matter. I am the principle clerk of The Garden Grove Journal, a newspaper of general circulation, published in the City of Garden Grove, County of Orange, and which a newspaper has been adjudicated a newspaper of general circulation by the Superior Court of the County of Orange, State of California on November 26, 1984, case number A 124641; that the notice, of which the annexed is a printed copy, has been published in regular and entire issue of said newspaper and not run in supplement there of on the following date, to wit:

Nov 29 Dec 1, 2005

I certify (or declare) under penalty of perjury that the foregoing is true and correct. Executed Garden Grove, California.

Date Dec 1, 2005

Mary Smith
Signature

This space is for the County Clerk's Filing Stamp

LEGAL NOTICE NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN THAT THE CITY COUNCIL OF THE CITY OF GARDEN GROVE WILL HOLD PUBLIC HEARING IN THE COUNCIL CHAMBER OF THE COMMUNITY MEETING CENTER, 11 STANFORD AVENUE, GARDEN GROVE, CALIFORNIA, ON TUESDAY, DECEMBER 13, 2005, 7:00 TO RECEIVE AND CONSIDER ALL EVIDENCE AND REPORTS RELATIVE TO THE APPLICATION DESCRIBED BELOW:

The Garden Grove City Council will receive public comment on the City of Garden Grove's Urban Water Management Plan Update.

Copies of the Urban Water Management Plan are available for review in City Hall at the City Office, 11222 Acacia Parkway.

For further information, please call Konya Vivanti at (714) 741-5398.

ALL INTERESTED PARTIES are invited to comment at the City Council public hearing, or by written letter, and express opinions or submit evidence for or against the proposal as outlined above. challenge the application in Court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the City Council at, or prior to, the public hearing. Written correspondence received before 3:00 on the Wednesday before the hearing will be given to the City Council in their packet. Information received after that time will be given to the City Council prior to the meeting.

/s/ RUTH E. SMITH
CITY CLERK

DATE: November 15, 2005
PUBLISH: November 24 and December 1, 2005

Publish Nov. 24, Dec. 1, 2005
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CUSTOMER
City of Garden Grove

published 11/24, 12/1/05

GARDEN GROVE JOURNAL

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INVOICE

| CONTROL # | YOUR ID# | CASE NAME | DATE |
|---|-------------------------------------|------------|-----------------------------|
| 56-25-47A- | | | 12-1-05 11/24 |
| QTY. | DESCRIPTION | UNIT PRICE | AMOUNT |
| | <i>Notice of Public Hearing</i> | | |
| | <i>Urban Water mgmt</i> | | |
| | <i>2 cal x 3 1/2" x 4 x 2 weeks</i> | | <i>56</i> |
| PLEASE PAY BY THIS INVOICE. NO STATEMENT WILL BE SENT. PAYMENT MUST BE MADE WITHIN 10 DAYS OF THIS INVOICE. | | SUB TOTAL | |
| | | TOTAL | <i>56</i> |

RESOLUTION NO. 8681-05

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF GARDEN GROVE
ADOPTING THE URBAN WATER MANAGEMENT PLAN PURSUANT TO
CALIFORNIA WATER CODE 10610 TO 10657

WHEREAS, the waters of the state are a limited and renewable resource subject to ever-increasing demands, and

WHEREAS, 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; and

WHEREAS, a long-term, reliable supply of water is essential and urban water management plans are required to actively pursue the efficient use of available supplies; and

WHEREAS, the City of Garden Grove has completed an update to its 2000 Urban Water Management Plan (2005 Plan) pursuant to the requirements of the Urban Water Management Planning Act of 1983; and

WHEREAS, the 2005 Plan is a general information document and complements other regional water planning documents, including the Municipal Water District of Orange County 2005 Regional Urban Water Management Plan; and

WHEREAS, the purpose of the 2005 Plan is to provide a local perspective and analysis of the current and alternative water demand, supplies and conservation activities of the City; and

WHEREAS, the 2005 Plan also addressed the effects and measures of coping with short-term and chronic water shortages within the City boundaries; and

WHEREAS, the 2005 Plan will be periodically updated, no less than every five years in the years ending in zero and five, to reflect changes in water supply trends and conservation policies within the boundaries of the City.

NOW THEREFORE, BE IT HEREBY RESOLVED that the City Council of the City of Garden Grove acknowledges the essential nature of a long-term, reliable water supply within its boundaries as described herein, and adopts the 2005 Urban Water Management Plan.

Adopted this 13th day of December 2005.

/s/ WILLIAM J. DALTON
MAYOR

ATTEST:

/s/ RUTH E. SMITH
CITY CLERK

STATE OF CALIFORNIA)
COUNTY OF ORANGE) SS:
CITY OF GARDEN GROVE)

I, RUTH E. SMITH, City Clerk of the City of Garden Grove, do hereby certify that the foregoing Resolution was duly adopted by the City Council of the City of Garden Grove, California, at a meeting held on the 13th day of December 2005, by the following vote:

AYES: COUNCIL MEMBERS: (5) KREBS, LEYES, NGUYEN, ROSEN, DALTON
NOES: COUNCIL MEMBERS: (0) NONE
ABSENT: COUNCIL MEMBERS: (0) NONE

/s/ RUTH E. SMITH
CITY CLERK

I declare under penalty of perjury that the foregoing instrument is a full, true and correct copy of the original on file (in this office).

ATTEST: 
PRISCILLA STIERSTORFER, Deputy City Clerk
of the City of Garden Grove

Date: December 19, 2005

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APPENDIX D

REFERENCES



City of Garden Grove
2005 Urban Water Management Plan

REFERENCES

-
- AKM Consulting Engineers, *Garden Grove Sanitary District Sewer Master Plan Phase II*, August 2001
- American Water Works Association Research Foundation, *Residential End Uses of Water*, 1999
- Arizona Department of Public Health Services, *Topock Groundwater Study Evaluation of Chromium in Groundwater Wells*, September 7, 2005
- Assembly Bill 797, *California Water Code Division 6 Part 2.6 Urban Water Management Planning*, 1983, as amended to 2005
- California Urban Water Conservation Council, *Memorandum of Understanding Regarding Urban Water Conservation in California (MOU)*, September 1991
- City of Garden Grove, *2004 Water Quality Report*, 2005
- Department of Water Resources, *State Water Project Delivery Reliability Report*, 2002
- Department of Water Resources, *Public Review Draft California Water Plan Update 2005, Volume 2 – Resource Management Strategies*, 2005
- Metropolitan Water District of Southern California, *Annual Water Quality Report for 2005*, [On-line]
www.mwdh2o.com/mwdh2o/pages/yourwater/2005_report/protect_02.html, 2005
- Metropolitan Water District of Southern California, *Integrated Water Resources Plan 2003 Update*, May 2004
- Metropolitan Water District of Southern California, *2005 Regional Urban Water Management Plan*, 2005
- Metropolitan Water District of Southern California, *Report on Metropolitan Water Supplies, A Blueprint for Water Reliability*, p.9, 24-35, March 25, 2003
- Municipal Water District of Orange County, [On-line] <http://www.mwdoc.com>, 2002
- Municipal Water District of Orange County, *Orange County Water Agencies Water Rates Water System Operations and Financial Information 2004*, 2004
- Municipal Water District of Orange County, *Municipal Water District of Orange County 2000 Regional Urban Water Management Plan*, 2000

- Municipal Water District of Orange County, *Municipal Water District of Orange County 2005 Regional Urban Water Management Plan*, 2005
- Municipal Water District of Orange County, *South Orange County Water Reliability Study: Phase 2 System Reliability Plan*, June 2004
- Orange County Water District, *Draft 2003-2004 Engineer's Report on Groundwater Conditions, Water Supply Basin Utilization in the Orange County Water District*, February 2005
- Orange County Water District, *Groundwater Management Plan*, March 2004
- Orange County Water District, *Orange County Water District Act, Section 23, 31.5, 77, 1933*
- Orange County Water District, *Orange County Facts and Figures*, [On-line] <http://www.fullerton.edu/cdr/countyfacts.pdf>, 2005
- Orange County Water District, *Orange County Water District Facts and Key Statistics*, www.ocsd.com, January 2005
- Orange County Water District, *2001-2002 Annual Report*, 2001-2002
- Orange County Water District, *2020 Water Master Plan*, April 1999
- Orange County Water District, *Draft Long-Term Facilities Plan Review Draft*, August 2005
- Santa Ana Regional Water Quality Control Board, *Region 8 Water Quality Control Plan (Santa Ana River Basin)*, January 1995
- Santa Ana Regional Water Quality Control Board, *Watershed Management Initiative*, May 2004

APPENDIX E

***CUWCC BEST MANAGEMENT PRACTICES ANNUAL
REPORTS 2001-2002, ACTIVITIY REPORTS 2003-2004,
AND COVERAGE REPORTS***

Water Supply & Reuse

Reporting Unit:
City of Garden Grove

Year:
2004

Report Not Filed

Accounts & Water Use

Reporting Unit Name:
City of Garden Grove

Submitted to CUWCC
11/29/2004

Year:
2004

A. Service Area Population Information:

1. Total service area population 168000

B. Number of Accounts and Water Deliveries (AF)

| Type | Metered | | Unmetered | |
|-------------------------|-----------------|-----------------------|-----------------|-----------------------|
| | No. of Accounts | Water Deliveries (AF) | No. of Accounts | Water Deliveries (AF) |
| 1. Single-Family | 29036 | 25050.5 | 0 | 0 |
| 2. Multi-Family | 1767 | 1524.3 | 0 | 0 |
| 3. Commercial | 1674 | 1547.8 | 0 | 0 |
| 4. Industrial | 416 | 358.9 | 0 | 0 |
| 5. Institutional | 120 | 0 | 0 | 0 |
| 6. Dedicated Irrigation | 246 | 212.4 | 0 | 0 |
| 7. Recycled Water | 0 | 0 | 0 | 0 |
| 8. Other | 507 | 437.4 | 0 | 0 |
| 9. Unaccounted | NA | 0 | NA | 0 |
| Total | 33766 | 29131.3 | 0 | 0 |

Metered

Unmetered

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2004

A. Implementation

- | | |
|---|------------|
| 1. Based on your signed MOU date, 11/12/1996, your Agency STRATEGY DUE DATE is: | 11/12/1998 |
| 2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys? | no |
| a. If YES, when was it implemented? | |
| 3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys? | no |
| a. If YES, when was it implemented? | |

B. Water Survey Data

| Survey Counts: | Single Family Accounts | Multi-Family Units |
|---|------------------------------|-----------------------|
| 1. Number of surveys offered: | 0 | 0 |
| 2. Number of surveys completed: | 0 | 0 |
| Indoor Survey: | | |
| 3. Check for leaks, including toilets, faucets and meter checks | no | no |
| 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary | no | no |
| 5. 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 | no | no |
| Outdoor Survey: | | |
| 6. Check irrigation system and timers | no | no |
| 7. Review or develop customer irrigation schedule | no | no |
| 8. Measure landscaped area (Recommended but not required for surveys) | no | no |
| 9. Measure total irrigable area (Recommended but not required for surveys) | no | no |
| 10. Which measurement method is typically used (Recommended but not required for surveys) | | None |

| | | |
|--|----|------|
| 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | no | no |
| 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? | no | no |
| a. If yes, in what form are surveys tracked? | | None |
| b. Describe how your agency tracks this information. | | |

C. Water Survey 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

BMP 02: Residential Plumbing Retrofit

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
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: 100%
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: 86.6%
6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.
 In 2000, MWDOC and MET conducted the OC Saturation Study and found countywide low flow showerhead saturation rates of 66.9% in single-family and 59.8% in multifamily dwelling units. Saturation rates provided above represent linear extrapolations of saturation survey results for 02-03 and 03-04.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? no
 - a. If YES, when did your agency begin implementing this strategy?
 - b. Describe your targeting/ marketing strategy.

| Low-Flow Devices Distributed/ Installed | SF Accounts | MF Units |
|--|--------------------|-----------------|
| 2. Number of low-flow showerheads distributed: | 0 | 0 |
| 3. Number of toilet-displacement devices distributed: | 0 | 0 |
| 4. Number of toilet flappers distributed: | 0 | 0 |
| 5. Number of faucet aerators distributed: | 0 | 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 : | | |

C. Low-Flow Device Distribution 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

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
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)
 - b. Determine other system verifiable uses (AF)
 - c. Determine total supply into the system (AF)
 - d. Using the numbers above, if $(\text{Metered Sales} + \text{Other Verifiable Uses}) / \text{Total Supply}$ is < 0.9 then a full-scale system audit is required. 0.00
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? no
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? no
6. Does your agency operate a system leak detection program? no
 - a. If yes, describe the leak detection program:

B. Survey Data

1. Total number of miles of distribution system line. 373
2. Number of miles of distribution system line surveyed. 0

C. System Audit / Leak Detection 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

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2004

A. Water Use Budgets

- | | |
|--|-----|
| 1. Number of Dedicated Irrigation Meter Accounts: | 310 |
| 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? | yes |

B. Landscape Surveys

- | | |
|--|----|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | no |
| a. If YES, when did your agency begin implementing this strategy? | |
| b. Description of marketing / targeting strategy: | |
| 2. Number of Surveys Offered. | 0 |
| 3. Number of Surveys Completed. | 0 |
| 4. Indicate which of the following Landscape Elements are part of your survey: | |
| a. Irrigation System Check | no |
| b. Distribution Uniformity Analysis | no |
| c. Review / Develop Irrigation Schedules | no |
| d. Measure Landscape Area | no |
| e. Measure Total Irrigable Area | no |
| f. Provide Customer Report / Information | no |
| 5. Do you track survey offers and results? | no |
| 6. Does your agency provide follow-up surveys for previously completed surveys? | no |
| a. If YES, describe below: | |

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. Does your agency provide mixed-use accounts with landscape budgets? | no |
| 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? no

| 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? No

a. If YES, describe below:

6. Do you have irrigated landscaping at your facilities? no

a. If yes, is it water-efficient? no

b. If yes, does it have dedicated irrigation metering? no

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 | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

The meters listed above are under budget as part of the Municipal Water District of Orange County's Landscape Certification Program. This has been a two-year effort covering 2003 & 2004. Included in this program is an informal survey process. Since it is informal, Under B above, Questions #2 and #3 are listed as zero, while the components of the informal process are marked as yes in Question #4.

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
City of Garden Grove

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. Edison is the utility provider. Garden Grove and MWDOC does not have information of the amounts. | |
| 2. Does your agency offer rebates for high-efficiency washers? | yes |
| 3. What is the level of the rebate? | 100 |
| 4. Number of rebates awarded. | 278 |

B. Rebate Program Expenditures

| | This Year | Next Year |
|--------------------------|------------------|------------------|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

BMP 07: Public Information Programs

Reporting Unit:
City of Garden Grove

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.

Garden Grove, with the help from the Municipal Water District of Orange County, promotes water conservation.

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 | no | |
| c. Bill Inserts / Newsletters / Brochures | yes | 6 |
| d. Bill showing water usage in comparison to previous year's usage | yes | |
| e. Demonstration Gardens | no | |
| f. Special Events, Media Events | yes | 6 |
| 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 | 1000 | 1000 |
| 2. Actual Expenditures | 1000 | |

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

BMP 08: School Education Programs

Reporting Unit:
City of Garden Grove

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 | 35 | 2807 | 0 |
| Grades 4th-6th | yes | 21 | 1589 | 0 |
| Grades 7th-8th | no | 0 | 0 | 0 |
| High School | no | 0 | 0 | 0 |

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 01/01/1989

B. School Education Program Expenditures

| | This Year | Next Year |
|--------------------------|-----------|-----------|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
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 | no |

| Agency CII Customer Incentives | Budget (\$/Year) | No. Awarded to Customers | Total \$ Amount Awarded |
|--------------------------------|------------------|--------------------------|-------------------------|
| h. Rebates | 0 | 51 | 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. | 0 |
| 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 | 0 | 0 |
| 2. Actual Expenditures | 0 | |

C. "At Least As Effective As"

- | | |
|---|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| <p>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."</p> | |

D. Comments

Garden Grove participates in a Regional CII Rebate Program facilitated by our regional Wholesaler, Metropolitan Water District of S.C. We have put in the number of rebates but not the dollar amounts or acre feet associated with them. MWD tracks these.

BMP 09a: CII ULFT Water Savings

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2004

1. Did your agency implement a CII ULFT replacement program in the reporting year? Yes
If No, please explain why on Line B. 10.

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply. CII Sector or subsector
CII ULFT Study subsector
targeting

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

We found CII sectors and sub sectors most effective because we were able to version our marketing efforts appropriately.

2. How does your agency advertise this program?
Check all that apply.

Bill insert
Newsletter
Web page
Trade shows and events
Direct letter
Newspapers
Trade publications
Other print media
Telemarketing

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

For the purposes of this program, Trade Allies have proven to be the most effective overall marketing tool, as well as the most effective per dollar expended. Trade Allies include plumbers, distributors, retail home improvement stores and product manufacturers.

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 | | | |
|-----------------------|----------------------------|--------------|-------------------|------------------|
| | Standard Gravity Tank | Air Assisted | Valve Floor Mount | Valve Wall Mount |
| 4. | | | | |
| a. Offices | 0 | 0 | 0 | 0 |
| b. Retail / Wholesale | 0 | 0 | 0 | 0 |
| c. Hotels | 30 | 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. Government | 0 | 0 | 0 | 0 |
| i. Churches | 6 | 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

7. Participant tracking and follow-up. 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 1
- b. Inadequate payback 3
- c. Inadequate ULFT performance 2
- d. Lack of funding 5
- e. American's with Disabilities Act 0
- f. Permitting 0
- g. Other. Please describe in B. 9.

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other issues affecting program implementation or effectiveness.

Customers are generally more willing to participate in the program if the cost of the retrofit is in balance with the amount of the rebate, and the projected water savings is significant. Resistance occurs if the out-of-pocket expense for the retrofit is too costly and the rebate amount is too low.

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?

Either Metropolitan or its Agencies to provide this response.

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 | 2200 |
| b. State agency contribution | 0 |
| c. Federal agency contribution | 0 |
| d. Other contribution | 0 |
| e. Total | 2200 |

D. Comments

BMP 11: Conservation Pricing

Reporting Unit:
City of Garden Grove

BMP Form Status: Year:
100% Complete 2004

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 | \$0 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | \$0 |

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 | \$18189800 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | \$969000 |

B. Conservation Pricing Program Expenditures

| | This Year | Next Year |
|--------------------------|------------------|------------------|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

NOTE: At this time we are unable to break-down the revenues you are requesting. The database we currently use does not categorize revenues, they are all added together.

BMP 12: Conservation Coordinator

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
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 ? no
4. Partner agency's name:
5. If your agency supplies the conservation coordinator:
 - a. What percent is this conservation coordinator's position? 15%
 - b. Coordinator's Name Konya Vivanti
 - c. Coordinator's Title Sr. Administrative Analyst
 - d. Coordinator's Experience and Number of Years 3 years
 - e. Date Coordinator's position was created (mm/dd/yyyy) 11/12/1996
6. Number of conservation staff, including Conservation Coordinator. 2

B. Conservation Staff Program Expenditures

| | This Year | Next Year |
|--------------------------|-----------|-----------|
| 1. Budgeted Expenditures | 8674 | 8674 |
| 2. Actual Expenditures | 8674 | |

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

BMP 13: Water Waste Prohibition

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2004

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? yes
 - a. If YES, describe the ordinance:
The City of Garden Grove has adopted a waste water prohibition ordinance. It is codified as Chapter 14.16 of the Municipal Code. Violation of the ordinance is considered an infraction for the first offence and can be charged as a misdemeanor for the second or subsequent offences.
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:
Garden Grove None

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.
 - a. Gutter flooding yes
 - b. Single-pass cooling systems for new connections no
 - c. Non-recirculating systems in all new conveyor or car wash systems yes
 - d. Non-recirculating systems in all new commercial laundry systems no
 - e. Non-recirculating systems in all new decorative fountains yes
 - f. Other, please name
Customer plumbing leaks, Mid-day irrigation, Hosing of hard surfaces, and water automatically served in restaurants. yes
2. Describe measures that prohibit water uses listed above:
Water personnel in the field and letters sent which includes fines.

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 | 7426 | 7426 |
| 2. Actual Expenditures | 7426 | |

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

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:
City of Garden Grove

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 | 99 | 12 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 1768 | 597 |
| Total | 1867 | 609 |

6. Describe your agency's ULFT program for single-family residences.
 Garden Grove participates in a region-wide ULFT rebate program for both SF & MF. Our regional wholesaler (MWDOC), administers the program on our behalf. They contract with a vendor to market the program and facilitate the rebate process for our customers. The "Other" program is a distribution program that MWDOC administers on our behalf. They contract with a separate vendor that facilitates the distribution of ULFT's to our customers. This program is also for SF & MF.
7. Describe your agency's ULFT program for multi-family residences.
 Garden Grove participates in a region-wide ULFT rebate program for both SF & MF. Our regional wholesaler (MWDOC), administers the program on our behalf. They contract with a vendor to market the program and facilitate the rebate process for our customers. The "Other" program is a distribution program that MWDOC administers on our behalf. They contract with a separate vendor that facilitates the distribution of ULFT's to our customers. This program is also for SF & MF.
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:

B. Residential ULFT Program Expenditures

| | This Year | Next Year |
|--------------------------|------------------|------------------|
| 1. Budgeted Expenditures | 1784 | 1784 |
| 2. Actual Expenditures | 1784 | |

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

Water Supply & Reuse

Reporting Unit:
City of Garden Grove

Year:
2003

Report Not Filed

Accounts & Water Use

Reporting Unit Name:
City of Garden Grove

Submitted to CUWCC
11/29/2004

Year:
2003

A. Service Area Population Information:

1. Total service area population 168000

B. Number of Accounts and Water Deliveries (AF)

| Type | Metered | | Unmetered | |
|-------------------------|-----------------|-----------------------|-----------------|-----------------------|
| | No. of Accounts | Water Deliveries (AF) | No. of Accounts | Water Deliveries (AF) |
| 1. Single-Family | 29036 | 26418.5 | 0 | 0 |
| 2. Multi-Family | 1767 | 1607.5 | 0 | 0 |
| 3. Commercial | 1663 | 1622 | 0 | 0 |
| 4. Industrial | 427 | 388.6 | 0 | 0 |
| 5. Institutional | 120 | 0 | 0 | 0 |
| 6. Dedicated Irrigation | 246 | 224 | 0 | 0 |
| 7. Recycled Water | 0 | 0 | 0 | 0 |
| 8. Other | 549 | 499.7 | 0 | 0 |
| 9. Unaccounted | NA | 0 | NA | 0 |
| Total | 33808 | 30760.3 | 0 | 0 |
| | | Metered | | Unmetered |

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2003

A. Implementation

- | | |
|---|------------|
| 1. Based on your signed MOU date, 11/12/1996, your Agency STRATEGY DUE DATE is: | 11/12/1998 |
| 2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys? | no |
| a. If YES, when was it implemented? | |
| 3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys? | no |
| a. If YES, when was it implemented? | |

B. Water Survey Data

| Survey Counts: | Single Family Accounts | Multi-Family Units |
|---|------------------------------|-----------------------|
| 1. Number of surveys offered: | 0 | 0 |
| 2. Number of surveys completed: | 0 | 0 |
| Indoor Survey: | | |
| 3. Check for leaks, including toilets, faucets and meter checks | no | no |
| 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary | no | no |
| 5. 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 | no | no |
| Outdoor Survey: | | |
| 6. Check irrigation system and timers | no | no |
| 7. Review or develop customer irrigation schedule | no | no |
| 8. Measure landscaped area (Recommended but not required for surveys) | no | no |
| 9. Measure total irrigable area (Recommended but not required for surveys) | no | no |
| 10. Which measurement method is typically used (Recommended but not required for surveys) | | None |

- | | | |
|--|----|------|
| 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | no | no |
| 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? | no | no |
| a. If yes, in what form are surveys tracked? | | None |
| b. Describe how your agency tracks this information. | | |

C. Water Survey 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

BMP 02: Residential Plumbing Retrofit

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
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: 91.7%
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: 79.9%
6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.
 In 2000, MWDOC and MET conducted the OC Saturation Study and found countywide low flow showerhead saturation rates of 66.9% in single-family and 59.8% in multifamily dwelling units. Saturation rates provided above represent linear extrapolations of saturation survey results for 02-03 and 03-04.

B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? no
 - a. If YES, when did your agency begin implementing this strategy?
 - b. Describe your targeting/ marketing strategy.

| Low-Flow Devices Distributed/ Installed | SF Accounts | MF Units |
|--|--------------------|-----------------|
| 2. Number of low-flow showerheads distributed: | 0 | 0 |
| 3. Number of toilet-displacement devices distributed: | 0 | 0 |
| 4. Number of toilet flappers distributed: | 0 | 0 |
| 5. Number of faucet aerators distributed: | 0 | 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 : | | |

C. Low-Flow Device Distribution 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

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2003

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)
 - b. Determine other system verifiable uses (AF)
 - c. Determine total supply into the system (AF)
 - d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. 0.00
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? no
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? no
6. Does your agency operate a system leak detection program? no
 - a. If yes, describe the leak detection program:

B. Survey Data

1. Total number of miles of distribution system line. 373
2. Number of miles of distribution system line surveyed. 0

C. System Audit / Leak Detection 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

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2003

A. Water Use Budgets

- | | |
|--|-----|
| 1. Number of Dedicated Irrigation Meter Accounts: | 310 |
| 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? | yes |

B. Landscape Surveys

- | | |
|--|----|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | no |
| a. If YES, when did your agency begin implementing this strategy? | |
| b. Description of marketing / targeting strategy: | |
| 2. Number of Surveys Offered. | 0 |
| 3. Number of Surveys Completed. | 0 |
| 4. Indicate which of the following Landscape Elements are part of your survey: | |
| a. Irrigation System Check | no |
| b. Distribution Uniformity Analysis | no |
| c. Review / Develop Irrigation Schedules | no |
| d. Measure Landscape Area | no |
| e. Measure Total Irrigable Area | no |
| f. Provide Customer Report / Information | no |
| 5. Do you track survey offers and results? | no |
| 6. Does your agency provide follow-up surveys for previously completed surveys? | no |
| a. If YES, describe below: | |

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. Does your agency provide mixed-use accounts with landscape budgets? | no |
| 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? no

| 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? No

a. If YES, describe below:

6. Do you have irrigated landscaping at your facilities? no

a. If yes, is it water-efficient? no

b. If yes, does it have dedicated irrigation metering? no

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 | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

The meters listed above are under budget as part of the Municipal Water District of Orange County's Landscape Certification Program. This has been a two-year effort covering 2003 & 2004. Included in this program is an informal survey process. Since it is informal, Under B above, Questions #2 and #3 are listed as zero, while the components of the informal process are marked as yes in Question #4.

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
City of Garden Grove

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. Edison is the utility provider. Garden Grove and MWDOC does not have information of the amounts. | |
| 2. Does your agency offer rebates for high-efficiency washers? | yes |
| 3. What is the level of the rebate? | 100 |
| 4. Number of rebates awarded. | 173 |

B. Rebate Program Expenditures

| | This Year | Next Year |
|--------------------------|------------------|------------------|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

BMP 07: Public Information Programs

Reporting Unit:
City of Garden Grove

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.

Garden Grove, with the help from the Municipal Water District of Orange County, promotes water conservation.

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 | no | |
| c. Bill Inserts / Newsletters / Brochures | yes | 6 |
| d. Bill showing water usage in comparison to previous year's usage | yes | |
| e. Demonstration Gardens | no | |
| f. Special Events, Media Events | yes | 6 |
| 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 | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

BMP 08: School Education Programs

Reporting Unit:
City of Garden Grove

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 | 42 | 3383 | 0 |
| Grades 4th-6th | yes | 22 | 1688 | 0 |
| Grades 7th-8th | yes | 0 | 0 | 0 |
| High School | yes | 1 | 60 | 0 |

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 1/1/1989

B. School Education Program Expenditures

| | This Year | Next Year |
|--------------------------|-----------|-----------|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
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 | 53 | 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. | 0 |
| 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 | 0 | 0 |
| 2. Actual Expenditures | 0 | |

C. "At Least As Effective As"

- | | |
|---|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| <p>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."</p> | |

D. Comments

Garden Grove participates in a Regional CII Rebate Program facilitated by our regional Wholesaler, Metropolitan Water District of S.C. We have put in the number of rebates but not the dollar amounts or acre feet associated with them. MWD tracks these.

BMP 09a: CII ULFT Water Savings

Reporting Unit:
City of Garden Grove

BMP Form Status: Year:
100% Complete 2003

1. Did your agency implement a CII ULFT replacement program in the reporting year? Yes

If No, please explain why on Line B. 10.

A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply. CII Sector or subsector
CII ULFT Study subsector
targeting

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

We found CII sectors and sub sectors most effective because we were able to version our marketing efforts appropriately.

2. How does your agency advertise this program?

Check all that apply.

Bill insert
Newsletter
Web page
Trade shows and events
Direct letter
Newspapers
Trade publications
Other print media
Telemarketing

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

See MWD of SC Program for details.

B. Implementation

1. Does your agency keep and maintain customer participant information? Yes
(Read the Help information for a complete list of all the information for this BMP.)

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 ? 0

| CII Subsector | Number of Toilets Replaced | | | |
|--|----------------------------|--------------|-------------------|----------------------|
| | Standard Gravity Tank | Air Assisted | Valve Floor Mount | Valve Wall Mount |
| 4. | | | | |
| 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 | 0 | 0 | 0 | 0 |
| h. Government | 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 |
| 7. Participant tracking and follow-up. | | | | 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 | | | | 1 |
| b. Inadequate payback | | | | 3 |
| c. Inadequate ULFT performance | | | | 2 |
| d. Lack of funding | | | | 5 |
| e. American's with Disabilities Act | | | | 0 |
| f. Permitting | | | | 0 |
| g. Other. Please describe in B. 9. | | | | |

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other issues affecting program implementation or effectiveness.

Customers are generally more willing to participate in the program if the cost of the retrofit is in balance with the amount of the rebate, and the projected water savings is significant. Resistance occurs if the out-of-pocket expense for the retrofit is too costly and the rebate amount is too low.

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?

Either Metropolitan or its Agencies to provide this response.

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 | 0 |
| b. State agency contribution | 0 |
| c. Federal agency contribution | 0 |
| d. Other contribution | 0 |
| e. Total | 0 |

D. Comments

BMP 11: Conservation Pricing

Reporting Unit:
City of Garden Grove

BMP Form Status: Year:
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 | \$0 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | \$0 |

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 |

BMP 12: Conservation Coordinator

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
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 ? no
4. Partner agency's name:
5. If your agency supplies the conservation coordinator:
 - a. What percent is this conservation coordinator's position? 15%
 - b. Coordinator's Name Konya Vivanti
 - c. Coordinator's Title Sr. Administrative Analyst
 - d. Coordinator's Experience and Number of Years 3 years
 - e. Date Coordinator's position was created (mm/dd/yyyy) 11/12/1996
6. Number of conservation staff, including Conservation Coordinator. 2

B. Conservation Staff Program Expenditures

| | This Year | Next Year |
|--------------------------|-----------|-----------|
| 1. Budgeted Expenditures | 8421 | 8421 |
| 2. Actual Expenditures | 8421 | |

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

BMP 13: Water Waste Prohibition

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2003

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? yes
 - a. If YES, describe the ordinance:
The City of Garden Grove has adopted a waste water prohibition ordinance. It is codified as Chapter 14.16 of the Municipal Code. Violation of the ordinance is considered an infraction for the first offence and can be charged as a misdemeanor for the second or subsequent offences.
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:
Garden Grove None

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.
 - a. Gutter flooding yes
 - b. Single-pass cooling systems for new connections no
 - c. Non-recirculating systems in all new conveyor or car wash systems yes
 - d. Non-recirculating systems in all new commercial laundry systems no
 - e. Non-recirculating systems in all new decorative fountains yes
 - f. Other, please name yes
Customer plumbing leaks, Mid-day irrigation, Hosing of hard surfaces, and water automatically served in restaurants.
2. Describe measures that prohibit water uses listed above:
Water personnel in the field and letters sent which includes fines.

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 | 7210 | 7210 |
| 2. Actual Expenditures | 7210 | |

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

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:
City of Garden Grove

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 | 180 | 115 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 1971 | 882 |
| | <hr/> | |
| Total | 2151 | 997 |

6. Describe your agency's ULFT program for single-family residences.
 Garden Grove participates in a region-wide ULFT rebate program for both SF & MF. Our regional wholesaler (MWDOC), administers the program on our behalf. They contract with a vendor to market the program and facilitate the rebate process for our customers. The "Other" program is a distribution program that MWDOC administers on our behalf. They contract with a separate vendor that facilitates the distribution of ULFT's to our customers. This program is also for SF & MF.
7. Describe your agency's ULFT program for multi-family residences.
 Garden Grove participates in a region-wide ULFT rebate program for both SF & MF. Our regional wholesaler (MWDOC), administers the program on our behalf. They contract with a vendor to market the program and facilitate the rebate process for our customers. The "Other" program is a distribution program that MWDOC administers on our behalf. They contract with a separate vendor that facilitates the distribution of ULFT's to our customers. This program is also for SF & MF.
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:

B. Residential ULFT Program Expenditures

| | This Year | Next Year |
|--------------------------|------------------|------------------|
| 1. Budgeted Expenditures | 1732 | 1732 |
| 2. Actual Expenditures | 1732 | |

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

Water Supply & Reuse

Reporting Unit:

Year:
2002

Report Not Filed

Accounts & Water Use

Reporting Unit Name:
City of Garden Grove

Submitted to CUWCC
12/16/2002

Year:
2002

A. Service Area Population Information:

1. Total service area population 169196

B. Number of Accounts and Water Deliveries (AF)

| Type | Metered | | Unmetered | |
|-------------------------|-----------------|-----------------------|-----------------|-----------------------|
| | No. of Accounts | Water Deliveries (AF) | No. of Accounts | Water Deliveries (AF) |
| 1. Single-Family | 29026 | 14307 | 0 | 0 |
| 2. Multi-Family | 1780 | 5747 | 0 | 0 |
| 3. Commercial | 2988 | 7782 | 0 | 0 |
| 4. Industrial | 2988 | 7782 | 0 | 0 |
| 5. Institutional | 2988 | 7782 | 0 | 0 |
| 6. Dedicated Irrigation | 0 | 0 | 0 | 0 |
| 7. Recycled Water | 0 | 0 | 0 | 0 |
| 8. Other | 0 | 0 | 0 | 0 |
| 9. Unaccounted | NA | 0 | NA | 0 |
| Total | 39770 | 43400 | 0 | 0 |

Metered

Unmetered

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2002

A. Implementation

- | | |
|---|------------|
| 1. Based on your signed MOU date, 11/12/1996, your Agency STRATEGY DUE DATE is: | 11/12/1998 |
| 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? | 11/12/1996 |
| 3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys? | no |
| a. If YES, when was it implemented? | |

B. Water Survey Data

| Survey Counts: | Single Family Accounts | Multi-Family Units |
|---|------------------------------|-----------------------|
| 1. Number of surveys offered: | 11610 | 0 |
| 2. Number of surveys completed: | 479 | 0 |
| Indoor Survey: | | |
| 3. Check for leaks, including toilets, faucets and meter checks | yes | no |
| 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary | yes | no |
| 5. 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 | yes | no |
| Outdoor Survey: | | |
| 6. Check irrigation system and timers | yes | no |
| 7. Review or develop customer irrigation schedule | yes | no |
| 8. Measure landscaped area (Recommended but not required for surveys) | yes | no |
| 9. Measure total irrigable area (Recommended but not required for surveys) | yes | no |
| 10. Which measurement method is typically used (Recommended but not required for surveys) | | None |

- | | | |
|--|--|----------|
| 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | yes | no |
| 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? | yes | no |
| a. If yes, in what form are surveys tracked? | | database |
| b. Describe how your agency tracks this information. | MWDOC's Program vendor compiled all data taken at each site. | |

C. Water Survey Program Expenditures

| | This Year | Next Year |
|--------------------------|----------------------|----------------------|
| 1. Budgeted Expenditures | 32500 | 0 |
| 2. Actual Expenditures | 31135 | |

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

BMP 02: Residential Plumbing Retrofit

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
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? | no |
| 3. Estimated percent of single-family households with low-flow showerheads: | 68% |
| 4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? | no |
| 5. Estimated percent of multi-family households with low-flow showerheads: | 60% |
| 6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research. | |

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? | 11/12/1996 |
| b. Describe your targeting/ marketing strategy. Target and marketing was accomplished through a formal survey program that targeted the top 40% of Garden Grove's single-family customer base. | |

| Low-Flow Devices Distributed/ Installed | SF Accounts | MF Units |
|---|--------------------|-----------------|
| 2. Number of low-flow showerheads distributed: | 214 | 0 |
| 3. Number of toilet-displacement devices distributed: | 49 | 0 |
| 4. Number of toilet flappers distributed: | 36 | 0 |
| 5. Number of faucet aerators distributed: | 406 | 0 |
| 6. Does your agency track the distribution and cost of low-flow devices? | | yes |
| a. If YES, in what format are low-flow devices tracked? | | Database |
| b. If yes, describe your tracking and distribution system : The cost and distribution was tracked through a formal survey program. Showerhead costs were kept by the program vendor and showerhead distribution was tracked by address of the participant. | | |

C. Low-Flow Device Distribution 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

QUESTION C: All costs associated with the distribution of these devices were accounted for in BMP #1.

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2002

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)
 - b. Determine other system verifiable uses (AF)
 - c. Determine total supply into the system (AF)
 - d. Using the numbers above, if $(\text{Metered Sales} + \text{Other Verifiable Uses}) / \text{Total Supply}$ is < 0.9 then a full-scale system audit is required. 0.00
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? no
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? no
6. Does your agency operate a system leak detection program? no
 - a. If yes, describe the leak detection program:

B. Survey Data

1. Total number of miles of distribution system line. 373
2. Number of miles of distribution system line surveyed. 0

C. System Audit / Leak Detection 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

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2002

A. Water Use Budgets

- | | |
|--|-----|
| 1. Number of Dedicated Irrigation Meter Accounts: | 310 |
| 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? | yes |

B. Landscape Surveys

- | | |
|--|-----|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | no |
| a. If YES, when did your agency begin implementing this strategy? | |
| b. Description of marketing / targeting strategy: | |
| 2. Number of Surveys Offered. | 0 |
| 3. Number of Surveys Completed. | 0 |
| 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? | no |
| a. If YES, describe below: | |

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. Does your agency provide mixed-use accounts with landscape budgets? no
- 2. Number of CII mixed-use accounts with landscape budgets. 0
- 3. Do you offer landscape irrigation training? no
- 4. Does your agency offer financial incentives to improve landscape water use efficiency? no

| Type of Financial Incentive: | Budget (Dollars/Year) | Number Awarded to Customers | Total Amount Awarded |
|------------------------------|-----------------------|-----------------------------|----------------------|
|------------------------------|-----------------------|-----------------------------|----------------------|

- a. Rebates
- b. Loans
- c. Grants

| | |
|--|----|
| 5. Do you provide landscape water use efficiency information to new customers and customers changing services? | No |
|--|----|

a. If YES, describe below:

- 6. Do you have irrigated landscaping at your facilities? no
 - a. If yes, is it water-efficient?
 - b. If yes, does it have dedicated irrigation metering?

| | |
|---|----|
| 7. Do you provide customer notices at the start of the irrigation season? | no |
|---|----|

| | |
|---|----|
| 8. Do you provide customer notices at the end of the irrigation season? | no |
|---|----|

D. Landscape Conservation Program Expenditures

| | This Year | Next Year |
|--------------------------|-----------|-----------|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

The meters listed above are under budget as part of the Municipal Water District of Orange County's Landscape Certification Program. This has been a two-year effort covering 2001 & 2002. All data is listed in reporting year 2002. Included in this program is an informal survey process. Since it is informal, Under B above, Questions #2 and #3 are listed as zero, while the components of the informal process are marked as yes in Question #4.

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
City of Garden Grove

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. Edison is the utility provider. Garden Grove and MWDOC does not have information of the amounts. | |
| 2. Does your agency offer rebates for high-efficiency washers? | yes |
| 3. What is the level of the rebate? | 100 |
| 4. Number of rebates awarded. | 39 |

B. Rebate Program Expenditures

| | This Year | Next Year |
|--------------------------|------------------|------------------|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

BMP 07: Public Information Programs

Reporting Unit:
City of Garden Grove

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.

Garden Grove, with the help from the Municipal Water District of Orange County, promotes water conservation.

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 | no | |
| c. Bill Inserts / Newsletters / Brochures | yes | 5 |
| d. Bill showing water usage in comparison to previous year's usage | yes | |
| e. Demonstration Gardens | no | |
| f. Special Events, Media Events | yes | 5 |
| g. Speaker's Bureau | yes | 2 |
| 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 | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

BMP 08: School Education Programs

Reporting Unit:
City of Garden Grove

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 | 69 | 5698 | 0 |
| Grades 4th-6th | yes | 34 | 3471 | 0 |
| Grades 7th-8th | yes | 12 | 1074 | 0 |
| High School | yes | 4 | 320 | 0 |

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 1/1/1989

B. School Education Program Expenditures

| | This Year | Next Year |
|--------------------------|-----------|-----------|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
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 | 19 | 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. | 0 |
| 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 | 0 | 0 |
| 2. Actual Expenditures | 0 | |

C. "At Least As Effective As"

- | | |
|---|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| <p>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."</p> | |

D. Comments

Garden Grove participates in a regional Wholesaler (Metropolitan Water District of S.C.) Rebate Program. We have put in the number of rebates but not the dollar amounts or acre feet associated with them. MWD tracks these.

BMP 09a: CII ULFT Water Savings

Reporting Unit:
City of Garden Grove

BMP Form Status: Year:
100% Complete 2002

1. Did your agency implement a CII ULFT replacement program in the reporting year? Yes
If No, please explain why on Line B. 10.

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.

See MWDSC Program Description

2. How does your agency advertise this program? Check all that apply.

Bill insert
Bill message
Newsletter
Web page
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.

See MWDSC Program Description

B. Implementation

1. Does your agency keep and maintain customer participant information? Yes
(Read the Help information for a complete list of all the information for this BMP.)
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 ? 1

| CII Subsector | Number of Toilets Replaced | | | |
|--|----------------------------|--------------|-------------------|-------------------|
| | Standard Gravity Tank | Air Assisted | Valve Floor Mount | Valve Wall Mount |
| 4. | | | | |
| 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 | 0 | 0 | 0 | 0 |
| h. Government | 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 |
| 7. Participant tracking and follow-up. | | | | 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 | | | | 5 |
| b. Inadequate payback | | | | 5 |
| c. Inadequate ULFT performance | | | | 1 |
| d. Lack of funding | | | | 3 |
| e. American's with Disabilities Act | | | | 1 |
| f. Permitting | | | | 2 |
| g. Other. Please describe in B. 9. | | | | 1 |
| 9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other issues affecting program implementation or effectiveness. | | | | |
| See MWDSC Program Description | | | | |
| 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? | | | | |
| See MWDSC Program Description | | | | |

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 | | 60 |
| b. State agency contribution | | 0 |
| c. Federal agency contribution | | 0 |
| d. Other contribution | | 0 |
| e. Total | | 60 |

D. Comments

Question B3. What is the total number of customer accounts participating in the program during the last year? One (1) was indicated because zero (0) was not accepted from the CUWCC BMP Program.

BMP 11: Conservation Pricing

Reporting Unit:
City of Garden Grove

BMP Form Status: Year:
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 | \$0 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | \$0 |

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 |

BMP 12: Conservation Coordinator

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
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 ? no
4. Partner agency's name:
5. If your agency supplies the conservation coordinator:
 - a. What percent is this conservation coordinator's position? 15%
 - b. Coordinator's Name Konya Vivanti
 - c. Coordinator's Title Administrative Analyst
 - d. Coordinator's Experience and Number of Years 1.4 years
 - e. Date Coordinator's position was created (mm/dd/yyyy) 11/12/1996
6. Number of conservation staff, including Conservation Coordinator. 2

B. Conservation Staff Program Expenditures

| | This Year | Next Year |
|--------------------------|-----------|-----------|
| 1. Budgeted Expenditures | 8176 | 8176 |
| 2. Actual Expenditures | 8176 | |

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

BMP 13: Water Waste Prohibition

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2002

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? yes

a. If YES, describe the ordinance:

The City of Garden Grove has adopted a waste water prohibition ordinance. It is codified as Chapter 14.16 of the Municipal Code. Violation of the ordinance is considered an infraction for the first offence and can be charged as a misdemeanor for the second or subsequent offences.

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:

Garden Grove

None

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

a. Gutter flooding yes

b. Single-pass cooling systems for new connections no

c. Non-recirculating systems in all new conveyor or car wash systems yes

d. Non-recirculating systems in all new commercial laundry systems no

e. Non-recirculating systems in all new decorative fountains yes

f. Other, please name

Customer plumbing leaks, Mid-day irrigation, Hosing of hard surfaces, and Water automatically served in restaurants. yes

2. Describe measures that prohibit water uses listed above:

Water personnel in the field and letters sent which includes fines.

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 | 7000 | 7000 |
| 2. Actual Expenditures | 7000 | |

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

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:
City of Garden Grove

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 | 208 | 34 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 2303 | 1310 |
| Total | 2511 | 1344 |

6. Describe your agency's ULFT program for single-family residences.

Garden Grove participates in a region-wide ULFT rebate program for both SF & MF. Our regional wholesaler (MWDOC), administers the program on our behalf. They contract with a vendor to market the program and facilitate the rebate process for our customers. The "Other" program is a distribution program that MWDOC administers on our behalf. They contract with a separate vendor that facilitates the distribution of ULFT's to our customers. Each customer must pay a \$30 (or free) co-pay to receive a ULFT. This program is also for SF & MF.

7. Describe your agency's ULFT program for multi-family residences.

Garden Grove participates in a region-wide ULFT rebate program for both SF & MF. Our regional wholesaler (MWDOC), administers the program on our behalf. They contract with a vendor to market the program and facilitate the rebate process for our customers. The "Other" program is a distribution program that MWDOC administers on our behalf. They contract with a separate vendor that facilitates the distribution of ULFT's to our customers. Each customer must pay a \$30 (or free) co-pay to receive a ULFT. This program is also for SF & MF.

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:

B. Residential ULFT Program Expenditures

| | This Year | Next Year |
|--------------------------|------------------|------------------|
| 1. Budgeted Expenditures | 1681.56 | 1681.56 |
| 2. Actual Expenditures | 1681.56 | |

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

Water Supply & Reuse

Reporting Unit:

Year:
2001

Report Not Filed

Accounts & Water Use

Reporting Unit Name:
City of Garden Grove

Submitted to CUWCC
11/26/2002

Year:
2001

A. Service Area Population Information:

1. Total service area population 169000

B. Number of Accounts and Water Deliveries (AF)

| Type | Metered | | Unmetered | |
|-------------------------|-----------------|-----------------------|-----------------|-----------------------|
| | No. of Accounts | Water Deliveries (AF) | No. of Accounts | Water Deliveries (AF) |
| 1. Single-Family | 29028 | 13887 | 0 | 0 |
| 2. Multi-Family | 1721 | 5830 | 0 | 0 |
| 3. Commercial | 2985 | 8002 | 0 | 0 |
| 4. Industrial | 2985 | 8002 | 0 | 0 |
| 5. Institutional | 2985 | 8002 | 0 | 0 |
| 6. Dedicated Irrigation | 0 | 0 | 0 | 0 |
| 7. Recycled Water | 0 | 0 | 0 | 0 |
| 8. Other | 0 | 0 | 0 | 0 |
| 9. Unaccounted | NA | 0 | NA | 0 |
| Total | 39704 | 43723 | 0 | 0 |

Metered

Unmetered

BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2001

A. Implementation

- | | |
|--|------------|
| 1. Based on your signed MOU date, 11/12/1996, your Agency STRATEGY DUE DATE is: | 11/12/1998 |
| 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? | 11/12/1996 |
| 3. Has your agency developed and implemented a targeting/marketing strategy for MULTI-FAMILY residential water use surveys? | no |
| a. If YES, when was it implemented? | |

B. Water Survey Data

| Survey Counts: | Single Family Accounts | Multi-Family Units |
|---|------------------------------|-----------------------|
| 1. Number of surveys offered: | 11611 | 0 |
| 2. Number of surveys completed: | 496 | 0 |
| Indoor Survey: | | |
| 3. Check for leaks, including toilets, faucets and meter checks | yes | no |
| 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary | yes | no |
| 5. 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 | yes | no |
| Outdoor Survey: | | |
| 6. Check irrigation system and timers | yes | no |
| 7. Review or develop customer irrigation schedule | yes | no |
| 8. Measure landscaped area (Recommended but not required for surveys) | yes | no |
| 9. Measure total irrigable area (Recommended but not required for surveys) | yes | no |
| 10. Which measurement method is typically used (Recommended but not required for surveys) | | None |

- | | | |
|--|--|----------|
| 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | yes | no |
| 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? | yes | no |
| a. If yes, in what form are surveys tracked? | | database |
| b. Describe how your agency tracks this information. | MWDOC's Program vendor compiled all data taken at each site. | |

C. Water Survey Program Expenditures

| | This Year | Next Year |
|--------------------------|----------------------|----------------------|
| 1. Budgeted Expenditures | 32500 | 32500 |
| 2. Actual Expenditures | 32240 | |

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

BMP 02: Residential Plumbing Retrofit

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
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? no
3. Estimated percent of single-family households with low-flow showerheads: 68%
4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? no
5. Estimated percent of multi-family households with low-flow showerheads: 60%
6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

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? 11/12/1996
 - b. Describe your targeting/ marketing strategy.
 Target and marketing was accomplished through a formal survey program that targeted the top 40% of Garden Grove's single-family customer base.

| Low-Flow Devices Distributed/ Installed | SF Accounts | MF Units |
|---|-------------|----------|
| 2. Number of low-flow showerheads distributed: | 227 | 0 |
| 3. Number of toilet-displacement devices distributed: | 101 | 0 |
| 4. Number of toilet flappers distributed: | 55 | 0 |
| 5. Number of faucet aerators distributed: | 903 | 0 |

6. Does your agency track the distribution and cost of low-flow devices? yes

a. If YES, in what format are low-flow devices tracked? Database

b. If yes, describe your tracking and distribution system :
The cost and distribution was tracked through a formal survey program.
Showerhead costs were kept by the program vendor and showerhead
distribution was tracked by address of the participant.

C. Low-Flow Device Distribution 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

QUESTION C: All costs associated with the distribution of these devices were accounted for in BMP #1.

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2001

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)
 - b. Determine other system verifiable uses (AF)
 - c. Determine total supply into the system (AF)
 - d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. 0.00
3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? no
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? no
6. Does your agency operate a system leak detection program? no
 - a. If yes, describe the leak detection program:

B. Survey Data

1. Total number of miles of distribution system line. 372
2. Number of miles of distribution system line surveyed. 0

C. System Audit / Leak Detection 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

BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2001

A. Water Use Budgets

- | | |
|--|-----|
| 1. Number of Dedicated Irrigation Meter Accounts: | 310 |
| 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? | yes |

B. Landscape Surveys

- | | |
|--|-----|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | no |
| a. If YES, when did your agency begin implementing this strategy? | |
| b. Description of marketing / targeting strategy: | |
| 2. Number of Surveys Offered. | 0 |
| 3. Number of Surveys Completed. | 0 |
| 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? | no |
| a. If YES, describe below: | |

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. Does your agency provide mixed-use accounts with landscape budgets? no
- 2. Number of CII mixed-use accounts with landscape budgets. 0
- 3. Do you offer landscape irrigation training? no
- 4. Does your agency offer financial incentives to improve landscape water use efficiency? no

| | | | |
|-------------------------------------|------------------------------|------------------------------------|-----------------------------|
| Type of Financial Incentive: | Budget (Dollars/Year) | Number Awarded to Customers | Total Amount Awarded |
|-------------------------------------|------------------------------|------------------------------------|-----------------------------|

- a. Rebates
- b. Loans
- c. Grants

5. Do you provide landscape water use efficiency information to new customers and customers changing services? No

a. If YES, describe below:

6. Do you have irrigated landscaping at your facilities? no

- a. If yes, is it water-efficient?
- b. If yes, does it have dedicated irrigation metering?

7. Do you provide customer notices at the start of the irrigation season? no

8. Do you provide customer notices at the end of the irrigation season? no

D. Landscape Conservation Program Expenditures

| | This Year | Next Year |
|--------------------------|-----------|-----------|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

The meters listed above are under budget as part of the Municipal Water District of Orange County's Landscape Certification Program. This has been a two-year effort covering 2001 & 2002. All data is listed in reporting year 2002. Included in this program is an informal survey process. Since it is informal, Under B above, Questions #2 and #3 are listed as zero, while the components of the informal process are marked as yes in Question #4.

BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
City of Garden Grove

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. Edison is the utility provider. Garden Grove and MWDOC does not have information of the amounts. | |
| 2. Does your agency offer rebates for high-efficiency washers? | no |
| 3. What is the level of the rebate? | 0 |
| 4. Number of rebates awarded. | 0 |

B. Rebate Program Expenditures

| | This Year | Next Year |
|--------------------------|------------------|------------------|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

BMP 07: Public Information Programs

Reporting Unit:
City of Garden Grove

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.

Garden Grove, with the help from the Municipal Water District of Orange County, promotes water conservation.

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 | no | |
| c. Bill Inserts / Newsletters / Brochures | yes | 6 |
| d. Bill showing water usage in comparison to previous year's usage | yes | |
| e. Demonstration Gardens | no | |
| f. Special Events, Media Events | yes | 6 |
| g. Speaker's Bureau | yes | 2 |
| 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 | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

BMP 08: School Education Programs

Reporting Unit:
City of Garden Grove

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 | 29 | 2338 | 0 |
| Grades 4th-6th | yes | 22 | 1598 | 0 |
| Grades 7th-8th | yes | 1 | 64 | 0 |
| High School | yes | 4 | 140 | 0 |

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 1/1/1989

B. School Education Program Expenditures

| | This Year | Next Year |
|--------------------------|-----------|-----------|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 0 | |

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

BMP 09: Conservation Programs for CII Accounts

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
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 | |
| 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 | 2 | 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. | 0 |
| 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 | 0 | 0 |
| 2. Actual Expenditures | 0 | |

C. "At Least As Effective As"

- | | |
|---|----|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | No |
| <p>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."</p> | |

D. Comments

Garden Grove participates in a regional Wholesaler (Metropolitan Water District of S.C.) Rebate Program. We have put in the number of rebates but not the dollar amounts or acre feet associated with them. MWD tracks these.

BMP 09a: CII ULFT Water Savings

Reporting Unit:
City of Garden Grove

BMP Form Status: Year:
100% Complete 2001

1. Did your agency implement a CII ULFT replacement program in the reporting year? Yes
If No, please explain why on Line B. 10.

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.

See MWDSC Program Description

2. How does your agency advertise this program? Check all that apply.

Bill insert
Bill message
Newsletter
Web page
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.

See MWDSC Program Description

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 ? 1

| CII Subsector | Number of Toilets Replaced | | | |
|-----------------------|----------------------------|--------------|-------------------|------------------|
| | Standard Gravity Tank | Air Assisted | Valve Floor Mount | Valve Wall Mount |
| 4. | | | | |
| a. Offices | 2 | 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 | 0 | 0 | 0 | 0 |
| h. Government | 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

7. Participant tracking and follow-up. 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 5
- b. Inadequate payback 5
- c. Inadequate ULFT performance 1
- d. Lack of funding 3
- e. American's with Disabilities Act 1
- f. Permitting 2
- g. Other. Please describe in B. 9. 1

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other issues affecting program implementation or effectiveness.

See MWDSC Program Description

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?

See MWDSC Program Description

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 | 60 |
| b. State agency contribution | 0 |
| c. Federal agency contribution | 0 |
| d. Other contribution | 0 |
| e. Total | 60 |

D. Comments

Question B3. What is the total number of customer accounts participating in the program during the last year? One (1) was indicated because zero (0) was not accepted from the CUWCC BMP Program.

BMP 11: Conservation Pricing

Reporting Unit:
City of Garden Grove

BMP Form Status: Year:
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 | \$0 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | \$0 |

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 |

BMP 12: Conservation Coordinator

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
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 ? no
4. Partner agency's name:
5. If your agency supplies the conservation coordinator:
 - a. What percent is this conservation coordinator's position? 15%
 - b. Coordinator's Name Konya Vivanti
 - c. Coordinator's Title Administrative Analyst
 - d. Coordinator's Experience and Number of Years 1.4 years
 - e. Date Coordinator's position was created (mm/dd/yyyy) 11/12/1996
6. Number of conservation staff, including Conservation Coordinator. 2

B. Conservation Staff Program Expenditures

| | This Year | Next Year |
|--------------------------|-----------|-----------|
| 1. Budgeted Expenditures | 8176 | 8176 |
| 2. Actual Expenditures | 8176 | |

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

BMP 13: Water Waste Prohibition

Reporting Unit:
City of Garden Grove

BMP Form Status:
100% Complete

Year:
2001

A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? yes

a. If YES, describe the ordinance:

The City of Garden Grove has adopted a waste water prohibition ordinance. It is codified as Chapter 14.16 of the Municipal Code. Violation of the ordinance is considered an infraction for the first offence and can be charged as a misdemeanor for the second or subsequent offences.

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:

Garden Grove

None

B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

a. Gutter flooding yes

b. Single-pass cooling systems for new connections no

c. Non-recirculating systems in all new conveyor or car wash systems yes

d. Non-recirculating systems in all new commercial laundry systems no

e. Non-recirculating systems in all new decorative fountains yes

f. Other, please name

Customer plumbing leaks, Mid-day irrigation, Hosing of hard surfaces, and Water automatically served in restaurants. yes

2. Describe measures that prohibit water uses listed above:

Water personnel in the field and letters sent which includes fines

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 | 7000 | 7000 |
| 2. Actual Expenditures | 7000 | |

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

BMP 14: Residential ULFT Replacement Programs

Reporting Unit:
City of Garden Grove

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 | 219 | 144 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 1765 | 295 |
| Total | 1984 | 439 |

6. Describe your agency's ULFT program for single-family residences.

Garden Grove participates in a region-wide ULFT rebate program for both SF & MF. Our regional wholesaler (MWDOC), administers the program on our behalf. They contract with a vendor to market the program and facilitate the rebate process for our customers. The "Other" program is a distribution program that MWDOC administers on our behalf. They contract with a separate vendor that facilitates the distribution of ULFT's to our customers. Each customer must pay a \$30 (or free) co-pay to receive a ULFT. This program is also for SF & MF.

7. Describe your agency's ULFT program for multi-family residences.

Garden Grove participates in a region-wide ULFT rebate program for both SF & MF. Our regional wholesaler (MWDOC), administers the program on our behalf. They contract with a vendor to market the program and facilitate the rebate process for our customers. The "Other" program is a distribution program that MWDOC administers on our behalf. They contract with a separate vendor that facilitates the distribution of ULFT's to our customers. Each customer must pay a \$30 (or free) co-pay to receive a ULFT. This program is also for SF & MF.

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:

B. Residential ULFT Program Expenditures

| | This Year | Next Year |
|--------------------------|------------------|------------------|
| 1. Budgeted Expenditures | 1681.56 | 1681.56 |
| 2. Actual Expenditures | 1681.56 | |

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

BMP 01 Coverage: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:
City of Garden Grove

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

A Reporting Unit (RU) must meet three conditions to satisfy strict compliance for BMP 1.

Condition 1: Adopt survey targeting and marketing strategy on time

Condition 2: Offer surveys to 20% of SF accounts and 20% of MF units during report period

Condition 3: Be on track to survey 15% of SF accounts and 15% of MF units within 10 years of implementation start date.

Test for Condition 1

| | | | |
|--|------|----------------------|---------------------|
| City of Garden Grove to Implement Targeting/Marketing Program by: | 1999 | | |
| | | <u>Single-Family</u> | <u>Multi-Family</u> |
| Year City of Garden Grove Reported Implementing Targeting/Marketing Program: | 1996 | | |
| City of Garden Grove Met Targeting/Marketing Coverage Requirement: | YES | | NO |

Test for Condition 2

| | | | | |
|-----------------------------|-------|-------------------------------|----------------------|---------------------|
| | | | <u>Single-Family</u> | <u>Multi-Family</u> |
| Survey Program to Start by: | 1998 | Residential Survey Offers (%) | | |
| Reporting Period: | 03-04 | Survey Offers \geq 20% | NO | NO |

Test for Condition 3

| | Completed Residential Surveys | |
|--|-------------------------------|---------------------|
| | <u>Single Family</u> | <u>Multi-Family</u> |
| Total Completed Surveys 1999 - 2004: | 2,945 | |
| Past Credit for Surveys Completed Prior to 1999 (Implementation of Reporting Database): | 1,101 | |
| Total + Credit | 4,046 | |
| Residential Accounts in Base Year | 28,659 | 14,974 |
| City of Garden Grove Survey Coverage as % of Base Year Residential Accounts | 14.12% | |
| Coverage Requirement by Year 7 of Implementation per Exhibit 1 | 7.90% | 7.90% |
| City of Garden Grove on Schedule to Meet 10-Year Coverage Requirement | YES | NO |

BMP 1 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 02 Coverage: Residential Plumbing Retrofit

Reporting Unit:
City of Garden Grove

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one of three conditions to satisfy strict compliance for BMP 2.

Condition 1: The agency has demonstrated that 75% of SF accounts and 75% of MF units constructed prior to 1992 are fitted with low-flow showerheads.

Condition 2: An enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts is in place for the agency's service area.

Condition 3: The agency has distributed or directly installed low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family accounts and 10% of multi-family units constructed prior to 1992 during the reporting period.

Test for Condition 1

| Report Year | Report Period | <u>Single-Family</u> | | <u>Multi-Family</u> | |
|-------------|---------------|----------------------------|--------------------------|----------------------------|--------------------------|
| | | <u>Reported Saturation</u> | <u>Saturation ≥ 75%?</u> | <u>Reported Saturation</u> | <u>Saturation ≥ 75%?</u> |
| 1999 | 99-00 | 60.00% | NO | 65.00% | NO |
| 2000 | 99-00 | 60.00% | NO | 65.00% | NO |
| 2001 | 01-02 | 68.00% | NO | 60.00% | NO |
| 2002 | 01-02 | 68.00% | NO | 60.00% | NO |
| 2003 | 03-04 | 91.70% | YES | 79.90% | YES |
| 2004 | 03-04 | 100.00% | YES | 86.60% | YES |

Test for Condition 2

| <u>Report Year</u> | <u>Report Period</u> | <u>City of Garden Grove has ordinance requiring showerhead retrofit?</u> |
|--------------------|----------------------|--|
| 1999 | 99-00 | NO |
| 2000 | 99-00 | NO |
| 2001 | 01-02 | NO |
| 2002 | 01-02 | NO |
| 2003 | 03-04 | NO |
| 2004 | 03-04 | NO |

Test for Condition 3

Reporting Period: 03-04

| <u>1992 SF Accounts</u> | <u>Num. Showerheads Distributed to SF Accounts</u> | <u>Single-Family Coverage Ratio</u> | <u>SF Coverage Ratio > 10%</u> |
|-------------------------|--|-------------------------------------|-----------------------------------|
| 29,497 | | | NO |
| <u>1992 MF Accounts</u> | <u>Num. Showerheads Distributed to MF Accounts</u> | <u>Multi-Family Coverage Ratio</u> | <u>MF Coverage Ratio > 10%</u> |
| 14,974 | | | NO |

BMP 2 COVERAGE STATUS SUMMARY:
Water supplier is meeting coverage requirements for this BMP.

BMP 03 Coverage: System Water Audits, Leak Detection and Repair

Reporting Unit:
City of Garden Grove

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one of two conditions to be in compliance with BMP 3:

Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA's Manual of Water Supply Practices, Water Audits, and Leak Detection.

Test for Conditions 1 and 2

| <u>Report Year</u> | <u>Report Period</u> | <u>Pre-Screen Completed</u> | <u>Pre-Screen Result</u> | <u>Full Audit Indicated</u> | <u>Full Audit Completed</u> |
|--------------------|----------------------|-----------------------------|--------------------------|-----------------------------|-----------------------------|
| 1999 | 99-00 | NO | | | NO |
| 2000 | 99-00 | NO | | | NO |
| 2001 | 01-02 | NO | | | NO |
| 2002 | 01-02 | NO | | | NO |
| 2003 | 03-04 | NO | | | NO |
| 2004 | 03-04 | NO | | | NO |

BMP 3 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 04 Coverage: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:
City of Garden Grove

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must be on track to retrofit 100% of its unmetered accounts within 10 years to be in compliance with BMP 4.

Test for Compliance

Total Meter Retrofits Reported through 2004

No. of Unmetered Accounts in Base Year

Meter Retrofit Coverage as % of Base Year Unmetered Accounts

Coverage Requirement by Year 6 of Implementation per Exhibit 1 42.0%

RU on Schedule to meet 10 Year Coverage Requirement YES

BMP 4 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 05 Coverage: Large Landscape Conservation Programs and Incentives

Reporting Unit:
City of Garden Grove

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet three conditions to comply with BMP 5.

Condition 1: Develop water budgets for 90% of its dedicated landscape meter accounts within four years of the date implementation is to start.

Condition 2: (a) Offer landscape surveys to at least 20% of its CII accounts with mixed use meters each report cycle and be on track to survey at least 15% of its CII accounts with mixed use meters within 10 years of the date implementation is to start OR (b) Implement a dedicated landscape meter retrofit program for CII accounts with mixed use meters or assign landscape budgets to mixed use meters.

Condition 3: Implement and maintain customer incentive program(s) for irrigation equipment retrofits.

Test for Condition 1

| <u>Year</u> | <u>Report Period</u> | <u>BMP 5 Implementation Year</u> | <u>No. of Irrigation Meter Accounts</u> | <u>No. of Irrigation Accounts with Budgets</u> | <u>Budget Coverage Ratio</u> | <u>90% Coverage Met by Year 4</u> |
|-------------|----------------------|----------------------------------|---|--|------------------------------|-----------------------------------|
| 1999 | 99-00 | 1 | 197 | | | NA |
| 2000 | 99-00 | 2 | 197 | | | NA |
| 2001 | 01-02 | 3 | 310 | | | NA |
| 2002 | 01-02 | 4 | 310 | | | No |
| 2003 | 03-04 | 5 | 310 | | | No |
| 2004 | 03-04 | 6 | 310 | | | No |

Test for Condition 2a (survey offers)

Select Reporting Period:

03-04

Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts

Survey Offers Equal or Exceed 20% Coverage Requirement

NO

Test for Condition 2a (surveys completed)

| | |
|---|-------|
| Total Completed Landscape Surveys Reported through Credit for Surveys Completed Prior to Implementation of Reporting Database | |
| Total + Credit | |
| CII Accounts in Base Year | 2,654 |
| RU Survey Coverage as a % of Base Year CII Accounts | |
| Coverage Requirement by Year of Implementation per Exhibit 1 | 6.3% |
| RU on Schedule to Meet 10 Year Coverage Requirement | NO |

Test for Condition 2b (mixed use budget or meter retrofit program)

| <u>Report Year</u> | <u>Report Period</u> | <u>BMP 5 Implementation Year</u> | <u>Agency has mix-use budget program</u> | <u>No. of mixed-use budgets</u> |
|--------------------|----------------------|----------------------------------|--|---------------------------------|
| 1999 | 99-00 | 1 | NO | |
| 2000 | 99-00 | 2 | YES | |
| 2001 | 01-02 | 3 | NO | |
| 2002 | 01-02 | 4 | NO | |
| 2003 | 03-04 | 5 | NO | |
| 2004 | 03-04 | 6 | NO | |

| <u>Report Year</u> | <u>Report Period</u> | <u>BMP 4 Implementation Year</u> | <u>No. of mixed use CII accounts</u> | <u>No. of mixed use CII accounts fitted with irrig. meters</u> |
|--------------------|----------------------|----------------------------------|--------------------------------------|--|
| 1999 | 99-00 | 1 | 2,964 | |
| 2000 | 99-00 | 2 | 2,958 | |
| 2001 | 01-02 | 3 | 2,988 | |
| 2002 | 01-02 | 4 | 2,988 | |
| 2003 | 03-04 | 5 | 2,988 | |
| 2004 | 03-04 | 6 | 2,988 | |

Test for Condition 3

| <u>Report Year</u> | <u>Report Period</u> | <u>BMP 5 Implementation Year</u> | <u>RU offers financial incentives?</u> | <u>No. of Loans</u> | <u>Total Amt. Loans</u> |
|--------------------|----------------------|----------------------------------|--|---------------------|-------------------------|
| 1999 | 99-00 | 1 | YES | | |
| 2000 | 99-00 | 2 | YES | | |
| 2001 | 01-02 | 3 | NO | | |
| 2002 | 01-02 | 4 | NO | | |
| 2003 | 03-04 | 5 | NO | | |
| 2004 | 03-04 | 6 | NO | | |

| <u>Report Year</u> | <u>Report Period</u> | <u>No. of Grants</u> | <u>Total Amt. Grants</u> | <u>No. of rebates</u> | <u>Total Amt. Rebates</u> |
|--------------------|----------------------|----------------------|--------------------------|-----------------------|---------------------------|
| 1999 | 99-00 | | | | |
| 2000 | 99-00 | | | | |
| 2001 | 01-02 | | | | |
| 2002 | 01-02 | | | | |
| 2003 | 03-04 | | | | |
| 2004 | 03-04 | | | | |

BMP 5 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 06 Coverage: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
City of Garden Grove

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 6.

Condition 1: Offer a cost-effective financial incentive for high-efficiency washers if one or more energy service providers in service area offer financial incentives for high-efficiency washers.

Test for Condition 1

| <u>Year</u> | <u>Report Period</u> | <u>BMP 6 Implementation Year</u> | <u>Rebate Offered by ESP?</u> | <u>Rebate Offered by RU?</u> | <u>Rebate Amount</u> |
|-------------|----------------------|----------------------------------|-------------------------------|------------------------------|----------------------|
| 1999 | 99-00 | 1 | YES | YES | 110.00 |
| 2000 | 99-00 | 2 | YES | YES | 110.00 |
| 2001 | 01-02 | 3 | YES | NO | |
| 2002 | 01-02 | 4 | YES | YES | 100.00 |
| 2003 | 03-04 | 5 | YES | YES | 100.00 |
| 2004 | 03-04 | 6 | YES | YES | 100.00 |

| <u>Year</u> | <u>Report Period</u> | <u>BMP 6 Implementation Year</u> | <u>No. Rebates Awarded</u> | <u>Coverage Met?</u> |
|-------------|----------------------|----------------------------------|----------------------------|----------------------|
| 1999 | 99-00 | 1 | | YES |
| 2000 | 99-00 | 2 | | YES |
| 2001 | 01-02 | 3 | | NO |
| 2002 | 01-02 | 4 | 39 | YES |
| 2003 | 03-04 | 5 | 173 | YES |
| 2004 | 03-04 | 6 | 278 | YES |

BMP 6 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 07 Coverage: Public Information Programs

Reporting Unit:
City of Garden Grove

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

Test for Condition 1

| <u>Year</u> | <u>Report Period</u> | <u>BMP 7 Implementation Year</u> | <u>RU Has Public Information Program?</u> |
|-------------|----------------------|----------------------------------|---|
| 1999 | 99-00 | 2 | YES |
| 2000 | 99-00 | 3 | YES |
| 2001 | 01-02 | 4 | YES |
| 2002 | 01-02 | 5 | YES |
| 2003 | 03-04 | 6 | YES |
| 2004 | 03-04 | 7 | YES |

BMP 7 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 08 Coverage: School Education Programs

Reporting Unit:
City of Garden Grove

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

Test for Condition 1

| <u>Year</u> | <u>Report Period</u> | <u>BMP 8 Implementation Year</u> | <u>RU Has School Education Program?</u> |
|-------------|----------------------|----------------------------------|---|
| 1999 | 99-00 | 2 | NO |
| 2000 | 99-00 | 3 | YES |
| 2001 | 01-02 | 4 | YES |
| 2002 | 01-02 | 5 | YES |
| 2003 | 03-04 | 6 | YES |
| 2004 | 03-04 | 7 | YES |

BMP 8 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 09 Coverage: Conservation Programs for CII Accounts

Reporting Unit:
City of Garden Grove

Reporting
Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet three conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.

OR

Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.

OR

Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

Test for Condition 1

| <u>Year</u> | <u>Report Period</u> | <u>BMP 9 Implementation Year</u> | <u>Ranked Com. Use</u> | <u>Ranked Ind. Use</u> | <u>Ranked Inst. Use</u> |
|-------------|--------------------------|--------------------------------------|----------------------------|----------------------------|-------------------------|
| 1999 | 99-00 | 1 | YES | YES | YES |
| 2000 | 99-00 | 2 | YES | YES | YES |
| 2001 | 01-02 | 3 | YES | YES | YES |
| 2002 | 01-02 | 4 | YES | YES | YES |
| 2003 | 03-04 | 5 | YES | YES | YES |
| 2004 | 03-04 | 6 | YES | YES | YES |

Test for Condition 2a

| | Commercial | Industrial | Institutional |
|---|------------|------------|---------------|
| Total Completed Surveys Reported through 2004 | | | |
| Credit for Surveys Completed Prior to Implementation of Reporting Databases | 13 | 2 | 5 |
| Total + Credit | 13 | 2 | 5 |
| CII Accounts in Base Year | 1,836 | 617 | 201 |
| RU Survey Coverage as % of Base Year CII Accounts | 0.7% | 0.3% | 2.5% |
| Coverage Requirement by Year 6 of Implementation per Exhibit 1 | 4.2% | 4.2% | 4.2% |
| RU on Schedule to Meet 10 Year Coverage Requirement | NO | NO | NO |

Test for Condition 2a

| <u>Year</u> | <u>Report Period</u> | <u>BMP 9 Implementation Year</u> | <u>Performance Target Savings (AF/yr)</u> | <u>Performance Target Savings Coverage</u> | <u>Performance Target Savings Coverage Requirement</u> | <u>Coverage Requirement Met</u> |
|-------------|----------------------|----------------------------------|---|--|--|---------------------------------|
| 1999 | 99-00 | 1 | 0 | 0.0% | 0.5% | NO |
| 2000 | 99-00 | 2 | | | 1.0% | NO |
| 2001 | 01-02 | 3 | | | 1.7% | NO |
| 2002 | 01-02 | 4 | | | 2.4% | NO |
| 2003 | 03-04 | 5 | | | 3.3% | NO |
| 2004 | 03-04 | 6 | | | 4.2% | NO |

Test for Condition 2c

| | |
|---|------|
| Total BMP 9 Surveys + Credit | 20 |
| BMP 9 Survey Coverage | 0.8% |
| BMP 9 Performance Target Coverage | |
| BMP 9 Survey + Performance Target Coverage | 0.8% |
| Combined Coverage Equals or Exceeds Coverage Requirement? | NO |

BMP 9 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 11 Coverage: Conservation Pricing

Reporting Unit:
City of Garden Grove

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 11.

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. Implementation methods shall be at least as effective as eliminating non-conserving pricing and adopting conserving pricing. For signatories supplying both water and sewer service, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make good faith efforts to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.

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.

Test for Condition 1

| <u>Year</u> | <u>Report Period</u> | <u>RU Employed Non Conserving Rate Structure</u> | <u>RU Meets BMP 11 Coverage Requirement</u> |
|-------------|----------------------|--|---|
| 1999 | 99-00 | NO | YES |
| 2000 | 99-00 | NO | YES |
| 2001 | 01-02 | NO | YES |
| 2002 | 01-02 | NO | YES |
| 2003 | 03-04 | NO | YES |
| 2004 | 03-04 | NO | YES |

BMP 11 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 12 Coverage: Conservation Coordinator

Reporting Unit:
City of Garden Grove

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

Test for Compliance

| <u>Report Year</u> | <u>Report Period</u> | <u>Conservation Coordinator Position Staffed?</u> | <u>Total Staff on Team (incl. CC)</u> |
|--------------------|----------------------|---|---------------------------------------|
| 1999 | 99-00 | YES | 2 |
| 2000 | 99-00 | YES | 2 |
| 2001 | 01-02 | YES | 2 |
| 2002 | 01-02 | YES | 2 |
| 2003 | 03-04 | YES | 2 |
| 2004 | 03-04 | YES | 2 |

BMP 12 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 13 Coverage: Water Waste Prohibition

Reporting Unit:
City of Garden Grove

Reporting Period:
03-04

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 13.

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.

Test for Condition 1

Agency or service area prohibits:

| <u>Year</u> | <u>Gutter Flooding</u> | <u>Single-Pass Cooling Systems</u> | <u>Single-Pass Car Wash</u> | <u>Single-Pass Laundry</u> | <u>Single-Pass Fountains</u> | <u>Other</u> | <u>RU has ordinance that meets coverage requirement</u> |
|-------------|------------------------|------------------------------------|-----------------------------|----------------------------|------------------------------|--------------|---|
| 1999 | yes | no | yes | no | yes | yes | NO |
| 2000 | yes | no | yes | no | yes | yes | NO |
| 2001 | yes | no | yes | no | yes | yes | NO |
| 2002 | yes | no | yes | no | yes | yes | NO |
| 2003 | yes | no | yes | no | yes | yes | NO |
| 2004 | yes | no | yes | no | yes | yes | NO |

BMP 13 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: **City of Garden Grove**

MOU Exhibit 1 Coverage Requirement

A Reporting Unit (RU) must meet one of the following conditions to be in compliance with BMP 14.

Condition 1: Retrofit-on-resale (ROR) ordinance in effect in service area.

Condition 2: Water savings from toilet replacement programs equal to 90% of Exhibit 6 coverage requirement. An agency with an exemption for BMP 14 is not required to meet one of the above conditions. This report treats an agency with missing base year data required to compute the Exhibit 6 coverage requirement as out of compliance with BMP 14.

Status: Water supplier is meeting coverage requirements for this BMP. as of 2004

| <u>Coverage Year</u> | <u>BMP 14 Data Submitted to CUWCC</u> | <u>Exemption Filed with CUWCC</u> | <u>ROR Ordinance in Effect</u> | <u>Exhibit 6 Coverage Req'mt (AF)</u> | <u>Toilet Replacement Program Water Savings* (AF)</u> |
|----------------------|---------------------------------------|-----------------------------------|--------------------------------|---------------------------------------|---|
| 1998 | Yes | | | | 499.34 |
| 1999 | Yes | No | No | | 712.01 |
| 2000 | Yes | No | No | | 926.86 |
| 2001 | Yes | No | No | | 1206.74 |
| 2002 | Yes | No | No | | 1606.68 |
| 2003 | Yes | No | No | | 2095.59 |
| 2004 | Yes | No | No | | 2643.70 |
| 2005 | No | No | No | | |
| 2006 | No | No | No | | |
| 2007 | No | No | No | | |

*NOTE: Program water savings listed are net of the plumbing code. Savings are cumulative (not annual) between 1991 and the given year. Residential ULFT count data from unsubmitted forms are NOT included in the calculation.

BMP 14 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: City of Garden Grove

BMP 14 Coverage Calculation Detail: Retrofit on Resale (ROR) Ordinance Water Savings

| | Single Family | Multi- Family |
|--|------------------|------------------|
| 1992 Housing Stock | | |
| Average rate of natural replacement (% of remaining stock) | .04 | .04 |
| Average rate of housing demolition (% of remaining stock) | .005 | .005 |
| Estimated Housing Units with 3.5+ gpf Toilets in 1997 | 24076.11 | 12222.11 |
| Average resale rate | | |
| Average persons per unit | | |
| Average toilets per unit | | |
| Average savings per home (gpd; from Exhibit 6) | 41.9 | 47.2 |

Single Family Housing Units

| Coverage Year | Unretrofitted Houses | Houses Sold | Houses Unsold | Sold and Retrofitted | Sold and Already Retrofitted | Unsold and Retrofitted | Gross ROR Savings (AFY) | Nat'l Replacement Only Savings (AFY) | Net ROR Savings (AFY) |
|------------------|-------------------------|----------------|------------------|-------------------------|------------------------------------|------------------------------|----------------------------------|--|-----------------------------|
| 1998 | 23117.88 | | 23955.73 | | | 958.23 | 299.35 | 298.35 | |
| 1999 | 22197.79 | | 23835.95 | | | 920.09 | 342.53 | 342.63 | |
| 2000 | 21314.32 | | 23716.77 | | | 883.47 | 383.99 | 383.99 | |
| 2001 | 20466.01 | | 23598.19 | | | 848.31 | 423.80 | 423.80 | |
| 2002 | 19651.46 | | 23480.20 | | | 814.55 | 462.02 | 462.02 | |
| 2003 | 18869.33 | | 23362.80 | | | 782.13 | 498.72 | 498.72 | |
| 2004 | 18118.33 | | 23245.98 | | | 751.00 | 533.97 | 533.97 | |
| 2005 | 17397.22 | | 23129.75 | | | 721.11 | 567.61 | 567.61 | |
| 2006 | 16704.82 | | 23014.10 | | | 692.41 | 600.30 | 600.30 | |
| 2007 | 16039.96 | | 22899.03 | | | 664.86 | 631.50 | 631.50 | |

Multi Family Housing Units

| Coverage Year | Unretrofitted Houses | Houses Sold | Houses Unsold | Sold and Retrofitted | Sold and Already Retrofitted | Unsold and Retrofitted | Gross ROR Savings (AFY) | Nat'l Replacement Only Savings (AFY) | Net ROR Savings (AFY) |
|------------------|-------------------------|----------------|------------------|-------------------------|------------------------------------|------------------------------|----------------------------------|--|-----------------------------|
| 1998 | 11735.67 | | 12161.00 | | | 486.44 | 171.19 | 171.19 | |
| 1999 | 11268.59 | | 12100.20 | | | 467.08 | 195.88 | 195.88 | |
| 2000 | 10820.10 | | 12039.70 | | | 448.49 | 219.59 | 219.59 | |
| 2001 | 10389.46 | | 11979.60 | | | 430.64 | 242.35 | 242.35 | |
| 2002 | 9975.96 | | 11919.60 | | | 413.50 | 264.21 | 264.21 | |
| 2003 | 9578.92 | | 11860.00 | | | 397.04 | 285.20 | 285.20 | |
| 2004 | 9197.68 | | 11800.70 | | | 381.24 | 305.35 | 305.35 | |
| 2005 | 8831.61 | | 11741.70 | | | 366.07 | 324.70 | 324.70 | |
| 2006 | 8480.11 | | 11682.99 | | | 351.50 | 343.29 | 343.29 | |
| 2007 | 8142.60 | | 11624.58 | | | 337.51 | 361.13 | 361.13 | |

BMP 01 Coverage: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:
City of Garden Grove

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

A Reporting Unit (RU) must meet three conditions to satisfy strict compliance for BMP 1.

Condition 1: Adopt survey targeting and marketing strategy on time

Condition 2: Offer surveys to 20% of SF accounts and 20% of MF units during report period

Condition 3: Be on track to survey 15% of SF accounts and 15% of MF units within 10 years of implementation start date.

Test for Condition 1

| | | | |
|--|------|----------------------|---------------------|
| City of Garden Grove to Implement Targeting/Marketing Program by: | 1999 | | |
| | | <u>Single-Family</u> | <u>Multi-Family</u> |
| Year City of Garden Grove Reported Implementing Targeting/Marketing Program: | 1996 | | |
| City of Garden Grove Met Targeting/Marketing Coverage Requirement: | YES | | NO |

Test for Condition 2

| | | | | | |
|-----------------------------|-------|-------------------------------|--------|--|----|
| Survey Program to Start by: | 1998 | Residential Survey Offers (%) | 81.03% | | |
| Reporting Period: | 01-02 | Survey Offers \geq 20% | YES | | NO |

Test for Condition 3

| | Completed Residential Surveys | |
|--|-------------------------------|---------------------|
| | <u>Single Family</u> | <u>Multi-Family</u> |
| Total Completed Surveys 1999 - 2002: | 1,970 | |
| Past Credit for Surveys Completed Prior to 1999 (Implementation of Reporting Database): | 1,101 | |
| Total + Credit | 3,071 | |
| Residential Accounts in Base Year | 28,659 | 14,974 |
| City of Garden Grove Survey Coverage as % of Base Year Residential Accounts | 10.72% | |
| Coverage Requirement by Year 5 of Implementation per Exhibit 1 | 4.90% | 4.90% |
| City of Garden Grove on Schedule to Meet 10-Year Coverage Requirement | YES | NO |

BMP 1 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 02 Coverage: Residential Plumbing Retrofit

Reporting Unit:
City of Garden Grove

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one of three conditions to satisfy strict compliance for BMP 2.

Condition 1: The agency has demonstrated that 75% of SF accounts and 75% of MF units constructed prior to 1992 are fitted with low-flow showerheads.

Condition 2: An enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts is in place for the agency's service area.

Condition 3: The agency has distributed or directly installed low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family accounts and 10% of multi-family units constructed prior to 1992 during the reporting period.

Test for Condition 1

| Report Year | Report Period | <u>Single-Family</u> | | <u>Multi-Family</u> | |
|-------------|---------------|----------------------------|--------------------------|----------------------------|--------------------------|
| | | <u>Reported Saturation</u> | <u>Saturation ≥ 75%?</u> | <u>Reported Saturation</u> | <u>Saturation ≥ 75%?</u> |
| 1999 | 99-00 | 60.00% | NO | 65.00% | NO |
| 2000 | 99-00 | 60.00% | NO | 65.00% | NO |
| 2001 | 01-02 | 68.00% | NO | 60.00% | NO |
| 2002 | 01-02 | 68.00% | NO | 60.00% | NO |
| 2003 | 03-04 | 91.70% | YES | 79.90% | YES |
| 2004 | 03-04 | 100.00% | YES | 86.60% | YES |

Test for Condition 2

| <u>Report Year</u> | <u>Report Period</u> | <u>City of Garden Grove has ordinance requiring showerhead retrofit?</u> |
|--------------------|----------------------|--|
| 1999 | 99-00 | NO |
| 2000 | 99-00 | NO |
| 2001 | 01-02 | NO |
| 2002 | 01-02 | NO |
| 2003 | 03-04 | NO |
| 2004 | 03-04 | NO |

Test for Condition 3

Reporting Period: 01-02

| <u>1992 SF</u> <u>Accounts</u> | <u>Num. Showerheads Distributed to SF</u> <u>Accounts</u> | <u>Single-Family Coverage</u> <u>Ratio</u> | <u>SF Coverage Ratio ></u> <u>10%</u> |
|-----------------------------------|--|---|---|
| 29,497 | 441 | 1.5% | NO |
| <u>1992 MF</u> <u>Accounts</u> | <u>Num. Showerheads Distributed to MF</u> <u>Accounts</u> | <u>Multi-Family Coverage</u> <u>Ratio</u> | <u>MF Coverage Ratio ></u> <u>10%</u> |
| 14,974 | | | NO |

BMP 2 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 03 Coverage: System Water Audits, Leak Detection and Repair

Reporting Unit:
City of Garden Grove

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one of two conditions to be in compliance with BMP 3:

Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA's Manual of Water Supply Practices, Water Audits, and Leak Detection.

Test for Conditions 1 and 2

| <u>Report Year</u> | <u>Report Period</u> | <u>Pre-Screen Completed</u> | <u>Pre-Screen Result</u> | <u>Full Audit Indicated</u> | <u>Full Audit Completed</u> |
|--------------------|----------------------|-----------------------------|--------------------------|-----------------------------|-----------------------------|
| 1999 | 99-00 | NO | | | NO |
| 2000 | 99-00 | NO | | | NO |
| 2001 | 01-02 | NO | | | NO |
| 2002 | 01-02 | NO | | | NO |
| 2003 | 03-04 | NO | | | NO |
| 2004 | 03-04 | NO | | | NO |

BMP 3 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 04 Coverage: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:
City of Garden Grove

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must be on track to retrofit 100% of its unmetered accounts within 10 years to be in compliance with BMP 4.

Test for Compliance

Total Meter Retrofits Reported through 2002

No. of Unmetered Accounts in Base Year

Meter Retrofit Coverage as % of Base Year Unmetered Accounts

Coverage Requirement by Year 4 of Implementation per Exhibit 1

24.0%

RU on Schedule to meet 10 Year Coverage Requirement

YES

BMP 4 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 05 Coverage: Large Landscape Conservation Programs and Incentives

Reporting Unit:
City of Garden Grove

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet three conditions to comply with BMP 5.

Condition 1: Develop water budgets for 90% of its dedicated landscape meter accounts within four years of the date implementation is to start.

Condition 2: (a) Offer landscape surveys to at least 20% of its CII accounts with mixed use meters each report cycle and be on track to survey at least 15% of its CII accounts with mixed use meters within 10 years of the date implementation is to start OR (b) Implement a dedicated landscape meter retrofit program for CII accounts with mixed use meters or assign landscape budgets to mixed use meters.

Condition 3: Implement and maintain customer incentive program(s) for irrigation equipment retrofits.

Test for Condition 1

| <u>Year</u> | <u>Report Period</u> | <u>BMP 5 Implementation Year</u> | <u>No. of Irrigation Meter Accounts</u> | <u>No. of Irrigation Accounts with Budgets</u> | <u>Budget Coverage Ratio</u> | <u>90% Coverage Met by Year 4</u> |
|-------------|----------------------|----------------------------------|---|--|------------------------------|-----------------------------------|
| 1999 | 99-00 | 1 | 197 | | | NA |
| 2000 | 99-00 | 2 | 197 | | | NA |
| 2001 | 01-02 | 3 | 310 | | | NA |
| 2002 | 01-02 | 4 | 310 | | | No |
| 2003 | 03-04 | 5 | 310 | | | No |
| 2004 | 03-04 | 6 | 310 | | | No |

Test for Condition 2a (survey offers)

| | |
|--|-------|
| Select Reporting Period: | 01-02 |
| Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts | |
| Survey Offers Equal or Exceed 20% Coverage Requirement | NO |

Test for Condition 2a (surveys completed)

| | |
|---|-------|
| Total Completed Landscape Surveys Reported through Credit for Surveys Completed Prior to Implementation of Reporting Database | |
| Total + Credit | |
| CII Accounts in Base Year | 2,654 |
| RU Survey Coverage as a % of Base Year CII Accounts | |
| Coverage Requirement by Year of Implementation per Exhibit 1 | 3.6% |
| RU on Schedule to Meet 10 Year Coverage Requirement | NO |

Test for Condition 2b (mixed use budget or meter retrofit program)

| <u>Report Year</u> | <u>Report Period</u> | <u>BMP 5 Implementation Year</u> | <u>Agency has mix-use budget program</u> | <u>No. of mixed-use budgets</u> |
|--------------------|----------------------|----------------------------------|--|---------------------------------|
| 1999 | 99-00 | 1 | NO | |
| 2000 | 99-00 | 2 | YES | |
| 2001 | 01-02 | 3 | NO | |
| 2002 | 01-02 | 4 | NO | |
| 2003 | 03-04 | 5 | NO | |
| 2004 | 03-04 | 6 | NO | |

| <u>Report Year</u> | <u>Report Period</u> | <u>BMP 4 Implementation Year</u> | <u>No. of mixed use CII accounts</u> | <u>No. of mixed use CII accounts fitted with irrig. meters</u> |
|--------------------|----------------------|----------------------------------|--------------------------------------|--|
| 1999 | 99-00 | 1 | 2,964 | |
| 2000 | 99-00 | 2 | 2,958 | |
| 2001 | 01-02 | 3 | 2,988 | |
| 2002 | 01-02 | 4 | 2,988 | |
| 2003 | 03-04 | 5 | 2,988 | |
| 2004 | 03-04 | 6 | 2,988 | |

Test for Condition 3

| <u>Report Year</u> | <u>Report Period</u> | <u>BMP 5 Implementation Year</u> | <u>RU offers financial incentives?</u> | <u>No. of Loans</u> | <u>Total Amt. Loans</u> |
|--------------------|----------------------|----------------------------------|--|---------------------|-------------------------|
| 1999 | 99-00 | 1 | YES | | |
| 2000 | 99-00 | 2 | YES | | |
| 2001 | 01-02 | 3 | NO | | |
| 2002 | 01-02 | 4 | NO | | |
| 2003 | 03-04 | 5 | NO | | |
| 2004 | 03-04 | 6 | NO | | |

| <u>Report Year</u> | <u>Report Period</u> | <u>No. of Grants</u> | <u>Total Amt. Grants</u> | <u>No. of rebates</u> | <u>Total Amt. Rebates</u> |
|--------------------|----------------------|----------------------|--------------------------|-----------------------|---------------------------|
| 1999 | 99-00 | | | | |
| 2000 | 99-00 | | | | |
| 2001 | 01-02 | | | | |
| 2002 | 01-02 | | | | |
| 2003 | 03-04 | | | | |
| 2004 | 03-04 | | | | |

BMP 5 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 06 Coverage: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
City of Garden Grove

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 6.

Condition 1: Offer a cost-effective financial incentive for high-efficiency washers if one or more energy service providers in service area offer financial incentives for high-efficiency washers.

Test for Condition 1

| <u>Year</u> | <u>Report Period</u> | <u>BMP 6 Implementation Year</u> | <u>Rebate Offered by ESP?</u> | <u>Rebate Offered by RU?</u> | <u>Rebate Amount</u> |
|-------------|----------------------|----------------------------------|-------------------------------|------------------------------|----------------------|
| 1999 | 99-00 | 1 | YES | YES | 110.00 |
| 2000 | 99-00 | 2 | YES | YES | 110.00 |
| 2001 | 01-02 | 3 | YES | NO | |
| 2002 | 01-02 | 4 | YES | YES | 100.00 |
| 2003 | 03-04 | 5 | YES | YES | 100.00 |
| 2004 | 03-04 | 6 | YES | YES | 100.00 |

| <u>Year</u> | <u>Report Period</u> | <u>BMP 6 Implementation Year</u> | <u>No. Rebates Awarded</u> | <u>Coverage Met?</u> |
|-------------|----------------------|----------------------------------|----------------------------|----------------------|
| 1999 | 99-00 | 1 | | YES |
| 2000 | 99-00 | 2 | | YES |
| 2001 | 01-02 | 3 | | NO |
| 2002 | 01-02 | 4 | 39 | YES |
| 2003 | 03-04 | 5 | 173 | YES |
| 2004 | 03-04 | 6 | 278 | YES |

BMP 6 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 07 Coverage: Public Information Programs

Reporting Unit:
City of Garden Grove

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

Test for Condition 1

| <u>Year</u> | <u>Report Period</u> | <u>BMP 7 Implementation Year</u> | <u>RU Has Public Information Program?</u> |
|-------------|----------------------|----------------------------------|---|
| 1999 | 99-00 | 2 | YES |
| 2000 | 99-00 | 3 | YES |
| 2001 | 01-02 | 4 | YES |
| 2002 | 01-02 | 5 | YES |
| 2003 | 03-04 | 6 | YES |
| 2004 | 03-04 | 7 | YES |

BMP 7 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 08 Coverage: School Education Programs

Reporting Unit:
City of Garden Grove

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

Test for Condition 1

| <u>Year</u> | <u>Report Period</u> | <u>BMP 8 Implementation Year</u> | <u>RU Has School Education Program?</u> |
|-------------|----------------------|----------------------------------|---|
| 1999 | 99-00 | 2 | NO |
| 2000 | 99-00 | 3 | YES |
| 2001 | 01-02 | 4 | YES |
| 2002 | 01-02 | 5 | YES |
| 2003 | 03-04 | 6 | YES |
| 2004 | 03-04 | 7 | YES |

BMP 8 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 09 Coverage: Conservation Programs for CII Accounts

Reporting Unit:
City of Garden Grove

Reporting
 Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet three conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.

OR

Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.

OR

Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

Test for Condition 1

| <u>Year</u> | <u>Report Period</u> | <u>BMP 9 Implementation Year</u> | <u>Ranked Com. Use</u> | <u>Ranked Ind. Use</u> | <u>Ranked Inst. Use</u> |
|-------------|--------------------------|--------------------------------------|----------------------------|----------------------------|-------------------------|
| 1999 | 99-00 | 1 | YES | YES | YES |
| 2000 | 99-00 | 2 | YES | YES | YES |
| 2001 | 01-02 | 3 | YES | YES | YES |
| 2002 | 01-02 | 4 | YES | YES | YES |
| 2003 | 03-04 | 5 | YES | YES | YES |
| 2004 | 03-04 | 6 | YES | YES | YES |

Test for Condition 2a

| | Commercial | Industrial | Institutional |
|---|------------|------------|---------------|
| Total Completed Surveys Reported through 2002 | | | |
| Credit for Surveys Completed Prior to Implementation of Reporting Databases | 13 | 2 | 5 |
| Total + Credit | 13 | 2 | 5 |
| CII Accounts in Base Year | 1,836 | 617 | 201 |
| RU Survey Coverage as % of Base Year CII Accounts | 0.7% | 0.3% | 2.5% |
| Coverage Requirement by Year 4 of Implementation per Exhibit 1 | 2.4% | 2.4% | 2.4% |
| RU on Schedule to Meet 10 Year Coverage Requirement | NO | NO | YES |

Test for Condition 2a

| <u>Year</u> | <u>Report Period</u> | <u>BMP 9 Implementation Year</u> | <u>Performance Target Savings (AF/yr)</u> | <u>Performance Target Savings Coverage</u> | <u>Performance Target Savings Coverage Requirement</u> | <u>Coverage Requirement Met</u> |
|-------------|----------------------|----------------------------------|---|--|--|---------------------------------|
| 1999 | 99-00 | 1 | 0 | 0.0% | 0.5% | NO |
| 2000 | 99-00 | 2 | | | 1.0% | NO |
| 2001 | 01-02 | 3 | | | 1.7% | NO |
| 2002 | 01-02 | 4 | | | 2.4% | NO |
| 2003 | 03-04 | 5 | | | 3.3% | NO |
| 2004 | 03-04 | 6 | | | 4.2% | NO |

Test for Condition 2c

| | |
|---|------|
| Total BMP 9 Surveys + Credit | 20 |
| BMP 9 Survey Coverage | 0.8% |
| BMP 9 Performance Target Coverage | |
| BMP 9 Survey + Performance Target Coverage | 0.8% |
| Combined Coverage Equals or Exceeds Coverage Requirement? | NO |

BMP 9 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 11 Coverage: Conservation Pricing

Reporting Unit:
City of Garden Grove

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 11.

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. Implementation methods shall be at least as effective as eliminating non-conserving pricing and adopting conserving pricing. For signatories supplying both water and sewer service, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make good faith efforts to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.

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.

Test for Condition 1

| <u>Year</u> | <u>Report Period</u> | <u>RU Employed Non Conserving Rate Structure</u> | <u>RU Meets BMP 11 Coverage Requirement</u> |
|-------------|----------------------|--|---|
| 1999 | 99-00 | NO | YES |
| 2000 | 99-00 | NO | YES |
| 2001 | 01-02 | NO | YES |
| 2002 | 01-02 | NO | YES |
| 2003 | 03-04 | NO | YES |
| 2004 | 03-04 | NO | YES |

BMP 11 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 12 Coverage: Conservation Coordinator

Reporting Unit:
City of Garden Grove

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

Test for Compliance

| <u>Report Year</u> | <u>Report Period</u> | <u>Conservation Coordinator Position Staffed?</u> | <u>Total Staff on Team (incl. CC)</u> |
|--------------------|----------------------|---|---------------------------------------|
| 1999 | 99-00 | YES | 2 |
| 2000 | 99-00 | YES | 2 |
| 2001 | 01-02 | YES | 2 |
| 2002 | 01-02 | YES | 2 |
| 2003 | 03-04 | YES | 2 |
| 2004 | 03-04 | YES | 2 |

BMP 12 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 13 Coverage: Water Waste Prohibition

Reporting Unit:
City of Garden Grove

Reporting Period:
01-02

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one condition to comply with BMP 13.

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.

Test for Condition 1

Agency or service area prohibits:

| <u>Year</u> | <u>Gutter Flooding</u> | <u>Single-Pass Cooling Systems</u> | <u>Single- Pass Car Wash</u> | <u>Single- Pass Laundry</u> | <u>Single-Pass Fountains</u> | <u>Other</u> | <u>RU has ordinance that meets coverage requirement</u> |
|-------------|----------------------------|--|--------------------------------------|-------------------------------------|----------------------------------|--------------|---|
| 1999 | yes | no | yes | no | yes | yes | NO |
| 2000 | yes | no | yes | no | yes | yes | NO |
| 2001 | yes | no | yes | no | yes | yes | NO |
| 2002 | yes | no | yes | no | yes | yes | NO |
| 2003 | yes | no | yes | no | yes | yes | NO |
| 2004 | yes | no | yes | no | yes | yes | NO |

BMP 13 COVERAGE STATUS SUMMARY:

Water supplier has not met one or more coverage requirements for this BMP.

BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: **City of Garden Grove**

MOU Exhibit 1 Coverage Requirement

A Reporting Unit (RU) must meet one of the following conditions to be in compliance with BMP 14.

Condition 1: Retrofit-on-resale (ROR) ordinance in effect in service area.

Condition 2: Water savings from toilet replacement programs equal to 90% of Exhibit 6 coverage requirement. An agency with an exemption for BMP 14 is not required to meet one of the above conditions. This report treats an agency with missing base year data required to compute the Exhibit 6 coverage requirement as out of compliance with BMP 14.

Status: Water supplier is meeting coverage requirements for this BMP. as of 2004

| <u>Coverage Year</u> | <u>BMP 14 Data Submitted to CUWCC</u> | <u>Exemption Filed with CUWCC</u> | <u>ROR Ordinance in Effect</u> | <u>Exhibit 6 Coverage Req'mt (AF)</u> | <u>Toilet Replacement Program Water Savings* (AF)</u> |
|----------------------|---------------------------------------|-----------------------------------|--------------------------------|---------------------------------------|---|
| 1998 | Yes | | | | 499.34 |
| 1999 | Yes | No | No | | 712.01 |
| 2000 | Yes | No | No | | 926.86 |
| 2001 | Yes | No | No | | 1206.74 |
| 2002 | Yes | No | No | | 1606.68 |
| 2003 | Yes | No | No | | 2095.59 |
| 2004 | Yes | No | No | | 2643.70 |
| 2005 | No | No | No | | |
| 2006 | No | No | No | | |
| 2007 | No | No | No | | |

*NOTE: Program water savings listed are net of the plumbing code. Savings are cumulative (not annual) between 1991 and the given year. Residential ULFT count data from unsubmitted forms are NOT included in the calculation.

BMP 14 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.

BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: City of Garden Grove

BMP 14 Coverage Calculation Detail: Retrofit on Resale (ROR) Ordinance Water Savings

| | Single Family | Multi- Family |
|--|------------------|------------------|
| 1992 Housing Stock | | |
| Average rate of natural replacement (% of remaining stock) | .04 | .04 |
| Average rate of housing demolition (% of remaining stock) | .005 | .005 |
| Estimated Housing Units with 3.5+ gpf Toilets in 1997 | 24076.11 | 12222.11 |
| Average resale rate | | |
| Average persons per unit | | |
| Average toilets per unit | | |
| Average savings per home (gpd; from Exhibit 6) | 41.9 | 47.2 |

Single Family Housing Units

| Coverage Year | Unretrofitted Houses | Houses Sold | Houses Unsold | Sold and Retrofitted | Sold and Already Retrofitted | Unsold and Retrofitted | Gross ROR Savings (AFY) | Nat'l Replacement Only Savings (AFY) | Net ROR Savings (AFY) |
|------------------|-------------------------|----------------|------------------|-------------------------|------------------------------------|------------------------------|----------------------------------|--|-----------------------------|
| 1998 | 23117.88 | | 23955.73 | | | 958.23 | 299.35 | 298.35 | |
| 1999 | 22197.79 | | 23835.95 | | | 920.09 | 342.53 | 342.63 | |
| 2000 | 21314.32 | | 23716.77 | | | 883.47 | 383.99 | 383.99 | |
| 2001 | 20466.01 | | 23598.19 | | | 848.31 | 423.80 | 423.80 | |
| 2002 | 19651.46 | | 23480.20 | | | 814.55 | 462.02 | 462.02 | |
| 2003 | 18869.33 | | 23362.80 | | | 782.13 | 498.72 | 498.72 | |
| 2004 | 18118.33 | | 23245.98 | | | 751.00 | 533.97 | 533.97 | |
| 2005 | 17397.22 | | 23129.75 | | | 721.11 | 567.61 | 567.61 | |
| 2006 | 16704.82 | | 23014.10 | | | 692.41 | 600.30 | 600.30 | |
| 2007 | 16039.96 | | 22899.03 | | | 664.86 | 631.50 | 631.50 | |

Multi Family Housing Units

| Coverage Year | Unretrofitted Houses | Houses Sold | Houses Unsold | Sold and Retrofitted | Sold and Already Retrofitted | Unsold and Retrofitted | Gross ROR Savings (AFY) | Nat'l Replacement Only Savings (AFY) | Net ROR Savings (AFY) |
|------------------|-------------------------|----------------|------------------|-------------------------|------------------------------------|------------------------------|----------------------------------|--|-----------------------------|
| 1998 | 11735.67 | | 12161.00 | | | 486.44 | 171.19 | 171.19 | |
| 1999 | 11268.59 | | 12100.20 | | | 467.08 | 195.88 | 195.88 | |
| 2000 | 10820.10 | | 12039.70 | | | 448.49 | 219.59 | 219.59 | |
| 2001 | 10389.46 | | 11979.60 | | | 430.64 | 242.35 | 242.35 | |
| 2002 | 9975.96 | | 11919.60 | | | 413.50 | 264.21 | 264.21 | |
| 2003 | 9578.92 | | 11860.00 | | | 397.04 | 285.20 | 285.20 | |
| 2004 | 9197.68 | | 11800.70 | | | 381.24 | 305.35 | 305.35 | |
| 2005 | 8831.61 | | 11741.70 | | | 366.07 | 324.70 | 324.70 | |
| 2006 | 8480.11 | | 11682.99 | | | 351.50 | 343.29 | 343.29 | |
| 2007 | 8142.60 | | 11624.58 | | | 337.51 | 361.13 | 361.13 | |

APPENDIX F

WATER CONSERVATION PROGRAM (ORDINANCE NO. 2172 – CHAPTER 14.40 OF THE MUNICIPAL WATER CODE AND RESOLUTION NO. 7438-92 ADOPTING THE WATER SHORTAGE CONTINGENCY PLAN)

ORDINANCE NO. 2172

Chapter 14.40

WATER CONSERVATION PROGRAM

- 14.40.010 Application.
- 14.40.020 Authorization.
- 14.40.030 Mandatory conservation phase implementation.
- 14.40.031 Procedure for declaring the implementation and/or termination of various water conservation stages.
- 14.40.032 Announcement of a water stage declaration.
- 14.40.040 Water conservation stages.
- 14.40.041 Stage 1 -- Voluntary conservation -- Water watch.
- 14.40.042 Stage 2 -- Mandatory conservation -- Water alert.
- 14.40.043 Stage 3 --- Mandatory conservation -- Water warning.
- 14.40.044 Stage 4 -- Mandatory conservation -- Water emergency.
- 14.40.050 Notice of Violation.
- 14.40.060 Failure to comply.
- 14.40.070 Appeal procedure.
- 14.40.080 Violations.
- 14.40.090 Alternative actions.

14.40.010 Application. The provisions of this chapter shall apply to all persons, customers, and property served by city water services. (Ord. 2172 § 1 (part), 1991).

14.40.020 Authorization. The city manager or a designated representative is authorized and directed to implement the provisions of this chapter. (Ord. 2172 § 1 (part), 1991).

14.40.030 Mandatory conservation phase implementation. The city shall monitor the projected supply and demand for water by its customers on a daily basis. The city manager, with the assistance of the public services director, shall determine the extent of the conservation required through the implementation and/or termination of particular water conservation stages in order for the city to prudently plan for and supply water to its customers. (Ord. 2172 § 1 (part), 1991).

14.40.031 Procedure for declaring the implementation and/or termination of various water conservation stages. Based upon the daily monitoring of projected water supply and demand, the city manager shall recommend the declaration of an appropriate stage of water conservation in accordance with the provisions of this section. A recommendation for implementation of any stage beyond Stage 1 (voluntary compliance -- water watch) shall be reported to the city council at its next regular meeting. The city council shall thereupon ratify the declaration, rescind the declaration, or direct the declaration of a different stage. The stage declared and associated regulations shall

become effective immediately upon announcement. (Ord. 2172 § 1 (part), 1991).

14.40.032 Announcement of a water stage declaration. The declaration of any water conservation stage beyond Stage 1 shall be made by public announcement or notice. Such announcement or notices shall be published a minimum of three consecutive times in a newspaper of general circulation. (Ord. 2172 § 1 (part), 1991).

14.40.040 Water conservation stages. No customer of the city shall knowingly make, cause, use, or permit the use of water supplied by the city for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner in excess of the amounts authorized by this chapter, or during any period of time other than the periods of time specified in this chapter. At no time shall water be wasted or used unreasonably. The following stages set forth in this chapter shall take effect upon declaration as herein provided. (Ord. 2172 § 1 (part) 1991).

14.40.041 Stage 1 -- Voluntary conservation -- Water watch. Stage 1 applies during times of regional drought when, in the spirit of cooperation, the city desires to assist in overall water conservation and water consumption reduction. During Stage 1, the following water conservation measures shall apply on a voluntary basis:

- (a) Lawn watering and landscape irrigation should be limited to once every other day, unless a hand-held hose equipped with a positive shut-off nozzle, a hand-held bucket, or a drip irrigation system is used. It also is suggested that watering be done between the hours of six p.m. and ten a.m. the following morning, to minimize usage during peak hours.
- (b) The washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment should be limited to once every other day unless done at a commercial car wash.
- (c) The filling or refilling of swimming pools, spas, ponds, and artificial lakes should be limited to once every other day.
- (d) Watering of golf courses, parks, schools, grounds, and recreational fields is recommended between the hours of four p.m. and ten a.m. the following morning, to minimize usage during peak hours.
- (e) Water should 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.
- (f) Restaurants should avoid serving water to their customers unless the customers specifically request it.
- (g) It is recommended that ornamental fountains or similar structures not be operated.

- (h) The use of water from fire hydrants should be limited to fire fighting, system testing and related activities, for construction activities, or for other activities necessary to maintain the public health, safety, and welfare. (Ord. 2172 § 1 (part), 1991).

14.40.042 Stage 2 -- Mandatory conservation -- Water alert. Stage 2 applies during periods when the probability exists that the city will not be able to meet all of the water demands of its customers. During Stage 2, the following water conservation measures shall apply on a mandatory basis, except when reclaimed or recycled water is used.

- (a) Lawn watering and landscape irrigation, including construction meter irrigation, is permitted only on designated irrigation days between the hours of six p.m. and ten a.m. the following morning. For purposes of Stage 2 regulations, 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 even numbered days, and properties with addresses ending in an odd number may use water on odd numbered days.

EXCEPTION: Watering is permitted at any time on any day if a hand-held hose equipped with a positive shut-off nozzle, a hand-held faucet-filled bucket of five gallons or less, or a drip irrigation system is used.

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

- (c) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is permitted only on designated irrigation days between the hours of six p.m. and six a.m. the following morning. 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.

EXCEPTIONS: Washing is permitted at any time on the immediate premises of a commercial car wash. Washing also is permitted without the above restrictions where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning, such as with refuse trucks and vehicles used to transport food and perishables.

- (d) Filling or refilling of swimming pools, spas, ponds, and artificial lakes is permitted only on designated irrigation days between the hours of six p.m. and six a.m. the following morning.

- (e) Watering of golf course, parks, schools, grounds, and recreational fields is permitted only between the hours of four p.m. and ten a.m. the following morning.

EXCEPTION: Golf course greens may be watered at any time.

- (f) The use of water from fire hydrants shall be limited to fire fighting, system testing, and related activities, for construction activities, or for other activities necessary to maintain the public health, safety, and welfare.
- (g) Water shall not be used to wash down sidewalks, driveways, parking area, tennis courts, patios, or other paved areas, except to alleviate immediate fire or sanitation hazards.
- (h) Restaurants shall not serve water to their customers except when specifically requested.
- (i) The operation of any ornamental fountain or similar structure is prohibited. (Ord. 2172 § 1 (part), 1991).

14.40.043 Stage 3 --- Mandatory conservation -- Water warning. Stage 3 applies during periods when the city will not be able to meet all of the water demands of its customers. During Stage 3, the following water conservation measures shall apply except when reclaimed water is used:

- (a) Lawn watering and landscape irrigation, including construction meter irrigation, is permitted only on designated irrigation days and only between the hours of six p.m. and six a.m. the following morning. For purposes of Stage 3 regulations, the "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 Tuesdays and Saturdays. Properties with addresses ending in an odd number may use water on Wednesdays and Sundays.
- (b) Agricultural users and commercial nurseries shall use water only between the hours of six p.m. and six a.m. the following morning. The watering of livestock and the irrigation of propagation beds are permitted at any time.
- (c) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited.

EXCEPTION: Washing is permitted at any time on the immediate premises of a commercial car wash. Washing also is permitted where the public health, safety, and welfare is contingent upon frequent vehicle cleaning, such as with refuse trucks and vehicles used to transport food and perishables.

- (d) The use of water by all types of commercial car washes not using partially reclaimed or recycled water shall be reduced in volume by twenty percent.
- (e) Filling or refilling of swimming pools, spas, ponds, and artificial lakes is permitted only on designated irrigation days between the hours of ten p.m. and six a.m. the following morning.
- (f) The use of water softening devices is prohibited.

- (g) Watering golf courses, parks, school grounds and recreational fields is permitted only between the hours of six p.m. and six a.m. the following morning.

EXCEPTION: Golf course greens may be watered at any time.

- (h) The use of water from fire hydrants shall be limited to fire fighting, system testing, and related activities, or to other activities necessary to maintain the public health, safety, and welfare.
- (i) 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.
- (j) Restaurants shall not serve water to their customers except when specifically requested.
- (k) The operation of any ornamental fountain or similar structure is prohibited.
- (l) All water leaks shall be repaired immediately.
- (m) New construction meters or permits for un-metered services will not be issued. Construction water shall not be used for earth work or road construction purposes.
- (n) The prohibited uses of water as described above are not applicable to that use of water necessary for public health, safety, and welfare or for essential governmental services such as police, fire, and other similar emergency services. (Ord. 2172 § 1 (part), 1991).

14.40.044 Stage 4 -- Mandatory conservation -- Water emergency. Stage 4 applies during periods of severe drought and/or 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, the Metropolitan Water District, the Municipal Water District of Orange County, or city facilities. During Stage 4, the following water conservation measures shall apply, except when reclaimed or recycled water is used:

- (a) All outdoor irrigation of vegetation is prohibited.
- (b) The use of water for agricultural or commercial nursery purposes, except for livestock watering, is prohibited.
- (c) Washing of autos, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited.

EXCEPTION: Such washings are exempted from the above regulation where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning, such as with refuse trucks and vehicles used to transport food and perishables.

- (d) The filling, refilling or adding of water to swimming pools, spas, ponds, and artificial lakes is prohibited.
- (e) The use of water-softening devices is prohibited.
- (f) Watering of all golf course areas is prohibited. Watering of parks, school grounds, and recreation fields is prohibited, with the exception of plant materials classified as being rare, exceptionally valuable, or essential to the well being of rare or endangered animals.
- (g) The use of water from fire hydrants shall be limited to fire fighting, system testing, or related activities necessary to maintain the public health, safety, and welfare.
- (h) 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.
- (i) Restaurants shall not serve water to their customers except when specifically requested.
- (j) The operation of any ornamental fountain or similar structure is prohibited.
- (k) New construction meters or permits for unmetered service will not be issued. Construction water shall not be used for earth work or road construction purposes.
- (l) The use of water for commercial, manufacturing, or processing purposes shall be reduced in volume by fifty (50) percent.
- (m) No water shall be used for air conditioning purposes.
- (n) All water leaks shall be repaired immediately.
- (o) The prohibited uses of water as described above are not applicable to that use of water necessary for public health, safety and welfare, or for essential governmental services such as police, fire, and other similar emergency services. (Ord. 2172 § 1 (part), 1991).

14.40.050 Notice of Violation. Except as otherwise provided in Section 14.40.090, prior to enforcement, any person who is suspected of violating this chapter shall be given a written notice containing the description of the violation. This person then shall have twenty-four hours to correct the violation. (Ord. 2172 § 1 (part), 1991).

14.40.060 Failure to comply. Except as otherwise provided in Section 14.40.090, for the first failure to comply, the city may immediately install a flow restricting device in the customer's water service line for a period not less than forty-eight hours and until the customer satisfies the city that failure to comply will not continue. The customer shall pay fifty dollars for installing and removing the flow restricting device prior to the removal of the device. Except as otherwise provided in Section

14.40.090, for the second or subsequent failure to comply with this chapter, the city may discontinue water service for a period of not less than twenty-four hours and until the customer satisfies the city that failure to comply will not continue. The customer shall pay one hundred fifty dollars for restoration of water service, prior to the restoration of water service. (Ord. 2172 § 1 (part), 1991).

14.40.070 Appeal procedure. Except as otherwise provided in Section 14.40.090, a customer shall have the right to appeal by filing a written request for appeal within five days with the city manager or its designee. Within ten days after receipt of a request, a written decision shall be issued. The decision of the city manager or its designee shall be final. (Ord. 2172 § 1 (part), 1991).

14.40.080 Violations. Any person violating any provision of this chapter or failing to comply with any of the mandatory requirements of this chapter, is guilty of a misdemeanor, regardless of whether a flow restricting device is installed. If, after any order of the city made pursuant to this chapter has become final, the person to whom such order is directed shall fail, neglect, or refuse to obey the order, the person shall also be guilty of a misdemeanor. Violation of any city order shall constitute an offense separate from each and every other violation of this chapter. Any person violating any provision of this chapter or any city order, shall be guilty of a separate offense for each and every day during any portion of which any violation of this chapter is committed, continued or permitted by any person. (Ord. 2172 § 1 (part), 1991).

14.40.090 Alternative actions. Nothing in the foregoing sections shall be construed to prevent the filing of a criminal action, or a civil court action or to enjoin any violations, pursuant to applicable law, if deemed legally appropriate by the city attorney. (Ord. 2172 § 1 (part), 1991).

RESOLUTION NO. 7438-92

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF GARDEN GROVE ADOPTING THE WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, California Water Code Section 375 et seq. enables public entities which supply water at retail to adopt and enforce a water shortage contingency plan to reduce the quantity of water used by their customers and to conserve the water supplies of the public entity;

WHEREAS, periodic droughts are a historic fact in the State of California;

WHEREAS, California is entering a fifth consecutive year of below normal precipitation;

WHEREAS, a water shortage could exist based upon the occurrence of one or more of the following conditions;

- (a) A general water shortage due to limited supplies or increased demand,
- (b) Distribution or storage facilities of the Metropolitan Water District of Southern California, the City of Garden Grove, or other agencies' become inadequate,
- (c) A major failure of the supply, storage, and distribution facilities of the Metropolitan Water District of Southern California, the Municipal Water District of Orange County, or the City of Garden Grove occurs; and

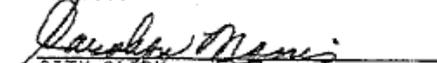
WHEREAS, because of conditions prevailing in the City of Garden Grove, the general welfare requires that the water resources available to the City be put to maximum beneficial use to the extent capable, that the waste, unreasonable use, or unreasonable method of use of water be prevented and that the conservation of water be encouraged with a view to the maximum reasonable and beneficial use thereof in the interests of the people of the City of Garden Grove and the public health, safety, and welfare.

NOW, THEREFORE, BE IT RESOLVED: the City of Garden Grove hereby approves the Water Shortage Contingency Plan.

ADOPTED this 18th day of February, 1992.


MAYOR

ATTEST:


CITY CLERK

Res. No. 7438-92

Resolution No. 7438-92
Page 2

STATE OF CALIFORNIA)
COUNTY OF ORANGE) SS:
CITY OF GARDEN GROVE)

I, CAROLYN MORRIS, City Clerk of the City of Garden Grove, do hereby certify that the foregoing Resolution was duly adopted by the Council of the City of Garden Grove, California, at a regular meeting thereof held on the 18th day of February, 1992, by the following vote:

AYES: COUNCILMEMBERS: (4) KESSLER, LEYES, WILLIAMS, DONOVAN
NOES: COUNCILMEMBERS: (1) DINSEN
ABSENT: COUNCILMEMBERS: (0) NONE


CITY CLERK

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APPENDIX G

DRAFT WATER SHORTAGE STAGE RESOLUTION



~~DRAFT~~

RESOLUTION NO. _____

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF
GARDEN GROVE ADOPTING WATER SHORTAGE STAGE
_____ OF THE WATER SHORTAGE CONTINGENCY PLAN
PURSUANT TO ORDINANCE NO. 2172**

WHEREAS, the Municipal Water District of Orange County has implemented a mandatory reduction program for its member agencies, including the City of Garden Grove; and

WHEREAS, the City Council has Chapter 14.40 as part of its Municipal Code, implemented upon adoption of Ordinance No, 2172, to regulate water use and implement water conservation, which provide that the City Council may, upon finding that a water shortage exists, order implementation of a plan which it deems appropriate to address such water shortage and shall establish a schedule of penalties to be assessed for violation of that plan.

NOW THEREFORE, BE IT HEREBY RESOLVED that, for the reasons hereinabove set forth, the City Council hereby finds and determines that a Water Shortage exists in the City of Garden Grove.

1. The City Council hereby orders implementation of the Water Shortage Contingency Plan, Stage _____, as set forth in Chapter 14.40 of the Garden Grove Municipal Code.
2. The following penalties shall be assessed for violation of any of the City's Water Conservation Program in the implemented stage, including waste of water and excessive use, as set forth in Chapter 14.40 of the City's Municipal Code, as follows:
 - a) *First Violation.* City may immediately install a flow restrictor device for at least 48 hours until compliance, and impose a fee not exceeding fifty dollars paid by the customer.
 - b) *Second and Subsequent Violations.* The City may discontinue water service for at least 24 hours until compliance, and impose a fee of one hundred fifty dollars prior to restoration of service.

PASSED AND ADOPTED by the City Council of the City of Garden Grove at a regular meeting held on the ___ day of _____, 200__.

MAYOR OF THE CITY OF GARDEN GROVE

ATTEST:

CITY CLERK OF THE CITY OF GARDEN GROVE

City of Garden Grove

13802 Newhope Street, Garden Grove, CA 92843
(714) 741-5395

